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INTERNATIONAL CONGRESS ON BIOLOGICAL AND HEALTH SCIENCES ABSTRACT BOOK

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Editor

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Editor's Note

The first 'International Congress on Biological and Health Sciences' was organized online and free of charge. We are very happy and proud that various health science-related fields attended the congress. By this event, the distinguished and respected scientists came together to exchange ideas, develop and implement new researches and joint projects.

There were 15 invited speakers from 10 different countries and also approximately 400 submissions were accepted from more than 20 countries. We would like to thank all participants and supporters. Hope to see you at our next congress.

Best wishes from Turkey

Assoc. Prof. Dr. Ulaş ACARÖZ

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ORAL PRESENTATIONS



Oral presentation

A Marine Antibiotic Restores Colistin Sensitivity in Multi-Drug Resistant Gram-Negative Bacteria

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Abstract:

The scarcity of new drugs and the overuse of antibiotics lead to serious antibiotic resistance crisis, especially for multidrug-resistant (MDR) Gram-negative bacteria. The emergence of a plasmid-borne mobile colistin resistance (*mcr*) gene has exacerbated this situation. Encouragingly, equisetin, a marine antibiotic with broad antibacterial activities against various species of MDR Gram-positive pathogens yet lack of activities for Gram-negative pathogens, can restore colistin sensitivity in diverse colistin-resistant Gram-negative pathogens. In this study, we investigated the antimicrobial activity of colistin in combination with equisetin and explored the mechanisms of drug synergy. We tested the synergistic antibacterial effect of colistin in combination with equisetin on 23 clinical *mcr-1* positive resistant isolates at different concentration levels by checkerboard assays, and we found that 4 $\mu\text{g}/\text{mL}$ equisetin with 1 $\mu\text{g}/\text{mL}$ of colistin showed 100% antibacterial effect. Consistently, equisetin restores colistin sensitivity in ten species of *mcr-1* positive Gram-negative bacteria. In time-kill assays, the combination of colistin 1 $\mu\text{g}/\text{mL}$ plus equisetin 4 $\mu\text{g}/\text{mL}$ quickly killed 99.9% of bacteria in one hour. Using liquid chromatography-tandem mass spectrometry (LC-MS/MS) methods, we found that colistin promoted intracellular accumulation of equisetin in colistin-resistant *E. coli*. In addition, in the presence of colistin, equisetin can boost large amounts of ROS in *E. coli*. These findings suggested that colistin destroyed the barrier of Gram-negative bacteria, facilitating equisetin to enter the cell and exert antibacterial effect. Lastly, equisetin also restores the activity of colistin in *G. mellonella* larvae infection model. Collectively, these results revealed that equisetin can potentiate colistin activity against MDR resistant Gram-negative bacteria including colistin-resistant strains, which provided us a promising approach to resolve antibiotic resistance crisis.

Keywords: equisetin, colistin, MDR Gram-negative bacteria, antibiotic resistance.

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Oral presentation

Emerging Risks of *Enterococci* in Commercial Probiotics

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Abstract: Probiotics receive the reputation by providing many benefits vital for health and acting as alternatives for antibiotics, but their harmful effects gain increasingly attention recently. *Enterococci*, one of the main genera of lactic acid bacteria (LAB) and natural colonizers of the gastrointestinal tract in most humans and animals, have been used for over a hundred years as food starter cultures. In recent decades, enterococci have been widely used in probiotic products. However, they are also recognized as serious hospital acquired pathogens that exhibit multi-drug resistance and numerous virulence traits. There is no systematic safety assessment of commercial enterococci. Thus, the aim of this study is to evaluate the safety of enterococci isolated from probiotic products, intended for the usage in human, companion animal, livestock and aquaculture. Through phenotypical characterization and bioinformatics analysis, we found that representative enterococcal isolates survived steadily in simulated gastrointestinal juices, but they may not have antibacterial capacity, consistent with the genomic analysis that none of 88 isolates had known clusters of antimicrobial secondary metabolites. These 88 isolates harbored multiple antimicrobial resistance genes, mobile genetic elements and virulence genes. We also found that these isolates had phenotypes of antimicrobial resistance based on MIC tests. Additionally, representative isolates had toxic effects in both *in vitro* and *in vivo* models. Therefore, the safety of these enterococci used as commercial probiotics is not guaranteed, which may exert harmful influence on the host and even bring a potential risk to public health.

Keywords: probiotic, enterococci, toxicity, antimicrobial resistance

National Key Research and Development Program of China (2017YFC1600305), Beijing Municipal Science & Technology Commission Project (Z201100008920001).



Iron Fortification of Pasteurized Milk[#]

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Abstract:

Iron deficiency is one of the most important problems in human nutrition worldwide. Although it has many different reasons, it is mainly related to low iron availability in food products. Iron fortification of milk and dairy products is considered as a potential approach to cure iron deficiency and ensure daily intake for a long time. However, results of the chemical, microbiological, organoleptic changes in dairy products after fortification are still conflicting. All of these changes depend on different factors, such as the type of iron, the chemistry of iron after processing or storage, the other components in the product that can affect the absorption of iron and the physiological state. The aim of the study was to evaluate the effect of different pasteurization parameters on iron and difference between the methods of application prepared by using two different iron compounds, and also determine the chemical, microbiological and organoleptic changes in fortified pasteurized milk. For this purpose, 8 different experimental groups and control groups with no fortification were formed. Ferric pyrophosphate and ethylenediaminetetraacetic acid iron (III) sodium salt hydrate (Na-Fe-EDTA) was added into homogenized milk at 20 mg/l levels before and after two different pasteurization parameters (72°C 20 s and 80°C 5 min) to observe the effect of temperature on iron. From each group, 3 bottles were analyzed for chemical and microbiological parameters at the days of 0, 3 and 5. The iron levels were detected by ICP-MS and organoleptic analyses were done by trained and consumer panels on the same days. The obtained results, according to the type of the iron, pasteurization parameter and the application method, showed that, there were no significant differences between groups. High or low pasteurization methods have no effect on the levels of different irons in milk. Also, chemical, microbiological and sensory attributes of all applications were not significantly different from control groups. It can be concluded that the iron fortification in pasteurized milk does not affect its sensory and physical characteristics. However, the study should also be evaluated in terms of bioavailability, and these promising results should be supported by the nutritional studies.

Keywords: Fortification, iron, pasteurized milk, iron deficiency anemia.

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Comparison of Single and Multi-species Biofilms Formation Capacities of Major *Enterococcus* and *Salmonella* species in Turkey

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Abstract:

Biofilms formed by pathogen microorganisms play an important role in food contamination. Salmonellosis remains one of the most frequent foodborne zoonosis and the increasing numbers of *S. Kentucky* and *S. Infantis* infections due to poultry meat are becoming more common. Besides, enterococcal infections can cause gastrointestinal and urinary system damage and even endocarditis in susceptible hosts. Mixed type biofilms are the types of biofilms found predominantly in nature and they behave differently than in a single type of biofilms. The aim of this study was to experimentally demonstrate the synergistic and antagonistic effects of single- and multi-species biofilms of *E. faecium*, *E. faecalis*, *S. Infantis* and *S. Kentucky*, since both of these microorganisms are associated with poultry intestinal microbiota. *S. Infantis*, *S. Kentucky*, *E. faecalis* and *E. faecium* isolated from chicken meats and slaughterhouses were used in the study. To establish mono- and mixed-species biofilm model, the volume of bacterial strains used as follows: i) for mono-strain 200 µl, ii) for dual-strains 100 + 100 µl each, iii) for triple-strains 66 µl each, and iv) for quartet-strains 50 µl of the relevant dilutions were added to the wells of 96-well polystyrene microtiter plate. After the incubation at room temperature (~ 22°C) for 48 h, the biomass stained with Cristal violet (0.5%) and optical density was measured at 590 nm using a microplate reader. According to the results, *S. Infantis* was significantly found to be the most biofilm producing strain. *E. faecium* and *S. Kentucky* were classified as weak biofilm producers, and *E. faecalis* was determined as non-biofilm producer ($p < 0.05$). On the other hand, *E. faecium* and *S. Kentucky* showed synergistic effect when co-incubated. However, *S. Infantis* and *S. Kentucky* exhibited an antagonistic effect when incubated together. This study firstly elucidated the interactive behavior in development of *Salmonella* and *Enterococcus* biofilms. Since foodborne pathogens are able to compete, cooperate, and interact with each other, the findings of the study could help in future targeted studies in combating biofilms at food processing environments.

Keywords: *Enterococcus*, *Salmonella*, multi-species, biofilm

Oral presentation

Potential of Natural Deep Eutectic Solvents (NADES) as Third Green Generation Solvents for Extraction of Polyphenols from *Sambucus ebulus* L.

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Abstract:

Obtaining plant extracts in a smart, green and sustainable way are the basic requirements for exploiting the potential of medicinal plants. Recognizable harmful effects of organic solvents on the environmental and human health limit their utilization. On the other hand, green solvents, which use is absolutely justified from the green chemistry point of view, are becoming increasingly important. In addition, the use of such solvents is desirable, bearing in mind that one of the main goals in the extraction of medicinal herbs is to obtain a completely health and safe product. Natural deep eutectic solvents (NADES) became the most actively investigated as potential green solvents, especially in the field associated with food, flavors, fragrances, and medicinal plants processing. NADES are a subgroup of eutectic solvents consisting only of natural, edible, nontoxic and biodegradable compounds. More precisely, sugars, fatty acids, organic salts, amino acids, terpenes, alcohols and other generally recognized as a safe-(GRAS) compounds can be mixed in the adequate proportions to design multifunctional solvents with tailored properties for specific applications. In the frame of this work different NADES solvents were prepared in order to obtain polyphenolic-rich *Sambucus ebulus* extract. NADES was prepared by mixing 1) glucose and citric acid (1:1); 2) sucrose and citric acid (1:1) and 3) citric acid, betaine and water (1:1:1). Extractions were performed at room temperature during 24h with constant stirring. Obtained extracts were diluted in distilled water and then analyzed using spectrophotometrically method. In the same time extraction was performed with ethanol in order to compare the efficiency of the solvents. Obtained results showed that all extracts made with NADES were richer in polyphenolic content than extracts obtained by official method using ethanol as a solvent.

Keywords: NADES solvent, *Sambucus ebulus* L., polyphenols, green solvents.

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Comparison of AGID, ELISA and Real-Time PCR in Identification of Meat Species[#]

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Abstract:

Adulteration in meat products has become a very common issue worldwide and has been frequently seen in both developed and developing countries. The continuous growth in population and the increase in the costs of food production can be count as the main reasons for food manufacturers to resort to adultery. Adding cheap meat types into meat products provides unfair economic gain to the producers, while causing health problems, inducing allergic reactions in people who are sensitive to some meat types, and deceiving people who do not consume some meat species due to religious beliefs. Therefore, identification of meat species used in the production of meat products is of great importance in terms of both food safety and consumer rights. In this study, it was aimed to compare agar gel immunodiffusion (AGID), enzyme-linked immunosorbent assay (ELISA) and real-time PCR in order to determine which method is the most effective in identification of meat species. Meat samples belonged to twelve different animal species were used (beef, sheep, goat, roe deer, camel, chicken, turkey, rabbit, horse, donkey, pork, and common carp) in order to analyze the specificity and sensitivity of each method. According to the results, it was seen that AGID could detect meat species in the meat mixtures up to 5%, ELISA detected up to 1%, and real-time PCR to up to 0.1%. The real-time PCR method was found more sensitive, reliable and less expensive than ELISA. However, it was concluded that this low sensitivity may be a problem in distinguishing adulteration and contamination of unlabeled species in meat products. Also, in spite of the easiness in practice and less expensiveness in AGID, cross-reactions between chicken-turkey, beef-sheep-goat-deer, and horse-donkey found as the restrictions of the method.

Keywords: AGID, ELISA, real-time PCR, meat species identification, adulteration

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Oral presentation

**Effect of *Rheum ribes* L. Juice on the Survival of *Listeria monocytogenes*,
Escherichia coli O157:H7 and *Salmonella typhimurium* on Vacuum Packaged
Raw Beef**

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Abstract:

Rheum ribes L. is the only *Rheum* species growing in Eastern region of Turkey. It has been showed that the this plant contain various substances to have an antimicrobial effect against various microorganisms, while there is no literature to test the antimicrobial effect in food matrices. Therefore, the aim of this study was to evaluate of this plant's juice as a marinade on the survival of *L. monocytogenes*, *E. coli* O157:H7, and *S. Typhimurium* in vacuum packaged raw beef. For this purpose, meat samples (*Musculus longissimus dorsi*) were cut into small pieces (50±5 gr) with a sterile lancet. Then, 500 µl diluted bacterial inoculum cocktail spreaded onto the meat samples by using cell spreader. Samples were randomly selected and divided into ten groups were as follows: control (without any treatment), three different concentrations (10%, %50 %100) of the *Rheum ribes* juice and three different marination time (2, 6 and 24 hours). After the marination treatments, all samples were vacuum packaged and stored at 4 °C. Analyses were performed between 0 and 15th days at 3 day intervals. Total viable count (TVC), psychrotrophic bacteria, mesophilic lactic acid bacteria (LAB), sulfate-reducing bacteria (anaerobic), *E. coli* O157:H7, *L. monocytogenes* and *S. Typhimurium* counts were determined in the samples. Also, *Rheum ribes* juices and the meat samples pH values and water activity (aw) were determined. In the current study, *E. coli* O157:H7 and *S. Typhimurium* counts in the marinated groups at 100% concentration 24 h were found as 1.1. and 1.7 log₁₀ lower than the control groups on day 0, respectively (P<0.05). *L. monocytogenes* counts remained stable in the marinated groups with 100% concentrations, and its counts were found approximately 3.0 log₁₀ lower than the control group on day 15 (P<0.05). Also, TVB, LAB, psychtrophic bacteria counts and pH values were found lower in the 100% conc. marinated samples than control groups on day 0 (P<0.05). In conclusion, the results of this study showed that *Rheum ribes* L. water extract may be used as an acidulant for the decontamination of the meat and meat products, and to be a major component of marinades.

Keywords: *Rheum ribes* L., raw beef, *E. coli* O157:H7, *Listeria monocytogenes*, *Salmonella* Typhimurium



Comparison of Bioactive Peptides Identified in Whey Obtained from Different Milk Types

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Abstract:

Bioactive peptides are known as amino acid chains that are found in inactive form in structural proteins but have important physiological functions with their specific properties, which are formed as a result of proteolysis. These peptides are mostly peptides with a short chain structure containing 3-20 amino acids. Depending on its amino sequence, it can show many biological activities such as antihypertensive, antioxidative, antimicrobial, opioid, antithrombotic, immunomodulatory and mineral binding. The bioactive content of many dairy products is widely studied, as milk proteins have been shown to be an important source of bioactive peptides. Raw cow, sheep and goat milk used in the study were obtained from milk producers in Van. Rennet (1/20.000) was obtained from Mayasan Company. Water soluble bioactive peptide extracts were analyzed by Thermo Q Exactive Liquid Chromatography-Mass Spectrometer/Mass Spectrometer (LC-MS/MS). Results were evaluated in Thermo Scientific Xcalibur software. The m/z ratios of the peptides that are likely to be present in the whey in individual stimulation were determined and the presence of peaks of the same peptides in the whey samples was sought. The peak of YPFPGPI bioactive peptide showing antihypertensive, opioid and immunomodulatory properties, which is formed by the breakdown of β casein in cow's milk and the casein α -s2 fragment SSSEESII peptide with antifungal effect was detected in whey made from cow's milk. The presence of sequence of EIVPN, an ACE inhibitor bioactive peptide, has been detected in cow and goat whey. As a result, it is thought that whey peptides made from different types of milk show variability and all whey types is a good source of peptides.

Keywords: cow whey, sheep whey, goat whey, bioactive peptide

This work was produced from PhD thesis of Dilek Özcan Yardım (Yildiz Technical University, Graduate School of Science and Engineering).

Determination of Foodborne Pathogens and Some Hospital Isolates Biofilm Formation Ability

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Abstract:

Biofilm-forming ability of pathogens is a key factor for the persistence in both food plants and hospital equipments and to exhibit virulence factors. Due to their biofilm structure, they develop a mechanism of resistance to antimicrobial agents, biocides and heat. The aim of this study was to determine the biofilm formation potential of foodborne pathogens and some hospital isolates. For this purpose 17 foodborne pathogens such as *Bacillus cereus* DSM 4312, *Escherichia coli* ATCC 35218, *Escherichia coli* O157 NCTC 12900, *Escherichia coli* ATCC 25922, *Enterococcus faecalis* ATCC 29212, *Enterococcus faecalis* NCTC 8213, *Klebsiella pneumoniae* ATCC 70063, *Listeria monocytogenes* ATCC 7644, *Micrococcus luteus* ATCC 9341, *Staphylococcus aureus* ATCC 25923, *Staphylococcus aureus* ATCC 29213, *Staphylococcus aureus* ATCC 33592, *Staphylococcus aureus* ATCC 6538, *Staphylococcus epidermidis* ATCC 12228, *Salmonella typhimurium* ATCC 14028, *Salmonella enteritidis*, *Listeria monocytogenes* (isolated from frozen food industry plant) and 3 hospital isolates such as *Acinetobacter baumannii* AYE, *Klebsiella pneumoniae*, *Staphylococcus aureus* MRSA. The assessment of biofilm formation of foodborne pathogens and hospital isolates was undertaken using a crystal violet assay on microtitre plates. The results show that all of the tested foodborne pathogens produced biofilms. Among these foodborne pathogens, *E. coli* O157 NCTC 12900, *E. coli* ATCC 25922, both of *E. faecalis*, *L. monocytogenes* ATCC 7644, *S. enteritidis* and *S. Typhimurium* ATCC 14028 were weak biofilm producers, while *K. pneumoniae* ATCC 70063 and *S. aureus* ATCC 6538 produced moderate biofilms. Rest of the tested pathogens were classified as strong biofilm producers. Additionally, *S. aureus* MRSA of the hospital isolate produced biofilm but *K. pneumoniae* was not capable of producing biofilms. Findings from this study indicate that the foodborne pathogens are an important biofilm producer. In conclusion by adding different strains to the strains screened in this study, a database may be created for future biofilm studies.

Keywords: biofilm, foodborne, pathogen, crystal violet assay

Investigation of Pulsed UV Light Effects on Turkey Salami

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Abstract:

Pulsed UV light application has been a method used frequently in ensuring food safety recently. UV treatment is used in many areas including the food industry through UV treatment and high inactivation power. Pulsed UV light, which is an effective microbial inactivation method that takes place in a shorter time in solid and liquid foods, as it is accepted as an alternative to continuous UV light application, is a promising alternative to both chemical and thermal decontamination methods in the food industry.

In this study, pulsed UV light was applied on ready-to-consumption packaged turkey salami samples. In order to ensure food safety and reduce consumer anxiety, the effect of pulsed UV light application of different time and distance on turkey salami slices contaminated with *Listeria monocytogenes* in equal thickness in order to use UV light was investigated. The effect of pulsed UV application on the microbial inactivation efficiency of the salami surface and the quality of the salami were evaluated. In pulsed UV light system, 3 different distances of quartz glass to samples will be 5-8-13 cm and sliced salami in 3 different periods of 15-30-60 sec.

The results of the study showed that pulsed UV light method can be used effectively in inactivation against *L. monocytogenes* on the salami surface as an alternative to thermal and chemical methods. It was determined that *L. monocytogenes* inactivation increased as the distance to the quartz lamp decreased and the application time and total energy dose increased. The highest inactivation was obtained after 5 cm 60 sec pulsed UV light treatment.

Keywords: pulsed UV light, turkey salami, *L. monocytogenes*, microbial inactivation

New Approaches to Colony Type Classification

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Abstract:

Solid media is one of the methods used to detect microorganisms. Mold, yeast, and bacteria form colony images with different morphological features according to their breeding environment (medium) and the type of microorganism. From these images, the type of microorganism is decided. Detection, measurement, and counting of bacterial cells are performed manually by laboratories. This human dependent process is time-consuming and a highly error-prone investigation. Image classification with image processing and pattern recognition plays an important role in solving many problems. The purpose of image processing is to obtain useful information from the image that can be used. Deep Learning is a subfield of machine learning related to algorithms inspired by the structure and function of the brain called artificial neural networks. It has extensive and successful use in many areas such as speech recognition, image definition, advisory systems, and medical image analysis. Segmentation is an image processing technique that allows the target image to be divided into parts with specified features. Segmentation is usually applied to images containing different segments and the new images obtained are classified and determined. For this reason, post-segmentation classification has an important place in image recognition. In this article, a deep learning technique was used to identify colony images segmented from Petri images with the watershed algorithm. In the scope of the study, AlexNet and GoogLeNet pre-trained deep artificial neural networks with high-performance image recognition results, and our newly prepared deep artificial neural network model for the problem were used in the literature. Pre-trained models were retrained for the target problem. Although the applicability of deep learning in colony species detection was shown with the study, the performances of newly designed and previously trained networks were compared. The results obtained show that GoogLeNet pre-trained network achieved more successful results in colony species identification.

Keywords: image processing, machine learning, artificial intelligent, DCNN, colony

Effect of various Pre-Treatments on Bioactive and Technological Properties of Sea Bass Gelatin Hydrolysates

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Abstract:

As a result of the fish processing process, skin, bones, viscera, heads, scales, etc. wastes are produced. If these wastes are not utilized, they cause both economic loss and environmental pollution. These wastes contain approximately 30% collagen protein. Gelatin, obtained by hydrolysis of collagen, stands out as an important auxiliary substance in many food industries. It is possible to produce bioactive peptides with high functional properties by enzymatic hydrolysis of fish gelatins. In our study, protein hydrolysate was produced by using savinase enzyme from sea bass skin gelatins, which were applied different pre-treatments (temperature, temperature + ultrasound, ultrasound). The degree of hydrolysis, antioxidant properties (DPPH and ABTS), emulsion activity and stability, oil binding capacity, zeta potential values and FT-IR spectroscopy values were determined. The degree of hydrolysis of gelatin hydrolysates is 15.59% - 14.72 - 14.38 - 14.38%, respectively, in samples with control (not pre-treatment), temperature, temperature + ultrasound and ultrasound pre-treatments. Except for temperature pretreatment, other pretreatments increased the antioxidant capacity of gelatin hydrolysates. The highest inhibition value (DPPH: 12.61% and ABTS: 29.87%) was determined in hydrolysate samples pre-treated with temperature + ultrasound. Similarly, emulsion activity index (167.84 m² / g) and emulsion stability (22.08 min) values of gelatin hydrolysates treated with temperature + ultrasound pre-treatment were found to be higher than the others. The highest oil binding capacity value of the hydrolysates was found in the control group (2,65 mL/g protein), and it was observed that the pretreatments reduced the oil binding capacity. While the temperature pre-treatment application increased the zeta potential values of the hydrolysates, other pre-treatments decreased. It was observed that the most important change on the FT-IR spectra of the hydrolysates was in the samples with temperature + ultrasound pretreatment. This was followed by ultrasound and temperature pre-treated samples, respectively. According to the results, it seems possible to increase the antioxidant values to a higher level by pre-treatment of sea bass skin gelatin hydrolysates. In addition, it is possible to make desired changes in the technological properties of gelatin hydrolysates with pretreatment applications.

Keywords: fish skin gelatin, gelatin hydrolysate, pre-treatment, bioactive peptide



Oral Presentation

Determination of Heavy Metal Levels in Octopus Caught from Iskenderun Bay Using Inductively Coupled Plasma Optical Emission Spectrophotometer[#]

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Abstract:

Irregular urbanization along with the increasing industrialization in the last two centuries, causes increasing pollution of soil, air and water. There are many industrial establishments (such as iron and steel, fertilizer, profile, sheet metal, pipe factories) on the coast of the Iskenderun Bay. Pollution caused by agricultural activities around the Bay, domestic wastes, industrial wastes, waste gases released into the atmosphere by residences and vehicles cause pollution of the Iskenderun Bay. Port and sea transportation in Iskenderun Bay also contributes to this pollution in the Bay and increases the accumulation of heavy metals in sea creatures. The study aimed to determine heavy metal pollution status of the Iskenderun Bay and to evaluate the risk associated with octopus consumption for consumer's health. In this context, Arsenic (As), Mercury (Hg), Cadmium (Cd), Lead (Pb), Nickel (Ni), Copper (Cu), Zinc (Zn), Aluminum (Al), Iron (Fe) and Manganese (Mn) metal levels were determined by ICP-OES (Inductively Coupled Plasma Optical Emission Spectrophotometer) in the edible tissues of 40 octopus samples caught from Iskenderun Bay. Before starting the study, a validation study was carried out on LOD (detection limit), LOQ (determination limit), recovery, % RSD (relative standard deviation) and the results were found acceptable. Metals in terms of accumulation in samples are listed as Zn (108.87 mg/kg) > Cu (15.36 mg/kg) > Fe (7.76 mg/kg) > Mn (1.12 mg/kg) > Ni (0.24 mg/kg) > As (49.76 µg/kg) > Al (15.26 µg/kg) > Cd (12.56 µg/kg) from high to low. All samples were negative in terms of Hg and Pb contamination. Metal levels in the edible tissues of octopuses were determined below the residue limits determined by the Turkish Food Codex Contaminants Regulation (Pb 1mg/kg, Cd 1 mg/kg, Hg 0.5 mg/kg) and the European Commission Regulation. As a result of the study, it was understood that the heavy metal accumulation detected in octopus tissues were not dangerous for human health and ecosystem.

Keywords: heavy metal, octopus, ICP-OES, iskenderun bay.

[#]This study supported by the Coordination of Scientific Research Projects, Hatay Mustafa Kemal University (No: 19.YL.050).

**Protective Effect of Black Seed Oil against *Postmortem* Oxidation
of Cold-kept Camel Meat^[1]**

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Abstract:

The addition of antioxidants to meat remains an effective way to minimize the development of oxidative rancidity, and to extend the shelf life and nutritional quality. One of the main sources most in demand for obtaining bioactive molecules are aromatic plants (AP) characterized by their oils. Among the PAs the "*Nigella sativa*", possesses black seeds which have a wide spectrum of medicinal application. The objective of this investigation is to evaluate the antioxidant effect of the fixed oil of black seed (HN) on camel meat stored in the cold, by analyzing the physicochemical, quality and oxidative stress (SO) parameters. The study was carried out on 5 male dromedaries (*Camelus dromedarius*), aged 5 to 9 years, weighing 290 to 320 kg and having been slaughtered at the municipal slaughterhouses of Casablanca in Morocco. On muscle samples (150g) (oblique and diaphragm muscles), the effect of HN on lipid peroxidation, quality and physicochemical composition was evaluated at different increasing doses ($\mu\text{l}/100\text{g}$ of meat): 100, 200, 300, by comparison with the control (200 μl of corn oil/100g of meat). After processing, the samples were placed in polythene bags, then placed in the refrigerator at 4°C for 0, 1, 2, 3, 5 and 7 days. The SO [malondialdehyde (MDA) and catalase activity (CAT)], quality (pH, losses during storage and cooking) and physicochemical [electrical conductivity (EC) and Osmolality] parameters were analyzed at different stages of cold storage. HN showed significant antioxidant power on meat during cold storage, revealed by lower MDA contents, and higher CAT compared to the control. This antioxidant effect has been associated with preservation of the chemical composition and quality characteristics of the processed meat.

Keywords: black seed oil, camel meat, cold storage, oxidative stress, quality.

A New Method of Measuring Nucleic Acid Concentration with Real-Time PCR

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Abstract:

For most of molecular-based applications in the aquaculture, it is important to know the amount of nucleic acid contained in purified samples. During these measurements, there are different devices that can measure the amount of nucleic acid that can be amplified, give purity rates, and work in different volumes. The most widely used method in measurements is the spectrophotometric measurement of the optical density (OD) of the nucleic acid solution with ultraviolet wavelengths. However, it also has disadvantages such as the lack of specificity, the standard deviation rate of replicate measurements, and the mixture of high absorbance levels at 230 nm to artificially read the 260 nm contamination and thus overestimate the amount of nucleic acid present in the sample. These disadvantages are particularly important for low concentration samples. Therefore, an optimized one step trial with Real-Time PCR was performed for nucleic acid concentration measurement without volume loss. For this purpose, a single run was created before Real-Time PCR in order to measure again the samples whose concentrations are known and other samples whose concentrations are known. As a result of this step, the concentration measurements of the samples were taken and compared with the measurements taken in different devices. Protocol and mix content are not given due to patent application. As a result of the study, after *L. garvieae* and *L. anguillarum* isolates were grown in TSB medium (600nm, 2.4 OD), RNA isolations were performed with the RNeasy Protect Bacteria Kit. DNA isolations were performed with the Mericon Bacterial DNA isolation kit. Isolated RNA and DNAs were diluted to a concentration of 10 ng / ul. Measurements were carried out in 3 repetitions with different devices. The mean values were measured as 10.11 with device A, 10.27 with device B, and 10.18 in the protocol used in the study ($r^2=0.9980$). As a result, with the optimized new protocol, it was seen that the concentrations of the samples left in the rotor adapters within 60 seconds were obtained at the same time. It is thought that this study carried out with bacterial DNA and RNAs in the field of aquaculture will bring beneficial results in academic studies.

Keywords: Concentration, *L. garvieae*, *L. anguillarum*, Nucleic acid, Real-Time PCR

Oral Presentation

DNA Based Tools to Deter Fraudulent Incidents in Fishery Sector: An Update on the Bulgarian Market Survey[#]

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Abstract:

Species substitution represents a major issue in fishery resulting in economic and public health consequences. Therefore, European Union set a regulatory framework for seafood traceability encouraging the use of DNA-based methods for deterring fraudulent incidents. A first DNA barcoding survey on labelling compliance of seafood sold on the Bulgarian market, highlighted a mislabelling rate of 17.7% plausibly due to both food business operators improper training on species identification and labeling and few major deliberate substitutions of high-value with less valuable white fish species. This considered, a second survey on labelling compliance was performed between 2019 and 2020 and 147 products (white fish N=100; cephalopods N=28, molluscs bivalves N=16 and gastropods N=3) were collected. A *COI* gene fragment was amplified and sequenced using universal primers. In case of failure of species allocation by *COI*, a *16SrRNA* gene fragment was applied as alternative target. The sequences were queried against reference databases. Molecular species identity was univocally assigned for identity percentage rates > 98% for *COI* gene and =100% for the *16SrRNA* gene. Finally, a RFLP analysis on the non-repetitive region of the nuclear Polyphenolic Adhesive Foot Protein (PAP) was included in the study for the identification of 13 mollusk bivalve products belonging to *Mytilus* sp. Within fish and cephalopods products were generally allocated at species level confirming *COI* effectiveness in species discrimination. As fish, an overall mislabelling rate of 14% was found due to substitutions of *Gadus chalcogrammus*, *Gadus morhua* or *Merluccius productus* with less valuable Gadiformes species. Within cephalopods category, a mislabelling rate of 10.7% was highlighted due to the replacement of *Ommastrephes bartramii* and *Todarodes pacificus* with *Dosidicus gigas* known as a frequent substituent species. As regards molluscs bivalves, the use of a multi-target approach and RFLP analysis allowed the univocal species identification of all the products highlighting a final mislabelling rate of 18%. No mislabelling incidents were highlighted for gastropods. The overall mislabelling rate of 13.6% (20/147) emphasize the relevance of the application of molecular tools for verifying the products' identity to protect both seafood supply chain and consumers' rights.

Keywords: *Seafood mislabelling, Bulgarian market, DNA based technologies, DNA barcoding, RFLP*

[#] This study was supported by the National Scientific Program "Healthy Foods for a Strong Bio-Economy and Quality of Life" approved by DCM No. 577/17.08.2018, funded by Bulgarian Ministry of Education and Science.

Oral presentation

Nematodes of the Genus *Eustrongylides*: Epidemiology and Potential Impact on Public Health and Seafood Quality[#]

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Abstract:

The consumption of raw or lightly preserved fish dishes has increased worldwide, favoring the transmission of fish-borne zoonosis. Several freshwater fish species act as intermediate or paratenic hosts of *Eustrongylides* spp., a cosmopolitan parasitic nematode responsible for rare zoonotic infections. The presence of *Eustrongylides* sp. in Italy has so far been reported from the Trasimeno lake, Central Italy, and very recently from northern lakes. At least five human cases have been described in the USA and two in South Sudan, while no human infections have been reported in Europe so far. Starting from a preliminary study on *Eustrongylides* spp. in big-scale sand smelt (*Atherina boyeri*) caught in the Massaciuccoli lake (Northwest Tuscany, Italy), this work aims to discuss the public health and commercial implications related to the spreading of *Eustrongylides* spp., as well as issues in molecular identification, also conducting a mini-review of the literature. Between August and October 2019, 3317 specimens of *A. boyeri* were collected, visually examined and submitted to artificial digestion. Visible parasites were isolated, counted and submitted to morphological and molecular identification (targeting the ITS gene region). Overall 75 nematodes identified as larval stages of *Eustrongylides excisus* were found (P: 2.3% 95% CI 1.8-2.8; MA: 0.02; MI: 1), in the viscera and in the muscle. Although the involvement of the species *E. excisus* in human cases has not yet been proven, as these were generally attributed to *E. ignotus* or *Eustrongylides* sp., the available molecular data are not enough informative to assess the zoonotic potential of each species of the genus. The parasite genus is known to occur worldwide and several reports with high prevalence values are available for predatory fish species such as perch and pike perch from East Europe, Middle East and the Russian area, where these species are commonly consumed. Given the current lack of information on the distribution of this parasite in freshwater Italian ecosystem, issues in molecular taxonomy and its impact on seafood quality, studies in other lakes are needed. These will be conducted in a dedicated project just financed by the Italian Ministry of Health.

Keywords: waterborne zoonoses; freshwater ecosystems; fish; visible parasites; seafood inspection

[#]The study was financially supported by the Italian Ministry of Health (Current Research Grant IZSLT 12-20 RC-Eustrongylides)

Oral presentation

Emerging Risks in the European Seafood Chain: Molecular Identification of Toxic *Lagocephalus* spp. and Evaluation of the Public DNA Libraries Reliability in Supporting Species Identification[#]

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Abstract:

Pufferfish may cause human intoxications due to Tetrodotoxin accumulation and their sale is banned in EU. In the last decades, some pufferfish (e. g. *Lagocephalus* spp.) spread in the Mediterranean Sea through Lessepsian migration, representing an emerging risk within the seafood chain. Their illegal presence in mislabelled products is also reported. The identification of *Lagocephalus* spp. is hindered by morphological similarities among co-generic species and DNA amplification, sequencing and comparison to public DNA libraries is often required. This process can be affected by the presence of wrongly deposited sequences in the libraries. This study first aimed at finding a suitable molecular target for identifying all *Lagocephalus* spp. in commercial products. Moreover, the reliability of two the public libraries in supporting the discrimination of *L. spadiceus* and *L. guentheri* was assessed. All cytochrome oxidase subunit I (COI) and cytochrome b (cytb) genes sequences of *Lagocephalus* spp. were retrieved from official libraries and used to create phylogenetic trees depicting inter-species relationships. Given its higher inter-species variability, cytb was selected as target and 17 cytb sequences from 6 *Lagocephalus* spp. reference samples were produced. Then, a primer pair amplifying a 130bp cytb polymorphic fragment from all the *Lagocephalus* spp. was designed for identifying 16 mislabelled commercial products with degraded DNA. Also, 20 Mediterranean specimens of *L. guentheri* were collected; both COI and cytb sequences were ex-novo produced and phylogenetically analysed with the sequences from *L. spadiceus* and *L. guentheri* previously retrieved from official libraries. First, the presence of *L. spadiceus* in the commercial products was confirmed. Moreover, a scarce DNA libraries accuracy was observed since most sequences deposited as *L. spadiceus* of Mediterranean origin were instead misidentified *L. guentheri*, causing a significant underestimation of this species in the Mediterranean Sea. Overall, this study may provide a reliable tool to protect European consumers from the emerging risk associated to toxic pufferfish.

Keywords: Pufferfish, *Lagocephalus* spp., toxic species, mislabelling, Mediterranean environment

[#] This study was financially supported by the Italian Ministry of Health (Current Research Grant IZS LT 08/14 RC).



Oral presentation

The Role of Propolis as a Direct Pulp Capping Agent

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Abstract:

A constant concern in the practice of dentistry is how to maintain the vitality of tooth as long as in the mouth. Direct pulp capping is considered to be a valid root canal treatment when pulp exposed due to caries, fracture, or cavity preparation. The goal of this treatment was to preserve the vitality and function tooth, so that many tooth extractions and root canal treatments could have been avoid. Researchers have been demonstrated that the exposed pulp will be healing through reparative dentin formation in the exposed site when appropriate materials applied. Until now, Mineral Trioxide Aggregate (MTA) and Calcium Hydroxide (Ca [OH]₂) were known as the most promising direct capping material. Recently, propolis, a resinous substance produced by bee from various plants has been recognized as a useful material to improve oral health including dental pulp treatment. Many studies has been improves that propolis has several biological and pharmacological properties such as anti- inflammatory, antibacterial, and immunomodulatory actions as well as improvement tissue repair. Nowadays, in the market, we can found propolis in commercially in sprays, capsules, tooth-paste, ointments, and capillary lotions. Therefore, the aim of this review is to discuss the role of propolis as a direct pulp capping agent.

Keywords: propolis, direct pulp capping, treatment, dentin reparative.

Algerian Propolis as a Natural Source for Drug Development

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Abstract:

Natural products have become the subject of increasing interest of health industry. The large diversity in their structure and the synergetic effect of their combination are well documented. Propolis, a natural hive product is collected from several plants and mixed with salivary enzymes and beeswax. Since ancient time propolis was used as a natural remedy and a food preservative. Algerian propolis has gaining interest and might be a promising source of new biological compounds.

The present study aimed to investigate chemical composition and biological activities of several Algerian propolis. Antioxidant activity was evaluated using four assays namely: DDPH, ABTS, FRAP and CUPRAC. Antibacterial activity was evaluated using agar diffusion method and the determination of minimal inhibitory concentration. Acetylcholinesterase and butyrylcholinesterase inhibitory activities were measured by the spectrophotometric method. Cytotoxic activities of propolis extracts were determined using MTT test. In addition antibiofilm and wound healing activity were also evaluated.

Chemical investigation allowed the isolation of 33 compounds. Their structures were identified on the basis of spectral data (¹H-NMR and ¹³C-NMR) and MS data and comparison with literature. Our investigation indicated the presence of two main type of propolis in Algeria. The most present is a poplar type propolis.

Our results indicated that Algerian propolis possess a large spectra of biological activities. The tested propolis possess an interesting antioxidant activity. Our propolis are more active on Gram-positive bacteria in particular *S. aureus* and B hemolytic streptococci. The tested propolis significantly reduce biofilm formation in particular for methicillin resistant strains of *S. aureus*. In addition the tested propolis demonstrated a high cytotoxic activity in colon adenocarcinoma cells. Our propolis exhibited a moderate wound healing activity and seem to be more active on acetyl cholinesterase (AChE) compared to butyryl cholinesterase (BChE) enzyme.

Keywords: Algerian propolis, chemical composition, biological activity.



Encapsulation of Propolis Extract by Arabic Gum-Chitosan

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Abstract:

Propolis is a natural bee product collected by honey bees from the parts of plants such as leaves, stems, buds etc. Propolis, a resinous material, is rich in phenolic components like aromatic acids and flavonoids, therefore, it has antitumor, anticancer, antiviral and antifungal activity. Since the chemical content of propolis varies according to the flora of the region where it is obtained, the amounts and types of these components also vary. Consumption of raw propolis is not recommended due to its resinous nature. Propolis needs to be extracted using the appropriate solvent to make it useful as a medical treatment or food additive. The most commonly used solvents for commercial purposes are ethyl alcohol, vegetable oils, glycol derivatives and water. Because of its resinous structure, propolis should be extracted and ethanol/ water solution (70%) is the best solvent for extraction of raw propolis. The ethanol solution limits the consumption of this valuable natural product in foods and apitherapy. Propolis extract was microencapsulated by using Arabic gum/chitosan to reduce the limiting effect of ethanol. The encapsulation efficiency was found 73.46% and the Arabic gumchitosan-propolis capsules (beads) size was found 784.1 nm in average. It can be concluded that Arabic gum-chitosan-propolis capsules could be used in food industry as preservative.

Keywords: Propolis, phenolic compounds, microencapsulation



Comparing Total Phenolic Content of New Propolis Extracts

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Abstract: Propolis is a natural resinous bee product. It is rich in many components such as phenolic acids, flavonoids and terpenes. It has many biological activities like antioxidant, antimicrobial, antidiabetic, etc. Propolis should be extracted in order to obtain a consumable form. Ethanol is the most used solvent for this purpose. Ethanol is the limiting factor for propolis consumption either for religious concerns or being harmful for human health. For this purpose, the search for new solvents continues. In this study, raw propolis was extracted with some volatile oils such as orange peel, lavender, clove and peppermint volatile oil. Main compounds of these volatile oils are limonene, linalool/linalyl acetate, eugenol and menthol/menthone respectively. Some of these compounds have one thing in common that they have hydroxyl group in their chemical structure. It was assumed that main compounds of these volatile oils could be a solvent for the extraction of propolis active compounds. Propolis extract was prepared by using maceration technique. The ratio was 1:10 (g/mL) for propolis and solvent respectively. Total phenolic content was determined by using folin ciocalteu reagent. The results showed that total phenolic content of extracts varied between 8.33 ± 0.09 to 10.16 mg GAE/mL. Differences between total phenolic content of the extract could be explained by the chemical structure of main compounds of the essential oil used.

Keywords: Volatile oils; Propolis; Green solvent; Total Phenolic Content

A New Apitherapeutic Product: Fermented Bee Pollen

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Abstract:

Apitherapy, which means treatment with bee products, is important for Traditional and Complementary Medicine practices. Fresh bee pollen and bee bread (Perga) are two important bee products due to their rich nutritional content. Fresh pollen can be collected in very high amounts with the help of traps, but bee bread cannot be produced as much as fresh bee pollen. Therefore, the use of bee bread in apitherapy is limited. Bee bread is a form of fresh pollen mixed with nectar and bees secretions and stored in honeycomb cells. In other words, bee bread is a natural fermented hive product. Bee bread is rich in protein, mineral, vitamin and specially probiotics. It could be used in treatment of diseases like Irritable Bowel Syndrome (IBS), which is associated with the low diversity and functionality in the intestinal bacterial flora. This fact is an indication of the necessity of feeding the society with probiotic-rich products. There is no data in the literature on bee bread produced in laboratory environment. In this study, some properties of fermented pollen produced in the laboratory using commercial microorganisms compared with bee bread obtained from hives. Fresh bee pollen was fermented by the addition of *Bifidobacterium animalis ssp lactis* B94. Ethanol extract of fresh, fermented pollen and bee bread was prepared by mixing 2 g of samples with 20 mL of ethanol separately. Total phenolic content of the extracts was determined by using folin ciocalteu reagent. Total phenolic content of bee bread and fermented pollen extract was found nearly the same and two fold more than fresh pollen extract. It can be concluded that fresh bee pollen could be fermented in optimum conditions by using probiotics and it has potential to be an alternative to bee bread.

Keywords: Pollen, bee bread, probiotic, fermentation.

This study was supported by Malatya Turgut Ozal University (Project Number 191209) as a scientific project.



Evaluation of Some Physical and Chemical Parameters of Commercial Honey Samples from Istanbul Bazaars

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Abstract:

Increasing tendency of healthy nutrition leads to the consumption of natural foods. Honey is a sweet natural product within the most important role in health protection. It contains nutrients and bioactive compounds such as carbohydrates (primarily fructose and glucose), enzymes, proteins, organic acids, minerals, vitamins, aromatic substances, polyphenols, pigments, beeswax, and pollen. Briefly, the purpose of this study was to determine the identity and the quality parameters of honey compounds by examining them in terms of their chemical properties. For this reason, 30 honey samples from Istanbul bazaars were collected and investigated. Nineteen of them were suitable according to the Codex Honey Communiqué including sucrose, invert sugar (glucose + fructose), moisture content, number of diastases, hydroxymethylfurfural (HMF), commercial glucose and pollens. Eleven of 30 (36.6%) honey samples were of unacceptable quality based on recommended criteria of diastase activity (8 of 30, 26.6%), free acidity (2 of 30, 6.66%), HMF (3 of 30, 10%), commercial glucose (2 of 30, 6.66%), sucrose (1 of 30, 3.33%), and the absence of pollen (1 of 30, 3.33%) by Turkish Food Codex and European Commission Regulation. When all results are taken into account, it has been summarized as while 63.33% of the examined honey samples were found suitable, 36.7% are not appropriate to the Codex. Consequently, the honey samples originated from different regions of Turkey showed more than half good quality. Their quality depends on various factors such as floral source, geographical origin, harvest seasons, packaging, processing conditions, and storage conditions. Therefore, the consumer's awareness and the education of beekeepers can improve the production and sales for good quality honey.

Keywords: honey; hydroxymethylfurfural; diastase; food codex; pollen

The Effect of Royal Jelly on Some Apoptotic Protein Signal Pathways in Rats with Lung Injury with Fluoride

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Abstract

Royal Jelly, it is one of the most important functional foods. It has various properties and is used by humans for properties such as antitumor, antiinflammatory, antibacterial and increasing immune activity. The aim of this study is to investigate whether Royal Jelly has a protective role against lung damage induced by fluoride in rats. The animal experiments part of this study was carried out in Firat University Experimental Animal Research Center (FUDAM) with the permission of Firat University Animal Experiments Ethics Committee dated 20.08.2020 and numbered 2020/11. The rats were divided into 6 groups and each group included 7 rats. Groups: (i) Control Group: Group fed with standard diet; (ii) Royal Jelly Group: The group given Royal Jelly (100 mg/kg CA, gavage); (iii) Fluoride-50 Group: Fluoride (50 mg/kg CA, drinking water) given group; (iv) Fluoride-100 Group: Fluoride (100 mg/kg CA, drinking water) given group; (v) Fluoride-50 + Royal Jelly Group: Fluoride (50 mg/kg CA, drinking water) + Royal Jelly (100 mg/kg CA, gavage) group; (vi) Fluoride-100 + Royal Jelly Group: Fluoride (100 mg/kg CA, drinking water) + Royal Jelly (100 mg/kg CA, gavage) group. The rats were decapitated after 8 weeks and their lung tissues were removed. Expression levels of caspase-3, caspase-6, Bcl-2 and Bax proteins in lung tissue were determined by western blotting technique, lipid peroxidation MDA (malondialdehyde) analysis, catalase and GSH (glutathione) levels were determined by spectrophotometer. Compared to the Fluoride-50 and Fluoride-100 groups, the Bcl-2 protein expression levels and MDA levels decreased in the Fluoride-50 + Royal Jelly and Fluoride-100 + Royal Jelly group, caspase-3, caspase-6 and Bax protein expression levels and GSH an increase was observed in the levels and catalase activities. These results show that Royal Jelly protects the lung from the intoxication of fluoride, minimizes the damage to the lung as a result of toxication and may contribute to new treatment protocols to be developed in future studies. This study was supported by the FUBAP FF.19.16 project.

Keywords: Bax, caspase-6, fluoride, lung injury, royal jelly



Oral Presentation

Protein Hydrolyzate Production from Trout Heads by Enzymatic Hydrolysis[#]

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Abstract:

Rainbow trout (*Oncorhynchus mykiss*), which is a very important food commercially, is widely consumed in our country and Europe and accordingly, it is intensively cultivated. The most important reason for this is that rainbow trout is rich in fatty acids as well as delicious. However, more than 50% of the fish, which is a functional food, mainly its skin, head and bones, is in the state of waste. Since the peptide structures of the hydrolyzed protein are more decomposed than other proteins, it acts as digested in our body. In this way, it can mix into the blood without tiring the body compared to other proteins. In the study, waste trout heads were passed through a meat grinder, mixed with distilled water at a ratio of 1: 1 and placed in a water bath. The pH was adjusted to 8 and 30 ml of Alkalase enzyme was added at a rate of 0.5% and kept for 1 hour. After centrifugation, the hydrolyzate was placed in glass containers and dried in the oven. Hydrolyzate yield was found to be about 6% and protein ratio was 81%.The results of the study showed that trout heads, which are considered as waste products, can be converted into protein hydrolyzate, which has a high commercial importance.

Keywords: byproducts, enzymatic hydrolysis, protein hydrolysate, trout head

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The Relationship Between the Microbial Load of Air and Temperature, Humidity in Slaughterhouses

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Abstract:

In this study, it was aimed to evaluate the microbial load of the ambient air in slaughterhouses with the hygiene indicator bacteria and yeast / mold presence parameters, and to reveal the relations with the ambient temperature, humidity levels and temperature-humidity index values. For this purpose, at winter season of 2021, from the different places of 3 slaughterhouses in the province of Afyonkarahisar; enterobacteria, coliform microorganisms, micrococci - staphylococci, total mesophilic bacteria, total psychophilic bacteria and yeast / molds levels in ambient air were determined with Temperature humidity index was determined by measuring the temperature and humidity levels of the same places. On the day of the samplings, the temperature of the outside environment was 5.7°C, humidity 40%. As a result of the study, general averages were determined 53,33 cfu/m³ for enterobacteria, 5 cfu/m³ for coliform group microorganisms, micrococci - staphylococci 351,67 cfu/m³, total mesophilic bacteria 69,17 cfu/m³, total psychophilic bacteria 9,17 cfu/m³, yeast / molds were 15 cfu/m³, and the average of temperature, humidity and THI values were determined respectively as 7.45°C, 45.33% humidity, 62.20. The temperature levels of the places are between 0,5°C - 11,9°C were determined, and the humidity levels of places are between %28-%65 were determined. Consequently it was revealed that the decrease in the ambient temperature and humidity reduces the presence of microorganisms in the environment. It was concluded that the temperature and humidity parameters should be evaluated together in terms of effective hygiene planning.

Keywords: slaughterhouse, temperature, humidity, air quality, hygiene



Physico-Chemical Properties of Cream and Ghee Obtained from Sheep's Milk

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Abstract:

The purpose of this research is investigated physico-chemical properties such as dry matter, oil-free dry matter, protein, acidity, pH, fatty acids composition, saponification number, unsaponifiable content and sterol compositions of cream and ghee obtained from the milk of sheep milk and consumed widely in our country. This research; as materials were used sheep (pırlak) milks. In this direction; as the physical and chemical analyzes, the amount of dry matter in the sheep cream have been determined as: 69.37%, the amount of non-fat dry matter 8.37%, pH values 7.24, protein content 4.55%, oil amount 61.0 %, acidity 1.14%, ghee free fatty acid 0.062%, peroxide number 0 meq-O₂ / kg, respectively. The total saturated fat content of the fatty acids content of ghee obtained from sheep milk determined 62,171%, the total unsaturated fatty acid ratio: 37.829% respectively. When the fatty acid composition values of ghee obtained from sheep cream were examined, it was determined that the highest value in terms of saturated fatty acids was palmitic acid and the values are 22.344%, also examined in terms of unsaturated fatty acids, the highest value was oleic acid and it have been determined 21.727 %. In addition, were determined saponification number, unsaponifiable content and sterol composition of the ghee obtained from sheep cream. Studies have mainly focused on cow and buffalo cream and ghee. As a result of our research will provide the scientific world on the physico-chemical properties of creams and ghee obtained sheep milk, and especially about sheep ghee will fill an important gap in the literature.

Keywords: Sheep, pırlak, cream, ghee, physico-chemical properties, food.

Acknowledgments

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Mothers' Approach to the Consumption of Jars of Baby Food and Determination of the Level of Consciousness; Social Media Example, Turkey

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Abstract:

Adequate and balanced nutrition during infancy is vital for optimal growth and development. Developing production techniques and innovations in food technology have allowed consumers to choose natural, healthy and high nutritional value foods. When considering the studies, it can be said that this type of products are preferred by especially mothers with children. Baby food jars for early childhood are an alternative option as products that can be diversified according to the consumer preferences. They are especially preferred by working mothers who are short of time. 380 mothers took part in the research survey between April 15 and 17, 2020 through Survey Monkey which is an online survey site. According to the research results, it has been found out that 57.1% of mothers using social media in Turkey do not use jars of baby food for various reasons, while 42.9% is using it because of different factors. According to the research results, the most important reason why mothers do not prefer baby food jars could be that they do not trust its ingredient (31.8%). Consumers can be preferred by the healthier production of jar baby foods with developing technologies. According to the survey results can be stated that the widespread use of jars of baby food in Turkey.

Keywords: baby food jars, complementary feeding, consumer perception, nutrition, food safety



Oral presentation

Development of an Inactivated Vero Cell-derived Vaccine Against Crimean-Congo Hemorrhagic Fever Virus

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Abstract:

Crimean-Congo hemorrhagic fever virus (CCHFV) is a tick-borne virus that causes severe hemorrhagic disease in humans. The first clinical Crimean-Congo hemorrhagic fever (CCHF) infection was recognized in 2002 in Turkey. Increased number of cases, the high mortality rates, considered to be as a bioterrorism agent and lack of effective therapy making CCHF a serious threat to public health. Therefore, development of a safe and effective vaccine against CCHFV should be considered. This present study evaluates the immunogenicity of potential CCHFV vaccines, based on purified from Vero E6 cell culture and mice brain, inactivated with formalin and formulated with alum adjuvant. In this study, six groups (n=6 each) of 4 to 6 week old BALB/c mice were immunized via the intraperitoneal (i.p.) route with 5, 10 and 20 µg of the cell culture-based or the mouse brain-derived vaccines adjuvanted with alum. Booster injections with same formulation were given on 21, and 42 days after first immunization. Serum antibody titer induced by cell culture-based and mouse brain derived vaccines increased in a dose dependent manner. Serum antibody titer induced by cell culture-based vaccine with all three concentrations was significantly higher than those obtained from in mice immunized with mouse brain derived vaccine. The mean of neutralization antibody levels at 12 month post-vaccination in 5 µg dose in mice immunized with culture-based vaccine was as same as the mean of neutralization level at 4 month post-vaccination in mice immunized with the same dose of mouse brain derived vaccine. These results clearly indicate that the cell culture-based vaccine against CCHFV has more potential protective efficacy than mouse brain derived vaccine.

Keywords: Crimean-Congo hemorrhagic fever virus, inactivated vaccine, adjuvants, protective response, long-term immunity.

This study was financially supported by TUBITAK KAMAG 1007 and released with 108G126 grant number to AO. This research abstract was summarized from PhD study of corresponding author (EB).

Viral Induced Ocular Immunopathological Lesions Can Be Diminish by Blocking Amino Acid Metabolism during HSV-1 Infection

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Abstract:

Herpes simplex virus-1 (HSV-1) is leading cause of ocular impairment in human across the world. Loss of vision is due to inflammatory reaction caused by pro-inflammatory CD4 T cells. HSV-1 infection lead to stromal keratitis (SK) and angiogenesis in mouse model. Viral induced immunopathological finding can be reversed by promoting anti-inflammatory immune cells and this can be done by manipulating the metabolism of cell. In this report we investigate that manipulating amino acid can reduce the viral induced immunopathological lesion. Amino acid metabolism mainly glutamine was blocked by injecting intraperitoneally 6-Diazo-5-oxo-L-norleucine (DON) in ocular HSV-1 infected mice. On day 15th post infection mice were euthanized and flow cytometry analysis was done. In-vitro generation of splenocyte from RAG-/- mice was also done in presence or absence of DON. We found that CD4 Th1, Th17 T cells, neutrophils and macrophages was less in corneal of treated group and percentage of Treg get enhanced. In treated group levels of CD4 Th1, neutrophils and macrophages was reduced at trigeminal ganglion (TG). At drainage lymph node (DLN) level there was decrease level of CD4 Th1, Th17 T cells, neutrophils and macrophages and at the same time ratio of T regulatory (Treg) to Th1 and Th17 cells was enhanced. Similar results were observed in spleen also. During in-vitro differentiation of splenocyte, addition of DON reduces Th17 cell and enhanced Treg cells level. Glutamine metabolism can also effect the latency stage of HSV-1. Use of DON help in reducing the reactivation of virus from latently infected TG. So, we can conclude that blocking amino acid metabolism can reduce immunopathological lesion caused by virus and at same time it also helps to maintain the latency of virus.

Keywords: hsv-1, amino acid; innate, adaptive immune cells

This work was supported by NIH 2020 R21 AI (grant 5R21AI142862-02) and NIH 2020 R01 (grant EY5R01EY005093-35).



Development of Serological Diagnostic Methods Against Crimean-Congo Hemorrhagic Fever Virus

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Abstract:

Crimean-Congo hemorrhagic fever (CCHF) is a tick-borne viral zoonotic disease that causes hemorrhage and severe illness in humans with high mortality rates. Virus is transmitted to humans through infected tick bites or from direct contact with viremic animals or humans. The disease has been reported in widespread areas of Africa, the Middle East, and Eurasia. A large Crimean-Congo hemorrhagic fever outbreak occurred in Turkey in 2002. For the detection of anti-CCHFV IgG and IgM, immunofluorescence assays (IFAs) as well as enzyme-linked immunosorbent assays (ELISAs) have been used for human cases. Virus detection is the primary method of diagnosis of early-stage disease. Diagnostic assays for acute Crimean-Congo hemorrhagic fever infection include virus culture, reverse transcription-PCR (RT-PCR). Early diagnosis of CCHF is extremely important since there is no specific treatment for CCHF. Supportive treatment would be effective for the CCHF patients with diagnosed at early stage of the disease. In this study, antigen capture ELISA has been developed for early diagnosis of CCHF for humans. The patient sera obtained from Ankara, Sivas and Samsun have been tested with the antigen capture ELISA and results compared with Vectorbest® Vectocrimean-CHF-Ag ELISA kit. The specificity and sensitivity of antigen capture ELISA calculated 94% and 95% respectively when compared to the Vectorbest® Vectocrimean-CHF-Ag ELISA. Moreover, the antigen capture ELISA was adapted for the tick samples collected from the CCHF endemic area. We also developed an indirect ELISA for the detection of anti-CCHFV IgG from domestic animals such as goat, cattle and sheep as well as laboratory animals such as rabbit and mice. As a conclusion, diagnostic systems for CCHF, such as enzyme immunoassays for the detection of CCHF virus antigens and antibodies were developed by using cell culture-based CCHF virus antigens.

Keywords: CCHF, Antigen capture ELISA, Indirect ELISA, Diagnosis

This study was financially supported by TUBITAK KAMAG 1007 and released with 108G126 grant number to AO. This study was summarized from PhD study of corresponding author (NC).

Multidrug Resistance and Resistance Genes of *Staphylococcus pseudintermedius* Isolates from Cyprus

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Abstract:

Multiple drug resistance (MDR), one of today's important public health problems, is required the use of new generation antibiotics and combinations. The widespread use of antibiotics in pet animals and especially penicillin, cephalosporin and other beta-lactam group antibiotics preferred in the treatment activate to multiple antibiotic resistant mechanisms of zoonotic bacteria species which is a significant risk for public health. Recently, human and animal studies showed that increasing the isolation rate of methicillin-resistant *Staphylococcus pseudintermedius* (MRSP) represents an increase of bacterial transmission to pet owners and the failure in applied treatments demonstrated increases in the resistance mechanism against ceftiofur and oxacillin antibiotics which in particular represent methicillin resistance. It was aimed to investigate of methicillin and multi-drug resistant *S.pseudintermedius* in the collected samples and to determine phenotypic and genotypic resistance/susceptibility profiles of the isolates. In this study; a total of 46 skin and 27 ear swab samples were collected from dogs and cats who came to pilot veterinary clinics and animal hospitals in the districts of Morphou, Famagusta, Kyrenia and Nicosia with complaints of ear (otitis externa) and skin (pyoderma) infections. The isolates were identified using the VITEK-II Compact automatized system device. Species were also confirmed using a MALDI-TOF MS device. Whole-genome sequence analysis (WGS) method was used for definite species identification of isolates. The antibiotic susceptibility profiles of each isolate were determined by the microdilution method using VITEK-II Gram positive cards (AST-GP). In the antimicrobial susceptibility tests performed in accordance with the kit application guidelines, the isolates were tested for 17 antimicrobials. Antibiotic susceptibility/resistance profiles of staphylococcal isolates were determined by microdilution method. 27 (37%) *S.pseudintermedius* of 25 dogs and 2 cats and 1 (1,36%) *S.aureus* of one dog were isolated from the samples. Phenotypically, 9 (33.33%) MRSP isolates and 18 (66.66%) methicillin-susceptible *S.pseudintermedius* (MSSP) isolates were determined. In the genetic examination of methicillin resistance of the isolates, the *mecA* gene was detected by whole-genome analysis, and 4 (14.81%) MRSP and 23 (85.18%) MSSP isolates were found. Among 27 *S.pseudintermedius*, 7 (26%) *S.pseudintermedius* isolates were detected multi-drug resistance. All of MDR isolates were conferred resistant to penicillin, kanamycin and tetracycline.

Keywords: *Staphylococcus pseudintermedius*, multidrug resistance, antimicrobial resistance genes.



Epidemiology of Noroviruses and Its Associated Risk Factors in District Lahore, Punjab-Pakistan

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Abstract:

Diarrheal diseases are responsible for a significant amount of children deaths. Although, rotavirus is recognized as a major cause for pediatric diarrhea, but the role of other viruses especially norovirus is still unrecognized for the Pakistani population. Norovirus is very contagious and can affect a vast range of species ranging from cattle, pigs, dogs, mice, cats, sheep, lions to humans. In humans it causes vomiting and diarrhea and can affect the people of all ages but mainly the children with less than five years of age. There is no significant data available regarding the prevalence and genetic variability of norovirus in Pakistan. This study was based on hospital surveillance, from December 2019 to September 2020 for the detection of noroviruses in children of less than five years of age. Total 100 samples were collected with predesigned questionnaire to assess the risk factors and clinical characteristics related to noroviruses. Total 15% samples were detected positive by the confirmation of RT-PCR for genogroup GII (G2SK) which is most prevalent. From all the risk factors including age, gender, vomiting, fever, type of milk, water and meal consumption, habit of hand, vegetables and fruits washing; only the contact of patient with an acute gastroenteritis patient was found significant. The remarkable cases of childhood diarrhea associated with noroviruses calls for the large-scale epidemiological surveys to calculate the burden of noroviruses and assess the risk factors. As it is a food borne pathogen so there is also a need to follow the strict hygienic measures during the processing of food items.

Keywords: norovirus, acute gastroenteritis, food borne, pediatric diarrhea



Phylogenetic Analysis of *Brucella melitensis* Isolates in the Marmara Region by MLVA and MLST Methods

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Abstract:

Brucellosis infection caused by *Brucella melitensis* (*B. melitensis*) has a high prevalence in small ruminants in our country. In this study, 15 *B. melitensis* strains isolated from samples belonging to wastes made by sheep and goat hosts sent from different farms in the Marmara region between 2009 and 2017 and typed in Brucella Vaccines Production and Reference Laboratory of Pendik Veterinary Control Institute, was aimed to be genotyped by using Multilokus Variable Number Tandem Repeat Analysis (MLVA) and Multilocus Sequence Typing (MLST) methods. The isolates used in the study were passaged into Tryptone Soy Agar Medium, then classical biotyping method was used to confirm that they were *B. melitensis* and typed according to their biovars. After DNA extraction of reference strains and 15 study isolates was performed in accordance with commercial kit protocol, strains were genotyped with MLVA and MLST. According to MLVA-16 15 different genotypes were detected in 15 isolates studied. It has been observed that 6 of the 15 isolate profiles in question match the database exactly, and the remaining 9 are not included in the database. According to MLVA-8 14 isolates were found to have genotype 43 and according to MLVA-11 12 isolates were found to have genotype 125. With MLST, the presence of Sequence Typing (ST8), which was determined to be dominant in the isolates in the countries in the Eastern Mediterranean Region, was detected in 12 strains, while a previously unidentified profile (3-2-35-2-1-5-3-2-8) was detected in 3 strains. When the sequence of ST8 and the novel ST was compared, it was found that there is a variation in a single locus. Significant similarities were found between MLVA and MLST methods and *B. melitensis* biovars. In addition, no significant differences were found between hosts or strains by year. As a result, it was determined that the discrimination power of MLVA method is higher than MLST, and according to previous studies, MLST method is useful to determine differentiation of strains due to geographic origins.

Keywords: Biovar; *Brucella melitensis*; Genotyping; MLST; MLVA.

Acknowledgement: This study is part of Thesis Project supported by Republic Of Turkey Ministry Of Agriculture And Forestry General Directorate Of Agricultural Research And Policies (Accession: number:HSGYAD/A/20/A5/P1/1842)

Oral presentation

Investigation of the Seroprevalence of Bovine Respiratory Syncytial Virus Infection in Cattle in the Afyonkarahisar Province

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Abstract:

Bovine respiratory syncytial virus (BRSV) is accepted as the most important pathogen of the lower respiratory system and lung infections in cattle herds. This study was conducted for the acquisition of knowledge about the seroprevalence of the infection with BRSV in cattle herds in the Afyonkarahisar province where there is a high population of cattle in the Aegean region. Cross sectional study; between January 2018 and March 2019, when 50% confidence interval of the estimated prevalence of BRSV infection is evaluated as 90%, 10 ml of blood samples were taken from the vena jugularis of a total of 330 cattle living in 10 cattle herds through random sampling. After the blood samples were centrifuged at 3000 rpm for 10 minutes, the serums were transferred to Eppendorf tubes and inactivated in a water-bath at 56°C for 30 minutes and kept at -20°C until the test phase. The presence of BRSV specific antibodies was analyzed in serum samples with a commercial ELISA kit. By using the χ^2 test, statistical analyzes were performed to determine whether the seropositivity found in terms of age groups, and gender is important. In the study, the $p < 0.05$ value was accepted as statistically important. According to the test results, 53.64% (177/330) of the serum samples were found as seropositive. The seroprevalence was varied between 32.35% and 78.57%. on a herd basis. The samples were also found seropositive as 32.31%, 52.38%, and 63.13% respectively in the age range of 6 months-2 years, 2-4 years, and older than 4 years. It was determined that the seropositivity among age groups was found as statistically indicative (χ^2 : 17.75; $p = 0.0001$). When the seropositivity rates of the cattle were analyzed, 45.45% (55/121) of the male ones and 58.37% (122/209) of the female ones were detected as antibody positive. It was observed that the difference between seropositivity rates of cattle according to their gender was statistically indicative (χ^2 : 5.14; $p = 0.02$). As a result, the data obtained from the study show the presence of the infection with BRSV in dairy cattle herds in the Afyonkarahisar Province region.

Keywords: BRSV, cattle, ELISA, seroprevalence, Afyonkarahisar



First Molecular Detection and Genomic Characterisation of Pigeon Poxvirus (PPV) from Domestic Pigeons (*Columba livia domestica*) in Turkey

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Abstract:

The genus Avipoxvirus is one of 11 genera belonging to the Chordopoxvirinae subfamily of the Poxviridae family, which is capable of infecting vertebrates. Avipoxviruses are the largest DNA viruses found in all of the poultry and over 200 bird species worldwide. They consist of double-stranded DNA which is between 188.5 and 375 kb in length and are surrounded by large, oval or brick-shaped envelopes. The pigeon poxvirus is one of 10 species in the Avipoxvirus genus, all of which are highly specific to bird species. The main goal of this study was to identify and characterize the pigeon poxvirus in domestic pigeons using molecular techniques. For this purpose, three different domestic pigeon flocks from the Elazig and the Sivas provinces (n=80 for Elazig, n=50 and n=120 for Sivas) were subjected for this study. Samples were taken from the five infected birds for each flock (fifteen in total) and the rounded, yellowish, solid and crusted masses of 2-5 mm in diameter located on the eyelids, beak and mouth of birds were collected only. The scab specimens sampled from the pox lesions were macerated in sterile PBS, grounded with a sterile pestle and centrifuged. Supernatants obtained from the centrifugation were further subjected to DNA extraction using the commercial DNA extraction kit. The PCR amplification was performed with the designed primer sets targeting the DNA polymerase and P4b (virion core protein) genes of pigeon poxvirus. PCR amplicons were separated by agarose gel electrophoresis (1.5% w/v) and visualized by staining with ethidium bromide. The 610 bp DNA polymerase gene and the 464 bp P4b partial sequencing data were analyzed. As a result, this study demonstrated the presence of the pigeon poxvirus in the pigeon flocks using the molecular method. This is also the first report on the genomic characterization of pigeon poxvirus in domestic pigeons in Turkey.

Keywords: Pigeon poxvirus, DNA pol. gene, P4b gene, phylogenetic analysis, Turkey.



Assessments of Diarylheptanoids from *Juglans regia* L. as Potential Inhibitors of Sars-Cov-2 Main Protease

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Abstract:

The disease was named COVID-19 when multiple cases of atypical pneumonia with symptoms similar to viral pneumonia emerged in China in December 2019 due to the SARS-CoV-2 virus. No effective therapy for COVID-19 is currently available. Although many different vaccine development studies against SARS-CoV-2 have reached the final stage, the protection that these vaccines will provide to society is not known for now, and therefore, effective antiviral drugs should be developed. In this study, the interactions of diarylheptanoids found in *Juglans regia* L. with the SARS-CoV-2 main protease were analyzed by molecular docking. 3D Structures of Juglenin A, Juglenin B and Juglenin C, which are diarylheptanoids were obtained from PubChem Database and the structure of SARS-CoV-2 Main Protease from the Protein Databank. The main protease was prepared for the molecular docking process by cleaning from heteroatoms, water and ligand molecules, adding polar hydrogen atoms and performing energy minimization. Potential energies of diarylheptanoids were reduced by minimizing energy. The MGL Tools software was used to create a grid box covering the active sites of the main protease, and Autodock Vina software was used for the molecular docking process. Ten poses were obtained as a result of the molecular docking process, and the interactions between amino acid residues and Juglenins. The pose showing the best binding affinity and the lowest RMSD value was analyzed with the Discovery Studio Client 2020 software. As a result of molecular docking, it was determined that Juglanin A, B and C showed high binding affinities with the SARS-CoV-2 main protease and formed hydrogen bonding interactions with amino acid residues. The results showed that the interactions of Juglanins (A, B and C) with residues in the active site of the main protease were limited, but their interactions with the His41 and Cys145 amino acid residues, which have a catalytic role, could still be effective. As a result of the *in silico* analyzes, it has been found that the use of Juglanin A, B, and C together and in combination with other effective compounds may be beneficial in antiviral drug development studies against SARS-CoV-2.

Keywords: *Juglans regia* L., sars-cov-2, main protease, diarylheptanoids, molecular docking.



The Investigation of Bovine Rotavirus and Bovine Coronavirus Infections in Three Provinces in the Middle Black Sea Region

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Abstract:

Enteric infections with severe diarrhea in calves cause huge economic losses in Turkey, as well as all over the world. Bovine rotavirus (BRoV) and bovine coronavirus (BCoV) are major viral enteropathogens responsible for calf diarrhea. The aim of the present study was to investigate the role of BRoV and BCoV in calves with diarrhea in three provinces in the middle Black Sea region of Turkey. For this purpose, a total of 66 fecal samples of calves with diarrhea younger than 3 months of age sent to Samsun Veterinary Control Institute from three provinces (Samsun, Amasya, and Tokat) in 2018-2019 were tested. Fecal samples were screened for BRoV and BCoV antigens detection by commercial sandwich ELISA kit. BRoV and BCoV antigens were detected 15.15% (10/66) and 13.63% (9/66) of fecal samples, respectively. BRoV antigens were found higher in Amasya (37.50%, 6/16) and Tokat (25%, 3/12) than Samsun (2.63%, 1/38). Unlike BRoV, BCoV antigens were not detected in Tokat, but Samsun 15.78% (6/38) and Amasya 18.75% (3/16) were found. Also, co-infection of BRoV and BCoV was detected in a fecal sample belonging to an 8-day-old calf from Amasya in 2019. As the result, it is seen that BRoV and BCoV infections remain important in terms of death of calves in the provinces where the study was conducted. In addition, it is known that cattle farms in the middle Black Sea region are family-run farms with low capacity and the vaccination of BRoV and BCoV is generally rare. It is thought that the dissemination of vaccination and the use of vaccines to be produced from local strains will reduce calf mortality and economic losses due to BRoV and BCoV infections.

Keywords: Bovine coronavirus, bovine rotavirus, calf diarrhea, ELISA.

**Factors Affecting Farmers' Personal Protective Use in the Covid-19 Pandemic:
A Qualitative Research Design from Canakkale**

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Abstract:

The aim of this study is to identify the factors that affect the healthy and safe use of PP by farmers during the COVID-19 pandemic and prevent the development of correct attitude and behavior. Focus group discussions were conducted by researchers to identify factors limiting health risk perception of Covid-19, attitudes, and practices of personal protective use among farmers in Canakkale, Turkey. Seven semi-structured interviews were conducted between October-November 2020 to a total of 63 farmers who were operating small-scale farms across seven villages in Bayramic region. Nine individuals participated in each focus group session (5 male and 4 female). The “Grounded Theory analysis” was used to analyze interview transcripts. Results showed that several factors have an important influence on farmers’ health risks perception and use of PPE during Covid-19 pandemic. Five main themes were repeated in all focus groups. This is the first qualitative study from Turkey, addressing farmers' subjective risk perceptions with regard to PPE practices during Covid-19 pandemic. Results indicate four main headings; “empirical knowledge/informal sources on Covid-19 transmission and protective measures”, “lack of safety culture”, “believing PPEs are uncomfortable, expensive, not accessible and the perception that using PPE causes loss of time”, and “physical and psychological health problems caused by the sudden change in working conditions due to Covid-19”. A training model should be prepared and implemented to improve subjective risk perceptions.

Keywords: Farmers, Covid-19, personal protection equipment, focus group study.

Investigation of Seroprevalence of Hepatitis B, Hepatitis C and HIV in Hemodialysis Patients

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Abstract: CKD is a disease with progressive and irreversible loss of function in the kidney's metabolic and endocrine functions as a result of a decrease in fluid electrolyte balance and a decrease in glomerular filtration. Impairments in the immune system of patients undergoing HD cause patients to be more sensitive to infection agents. The purpose of this study; to determine the seroprevalance of HBV, HCV and HIV in patients undergoing hemodialysis treatment. HBsAg, Anti-HBs, Anti-HBc IgM, Anti-HBc IgG, HBV-DNA, Anti-HCV, HCV-RNA and Anti-HIV parameters studied from serum samples of Chronic Kidney Patients (CKD) undergoing hemodialysis treatment at Selçuk University Faculty of Medicine It has been scanned retrospectively for ten years. HBsAg was determined in 17 (0.40%) of 4155 hemodialysis patients and Anti-HBs was positive in 454 (11.2%). Anti-HCV was detected as positive in 14 (0.33%) serum. HBV-DNA was found to be positive in 13 (76.5%) of HBsAg positive HD patients and in 12 (85.7%) of Anti-HCV positive patients. Anti-HIV antibodies were not detected in any of the serum samples. The results of our study have shown that proper infection control measures in hemodialysis patients can reduce the contamination of infectious agents.

Keywords: Hemodialysis, Chronic Kidney Patients, Hepatitis B, Hepatitis C, HIV

Evaluation of HCV-RNA, Serum Transaminase and AST/ALT Levels in ANTI-HCV Positive Patients

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Abstract:

Hepatitis C Virus (HCV) is an enveloped, single-stranded RNA virus from the Flaviviridae family. HCV infection may cause 80-85% chronic liver disease, cirrhosis and hepatocellular carcinoma. In this study, it was aimed to evaluate the HCV-RNA and serum transaminase levels in patients with positive anti-HCV. Serum samples of 900 patients with anti-HCV positivity sent to Selcuk University Medical Faculty Medical Microbiology Laboratory between January 1, 2015 and December 31, 2019 were included in the study. HCV RNA, serum alanine aminotransferase (ALT) and aspartate aminotransferase (AST) values, which were studied simultaneously with the anti-HCV levels of the patients, were evaluated retrospectively. HCV RNA levels of the patients were studied by real time PCR, anti-HCV levels by chemiluminescence microparticle immunassay, and serum transaminase levels by spectrophotometric enzymatic method. Three patient groups with anti-HCV values between 0.9-4.99 (Group 1), 5-10 (Group 2) and > 10 (Group 3) were formed. HCV-RNA was found positive in 1.1% of group 1, 14.3% of group 2 and 64.2% of group 3. Mean AST and ALT levels were 26.9-22.6 IU / L in group 1, 38.4-43.8 IU / L in group 2 and 45.6-42.7 IU / L in group 3, respectively. In our study, while there were 164 (35.8%) HCV-RNA negative samples from 458 samples with high anti-HCV values, there were 294 (64.2%) HCV-RNA positive samples. HCV infection should be evaluated with anti HCV, transaminase and viral load levels.

Keywords: Hepatitis C virus, HCV-RNA, anti-HCV, transaminase, ALT/AST



First Report of Pigeon Torque Teno Virus (PTTV) Infection in Turkey

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Abstract:

Torque teno virus (TTV), which was first detected in a human in 1997, is included in the *Anelloviridae* family. TTV is a non-enveloped virus that carries single-stranded and circular DNA. The genome size of TTV range between 1.5 and 3.8 kb in different species. Although new species have been discovered in the past decade, are not yet fully classified. TTV species are quite common all over the world and have a wide host distribution. The virus has also been detected in other primates, tree shrews, chickens, pigs, cattle, camels, sheep, cats, dogs, and pigeons as well as humans. Like several species, pigeon torque teno virus (PTTV) is among the unclassified TTVs. In this study, it was aimed to investigate the presence of PTTV in pigeons by PCR. A total of 100 stool samples collected from 11 different flocks from four different provinces (Sivas, Elazig, Malatya, Tokat) were examined. Stool samples were diluted 1/10 in PBS and centrifuged to remove large particles. Viral DNA was obtained from the supernatant by a commercial DNA extraction kit. A primer set specific to the ORF2 region of PTTV was designed in this study and 581 bp amplicons were obtained by nested polymerase chain reaction (PCR). Of the 100 samples 25 were found to be positive for PTTV and viral infection was seen in 9 out of 11 (81.8 %) flocks. Besides, PTTV was detected in all provinces. Five randomly selected PTTV positive PCR products were subjected to sequencing and sequences of samples were compared with data in GenBank. The presence of PTTV in pigeons has been demonstrated for the first time in Turkey in this study. Comprehensive studies that including a large number of samples obtained from different regions, examining the genetic relationships of human and animal strains are needed to estimate the prevalence of PPTV in pigeons and to reveal the role of pigeons in the epidemiology of infection.

Keywords: pigeon, pcr, torque teno virüs, pttv



“Stay at Home with Bakery Products” Can Be Public Motto of Quarantine Days in the SARS-CoV-2 Outbreak: Some Evidence from Web-Based Searches

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Abstract:

The aim of this retrospective infodemiological study is to determine the public interest in the bakery products during confinement days of coronavirus through Google Trends (GT). The category and regions selected in Google Trends were “food and drink”, Sweden, Turkey, and Italy, respectively. Sweden was included in to study as a control group because there is no quarantine implementation in the pandemic. The keywords of “flour”, “yeast”, “pastry”, “bread”, “biscuit”, “cake”, “cracker”, “pasta” and “pizza” were searched in Turkish, Italian, and Swedish language on GT. Search spectrums were “1 March 2011-31 May 2020” and “1 March-31 May 2020” to determine the monthly and daily search queries successively. According to last 10 years’ data, change of relative search volume (RSV) scores during March, April, May between 2020-2019 in the “flour” was (+22, +41,+40)/(+16,+52,+25)/(+55,+79,+28) and “yeast” was (+62,+71,+31)/(+27,+89,+24)/(+72,+90,+30) in Sweden, Turkey, and Italy, respectively. Search queries of "bread", "cake", "pasta" and "pizza" were too higher in Italy and Turkey within the search period, corresponding to previous year. There was significantly positive correlation between daily new cases of coronavirus and daily RSV values of “flour” ($r=0.86$, $p<0.001$), “yeast” ($r=0.89$, $p<0.001$) and bread” ($r=0.91$, $p<0.001$) in Italy and “yeast” in Turkey ($r>0.83$, $p<0.001$). GT has vital importance to following public interest and concerns especially in quarantine days of the pandemic. Quarantine enforcement can cause the over-interest in baked goods that generally have high carbohydrate and high fat. Excessive search volumes about baked goods can indicate to potential increasing of non-communicable diseases in the future. Therefore, the public should be informed about the adverse outcomes of unhealthy food choices in quarantine regions.

Keywords: bakery products; coronavirus; food choice; google trends; health impact

Comparison of Nutrition Education Methods Among High School Students

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Abstract:

Adolescence is an important life period and has crucial importance for the development of appropriate eating habits and a healthy diet. Dietary and educational interventions may help improving diet and thus may provide prevention from the development of lifestyle related diseases during both adolescence and in the future adulthood. Peer-led-nutritional-education (PLNE) (n=36); video-mediated-nutrition-education (VMNE) (n=36); nutrition-education-with-visual-tools (NEGVT) (n=36); and traditional-nutrition-education (TNE) (n=108) were performed. The aim of this population based educational intervention study with a pretest-posttest design study was to evaluate the effectiveness of different nutrition education methods on nutrition knowledge level in vocational high school students in Istanbul, Turkey. A total of 216 students from 3 high schools in Usküdar, Istanbul were randomly assigned to three different educational intervention method groups (video-mediated, peer-directed and visual aids), each consisting of 72 students to compare the effectiveness with the traditional education method. Before and after each training, nutrition knowledge level of adolescents were evaluated with Adolescent-Nutrition-Knowledge-Level (ABBID) questionnaire which includes subunits of adequate and balanced nutrition; essential nutrients, and malnutrition related diseases with a total score between 0 to 38. Shapiro-Wilk test, Mann Whitney U test, Wilcoxon Signed test and Spearman rho correlation analysis were applied for statistical analyses. All methods provided significantly increased post-test total scores compared to pre-test scores ($p<0.05$). Participants in PLNE had significantly higher post-test scores in all subunits of questionnaire than the participants of TNE ($p<0.05$). This study provides the efficacy and superiority in the success of peer led nutrition education method among adolescence. Further educational studies are required for the determination of the long-term effects of selected education on nutrition knowledge levels, habits, and behaviors of adolescents.

Keywords: adolescents; nutrition education; nutrition knowledge

Evaluation of Eating Attitude of Adolescent Female Volleyball Athletes

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Abstract:

Aim: This study aims to evaluate the eating attitude and social physique anxiety in female athletes. **Method:** The study was carried out with a total of 72 adolescent female volleyball athletes aged 11-17 [mean (\bar{x})±standard deviation (SD) 13.8±1.68] in Ankara. Data were collected by a questionnaire, and anthropometric measurements were taken by the researchers. Eating Attitude Test-26 (EAT-26) was used to determine impaired eating behavior. The higher scores indicated higher levels of abnormal eating attitudes, and ≥ 20 scores were considered the risk of eating disorders. Body perceptions were measured by Social Physique Anxiety Scale (SPAS). As the scale score increases, the anxiety level of the individual about his/her appearance increases. The research data was evaluated using SPSS 26.0 program for Windows. The statistical significance level was accepted as $p < 0.05$. **Results:** 15.3% of the participants skip a meal, and the most frequently skipped meal is breakfast (90.9%). 41.7% of the participants consume two snacks a day, and 31.9% consume one snack a day. The most frequently preferred foods by snacks are fresh fruit (24.4%), nuts (13.5%), milk and milk products (13.1%), and chocolate-wafer (13.1%). According to the body mass index (BMI) z-score classification, 68.0% of the participants were found to have normal body weight, 27.8% underweight, and 4.2% overweight. The mean score of EAT-26 was found to be 10.5±7.49, and the risk of eating disorders was found in 9.7% of participants. The SPAS score of athletes with abnormal eating behavior was higher than athletes with normal eating behavior (36.8±6.17 vs. 30.1±7.83; $p < 0.05$). Participants with abnormal eating behaviors had a higher body fat percentage (24.9±3.22) compared to others (20.9±4.86) ($p < 0.05$). **Conclusion:** It was found that the BMI of the majority of adolescent female volleyball athletes (68.0%) was in the normal range, 15.3% skipped meals, and 9.7% showed the risk of eating behavior disorders. To ensure the maintenance of adolescents' growth-development and increase the athlete's performance, it is essential to maintain optimal body weight and provide an adequate-balanced diet. In this context, it will be beneficial to raise awareness of adolescent athletes by nutrition consulting.

Keywords: adolescent female athletes, body image, eating disorders, eating attitude

Determination of Specific Turkish Noodle's Glycemic Index Value

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Abstract:

Although the consumption of low glycemic index (GI) foods is of great importance in terms of healthy nutrition, the GI value of many foods is not known clearly. This study aimed to determine the GI value of noodles, which is one of the most commonly consumed foods in our country. Noodles were produced by the researcher according to the noodle standard and contain type 550 wheat flour, egg, salt, and water. In the GI test, noodles were used as test food while white bread and glucose as the reference food. Before the test, the available carbohydrate contents of the foods were determined by analyzing the protein, fat, moisture, ash and dietary fiber. Amounts of foods containing 25 g of available carbohydrates were used in the test. GI test was performed on 15 healthy female individuals who had undergone endocrinological examination. Participants were given reference and test foods after 10-12 hours of fasting once a week for 7 weeks. The test was applied once for noodles and three times for reference foods. Capillary blood glucose values were measured and recorded before consumption and at 15, 30, 45, 60, 90, and 120 minutes after the first bite. According to these values, the increasing area under the curve for each food was calculated and the GI value of noodles according to glucose and white bread was determined. The GI value of noodles was found 83.2 according to white bread and 54.8 according to glucose. According to the GI classification, foods with a GI below 55 have a low GI. These results showed that noodles specific to our country are classified as low GI foods. Noodles are a healthy source of carbohydrates as long as portion control is observed. GI studies for other foods specific to our country should be increased.

Keywords: noodle, glycemic index, glycemic response.



Determination of Satisfaction Status of Inpatients with Hospital Nutrition Services and Examination with Various Variables

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Abstract:

In this study, it was aimed to determine the satisfaction level of inpatients from nutritional services and to examine the effects of different variables on satisfaction. The study data were obtained from 413 voluntary patients who were hospitalized for at least 3 days between March-April 2017 in hospitals in Konya. In order to conduct the study, written permission was obtained from Selcuk University Faculty of Medicine Non-Clinical Research Ethics Committee (Decision Number 2016/251) and the hospitals where the study will be conducted. Patient identification form containing patient information and 5-point Likert type expressions were used to evaluate the satisfaction of inpatients from nutritional services. The five point Likert type scale included responses coded between 1 and 5 from “never” to “always”. All statistical analysis were performed using the IBM SPSS Statistics 20 Software and statistically significant differences were determined using a p value <0.05. The average age of 413 inpatients (57.9% female and 42.1% male) participating in the study was found to be 42.3. According to the answers given to the satisfaction statements, the rate of those who were satisfied with the statement "The staff serving my meals are in uniform and clean" was found to be the highest with 98.5%, while the rate of those who were satisfied with the statement "Hot meals are served hot enough" was found to be the lowest with 30.7%. Between the genders of inpatients; their marital status, age groups, educational levels, their staying time in hospital and their diets total satisfaction scores, a statistically significant different was not found (p>0.05). But, clinic where they hospitalized satisfaction scores, a statistically significant difference was found (p<0.05). Since the nutritional needs of hospitalized patients must be met regularly, nutritional services are one of the most important components of patient satisfaction. For this reason, the satisfaction of the patients should be measured continuously and necessary improvement activities should be done.

Keywords: nutrition service, patient satisfaction, quality in health



Investigation of Consumer's Awareness Status on Food Additives

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Abstract:

Nowadays, within the development of food technology, the use of food additives in the production and consumption stages of foods are required. On the other hand, in many studies investigating the effects of food additives on health, it has been determined that the continuous intake of various food additives into the body and when exceeding the dose specified in the legislation can adversely affect human health. Therefore, it is increasingly important for the consumer to be conscious about food additives. For this reason, the aim of this study was to determine the general level of knowledge and awareness of individuals about food additives. Additionally, this study will be able to shed light on identifying ways to increase individuals' knowledge about food additives. Between October 2019 and February 2020, the survey was conducted by face-to-face interviewing the patients and their relatives who came to Bezmialem Vakif University hospitals and outpatient clinics. In the study, 164 males and females aged 18-65 years were included. When the awareness of consumers about food additives is examined, it was determined that the most common or heard food additives were sweeteners with 79.9%, colorants with 77.4%, and 65.2% sodium and calcium bicarbonates. It was observed that the individuals who answered the questionnaire had a moderate perception of their knowledge about food additives. In addition, 91.5% of the participants think that the internet is the most effective method in flowing information. While 29.9% of the participants can distinguish the food additives on food labels from other food ingredients, 53% were found to be undecided on this matter. Regarding the institutions and organizations that publish legislation on the amount of food additives in ready-made foods, 82.3% of the individuals answered the Ministry of Agriculture and Forestry and 65.2% of them the Ministry of Health. In conclusion, almost half of the consumers participated the study have a lack of education and communication, and do not have sufficient awareness on food additives. It seems necessary to inform the consumers about the food additives, and to organize trainings on this issue.

Keywords: consumer awareness, food additives, food labels, public health

Ethical Considerations: Research study participants were approved by the Bezmialem University Ethic Committee for Non-interventional Studies (Number:15/294 and Date: 30/07/2019). Written informed consent was obtained from all subjects. Before the application, the purpose of the research and the necessary information were given to the participants.

Green Synthesis and Characterization of Silver Nanoparticles from Green Tea (*Camellia sinensis*) Leaves

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Abstract:

The field of nanotechnology is one of the most active researches nowadays, and green synthesis has gained a wide recognition as clean synthesis technique in the recent years. In the present study, silver nanoparticles (AgNPs) were facile, cost-effective and ecofriendly rapidly synthesized, by treating silver ions with green tea (*Camellia sinensis*) leaves extract. The reaction process was simple and convenient to handle, the synthesized AgNPs were identified by colour change from colourless to dark brown, and were characterized by ultraviolet-visible spectroscopy (UV-Vis). Fourier-transform infrared spectroscopy (FTIR) analysis identified the functional groups that are involved in the reduction of silver ion to AgNPs. The morphology of the NPs were determined from scanning electron microscopy (SEM). And to determine the size of the diameter and distribution of AgNPs in the sample was carried out using Particle Size Analyzer (PSA). The band energy was calculated as 446 nm from UV-Vis, which confirmed the synthesized sample as Ag nanoparticles. The SEM image revealed a spherical shape of the AgNPs. And the size of AgNPs was determined using a PSA with a particle size distribution of 43.3 nm. Aja Based on the result obtained it can be said that the plant resources can be efficiently used in the production of silver nanoparticle and it could be utilized in various fields such as biomedical, nanotechnology and so on.

Keywords: nanotechnology, green synthesis, characterization, silver nanoparticles (AgNPs), green tea.

Oral presentation

Extraction of Crude Polysaccharides from *Lycium Barbarum* (Goji) by Deep Eutectic Solvents-Based Ultrasound-Assisted Extraction

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Abstract:

Nowadays, polysaccharides have pointed out as an essential class of bioactive natural products. They have biological activities such as anti-tumor, antioxidant. The extraction of polysaccharides is mostly carried out by hot water extraction. Ultrasound-assisted extraction can significantly reduce the extraction time while increase extraction yield. Thus, ultrasound-assisted extraction was developed in extraction of polysaccharides. In recent days, deep eutectic solvents (DESs) which are green and recyclables were gained more importance in extracting natural compounds from plants. Polysaccharides are considered to be the most important active substances in Goji fruit. The aim of this study was to extract polysaccharides from Goji fruit (PGF) by DES-based ultrasound-assisted extraction, an environmentally friendly and efficient method. Also, antioxidant activities of crude polysaccharides extracts obtained were evaluated. As extraction solvents, three DESs, composed of sodium acetate: urea: water (1:2:4) (DES1), choline chloride: urea: water (1:2:4) (DES2), and sodium acetate: lactic acid: water (1:3:4) (DES3), were prepared by stirring with a magnetic stirrer at 80 °C for 1 h. Hot water (HW) was used as control solvents. To obtain crude polysaccharide from Goji fruit by UAE, 1 g of Goji fruits was extracted with 30 mL of DESs in ultrasonic device at 60 °C for 30 min. The content of PGF was measured by the phenol-sulfuric acid method and the extraction yield of PGF (%) was calculated using glucose as standard. The antioxidant activity of PGFs was determined by DPPH method. Fourier transform infrared spectroscopy (FT-IR) was used to investigate changes in the chemical characteristic of extracted polysaccharides. In the study, the crude polysaccharides yields were found as 12.22%, 11.15%, 11.3%, and 9.18% for DES1, DES2, DES3, and HW, respectively. Moreover, in vitro antioxidant activity test exhibited that the obtained polysaccharides had significant inhibition effects on DPPH radicals. The PGFs had FTIR bands at 500–900 cm⁻¹, 1000–1100 cm⁻¹, 1400–1530 cm⁻¹, 2800–2900 cm⁻¹, and 3100–3500 cm⁻¹, which were distinctive absorptions of polysaccharides. As a result, the studied deep eutectic solvents could be suggested to be effective solvents for extracting polysaccharides from *L. Barbarum*.

Key words: Deep eutectic solvent, *Lycium Barbarum* (Goji), Polysaccharides

**The Insecticidal Effect of Certain Plants against the Cowpea Beetle,
*Callosobruchus maculatus***

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Abstract:

Legumes are part of the traditional diet and the main source of available protein in developing countries. They are of great dietary, economic and agronomic importance. Among these legumes are: beans, chickpeas, cowpeas, broad beans and lentils... The cowpea (*Vigna unguiculata*) has a very important role in the economy of African countries and the food of their populations, but *Vigna unguiculata* has been subjected to formidable attacks by the Beetle *Callosobruchus maculatus* (Fab.) (Coleoptera: Bruchidae), which causes serious damage to the seeds stored in tropical regions and the use of synthetic chemical insecticides is widespread to limit the damage of this insect pest. To reduce the exposure of non-target organisms to hazardous insecticides and the development of insect resistance to pesticides, alternative methods are required. This study was carried out in order to determine the life cycle of *Callosobruchus maculatus* and the toxicity of some plant powders by contact test on cowpea seeds. In order to evaluate some biological parameters (fecundity, fertility, emergence rate) of the bruchid *Callosobruchus maculatus*, our studies were carried out under laboratory conditions (30°C and 75% RH).

Our experimental work allows us to conclude that the average duration of the biological cycle of the insect under the conditions of our experiment is 29±2 days. Incubation lasts 7 days while the 4 larval stages (10 days) are shorter than the nymph stage (12±2) days.

The results obtained for the studied parameters indicate that the powders extracted from *mentha pulegium* exert a strong toxicity towards the bruchid *Callosobruchus maculatus*.

Keywords: *Callosobruchus maculatus*, *Vigna unguiculata*, life cycle, toxicity, plant powders.



**Effects of Water Pollution on Fatty Acid Composition and Fat-Soluble
Vitamins of *Tor gryp*us in Atatürk Dam Lake**

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Abstract:

Atatürk Dam Lake is built on the Euphrates River and is Turkey's largest dam lake in terms of water holding capacity. *Tor gryp*us is a fish species that is caught in the Euphrates and Tigris rivers, consumed economically and has the potential to be raised in inland waters instead of carp and trout. In this study, the fatty acid composition and fat-soluble vitamin values (A, D, E, K) in the muscle of *Tor gryp*us caught from two different regions (polluted and clean) of Atatürk Dam Lake were compared. Fatty acid and vitamin values were measured by using gas chromatography (GC) and high performance liquid chromatography (HPLC), respectively. In the results, some of the polyunsaturated fatty acid (PUFA) values were lower and saturated fatty acid (SFA) values were higher in fish caught from the polluted area than those caught from the clean area. In monounsaturated fatty acid (MUFA) content, there was no significant difference between regions. Among the vitamins, only vitamin E values were found to be significantly lower in fish in the polluted area than in the clean area. The decreases in other vitamins were not found significant. In conclusion, we can say that water pollution does not affect the vitamin values in *Tor gryp*us much, but affects some of the PUFA and SFA values, so it is necessary to analyse different biomarkers to better understand whether this fish species can be consumed safely in these regions.

Keywords: fatty acids, *Tor gryp*us, vitamins, water pollution.

Oral Presentation

The Treatment of Al-Waha Wastewater by Applying the Phycoremediation Technology

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Abstract:

BACKGROUND: Phycoremediation is the nutrients biotransformation or removal from wastewater by using microalgae or macroalgae. Wastewater treatment by microalgae is an alternative way to the current practice of using conventional methods, including chemical and physical methods. **METHODS:** In the present study, Pure algae were cultivated, Subsequently, the algae isolates with good performance were cultivated on larger farms using batch cultures, after reaching stationary phase they were used for treatment the effluent from Al-Waha company - Coca Cola Factory, situated at Hillah City, Iraq, was treated using the microalga, *Scenedesmus quadricauda*. The objective of this study was to treat the effluent solid waste by phycoremediation and to analyse the physico-chemical parameters before and after treatment. **RESULTS:** The results obtained showed that *Scenedesmus quadricauda* exhibited a rapid decrease in the levels of Total dissolved solids (T. D. S.), electrical conductivity (E.C.), Salinity, Total Hardness, Calcium, Magnesium and Total alkalinity) after exposing the wastewater to microalgal treatment for the study cultivation periods. This clearly shows that microalgae are efficient at removing pollutants from the wastewater to meet the stringent requirements according international standards and had high growth potential and pollutant removal capability in wastewater. **CONCLUSIONS:** The screening for microalgal is a promising approach to enhance pollutant removal efficiency from wastewater.

Keywords: phycoremediation, *Scenedesmus quadricauda*, wastewater treatment, physico-chemical parameters.



Oral presentation

Removal of Methyl Orange from Environmental Wastewater Using Coriander Seeds

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Abstract:

The spread of toxic effects in wastewater in various industries has detrimental effects on water resources, soil fertility, aquatic organisms and ecosystem integrity. One of the biggest problems in the textile industry is the discharge of colored substances. There are many organic and inorganic pollutants that need to be eliminated in the wastewater of industries. Various color and dye wastes in industrial wastewater and dye content in textile wastewater disrupt the aesthetic appearance. Also dyes can emit toxic and carcinogenic metabolites under anaerobic conditions. Dyes can be treated by physical and chemical methods to prevent pollution in the aquatic environment. However, cost of these methods is extremely high. Sludge can be produced in some of these methods. In order to eliminate the color of the wastewater is a need for alternative methods. Adsorption is the most common methods for the removal of dyes from wastewater. In addition to it is well known process to treatment pollutants from aqueous media. Researchers have recently opted for more economical and environmentally friendly adsorbents. As an example to these; Tea residues, sawdust, oily coffee beans, tree ferns, chitosan, olive oil waste, orange juice residues, orange peels, algae, dried plants and olive stone residues, plant seeds can be given. In this study; it is aimed to remove the methyl orange dye from the waste water by grinding the seeds of coriander (*Coriandrum sativum* L.) and using it as an adsorbent. The effects of contact time, pH, temperature and initial concentration of methyl orange on adsorption were investigated by batch method and optimum conditions (45 minutes, pH:6, 50 °C and 50 mg/L, respectively) were determined. Langmuir, Freundlich, Temkin, Dubinin-Radushkevich adsorption isotherm models and Pseudo first order kinetic model, Pseudo second order kinetic model, the suitability of intra-particle diffusion model adsorption process was investigated. The adsorbent process was found to be suitable for the Langmuir isotherm model and the Pseudo second order kinetic model.

As a result of the adsorption process, q_{max} value was found as 28.86 mg/g; Coriander seed particles have been identified as a cheap, convenient and effective natural adsorbent to extract methyl orange from wastewater.

Keywords: adsorption, coriander seed, isotherm, kinetic, methyl orange.



Changes in Vitamin C and E Levels of Van Fish Exposed to Fungicide Toxicity

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Abstract:

The widespread use of pesticides every day affects all living things negatively by disrupting the natural balance. Tebuconazole containing fungicides are mostly used for wheat and its derivatives. It is located near the agricultural areas where wheat is cultivated in Lake Van. The lake water is contaminated with pesticides as a result of the irrigation and rainwater of agricultural areas filtering and flowing into the lake. Therefore, in this study, it was aimed to investigate the effects of tebuconazole main substance fungicide, which is widely used worldwide, on Van fish. Antioxidants are very important defense systems for the immune system in metabolism. In this respect, antioxidant vitamins are of great importance. When intense oxidative stress occurs, the defense of antioxidant enzymes may be insufficient. In this case, antioxidant vitamins fight against oxidative stress. In the study, Van fish obtained from Lake Van were placed in water tanks and divided into concentration and control groups. Tebuconazole at concentrations (2.5 mg / L) was administered to each group at 24, 48, 72 and 96 hours. At the end of these periods, tissue sampling of the fish was done. Vitamins C and E were analyzed in the supernatants obtained by homogenization of fish tissues. In the study, the parameters were analyzed by reading the samples prepared using spectrophotometric methods. As a result of the study, it was determined that the levels of antioxidant vitamins C and E, which are an important defense mechanism of the immune system, decreased with the effect of tebuconazole.

Keywords: Fish, Fungicide toxicity, Vitamin C and E

Effects of Different Light Sources on Rainbow Trout Culture and Behavior

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Abstract:

In this study, the effects of breeding rainbow trout on different light wavelengths on behavior and aquaculture were determined. Four different LED light sources (red light, blue light, green light, and control group; daylight) were utilized. The light intensity was set to 50 lux for all groups. Eight tanks with 352 fish (n = 44) were used. The vertical feeding area (in centimeter from bottom to top of the tank), feeding interest (%), feeding time (minute), feeding method (from the bottom and the water column), movement rates of the fish (minimum +, maximum +++) in the tanks were used as behavioral evaluation criteria. The trial lasted in 71 days, and camera recordings of the groups during and after feeding were evaluated comparatively every three weeks. The fish placed in the group with red light feeding area vertically was found between 5-10 cm from the tank bottom, while other groups used all sides of the tank. The least feeding interest and the longest feeding time were found in the red light group. In addition, it was observed that the fish in all groups, except the red light group, took the feed from both the ground and water column. The fish in control group were found more active than the other groups. Although not statistically significant, total biomass was higher in the red, blue and green light groups than the control group. The maximum amount of final product was observed in the green light group. The eye position of the fish in the red light group, however, was shifted downwards and the body colors were darker. As a result, the behavior of rainbow trout at different wavelengths of light varied unpredictably. Although these differences were not statistically significant, the growth rates increased compared to the control group. However, the use of red light in fish farming has caused changes in the appearance of fish that will affect consumer preferences. Therefore, considering all the criteria, blue and green light can be more suggestible than the other light sources.

Keywords: behavior, light sources, rainbow trout



Seroprevalence of Toxoplasmosis in Pet Cats of Multan, Pakistan: A Zoonotic Threat of Public Health Concern

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Abstract:

Toxoplasmosis is a zoonotic protozoal infection with worldwide distribution. Cats serve as a definitive host of this parasite and contaminate the environment with resistant oocysts; thus playing an important role in the epidemiology of toxoplasmosis in susceptible animal and human populations. Keeping in view, the present study was conducted to determine the sero-prevalence of toxoplasmosis in pet cats of Multan-Pakistan. For the purpose, a total of 186 sera samples were collected from cats presented at different pet clinics in Multan-Pakistan. All the sera samples were analyzed for the detection of anti-*Toxoplasma (T.) gondii* antibodies by using commercially available specie specific IgG captured ELISA kit (Euroimmun, Germany). The overall prevalence of toxoplasmosis in pet cats was 30.11%. A significant association ($P < 0.05$) was recorded between prevalence of anti-*T. gondii* antibodies and different risk factors including body weight, vaccination history, presence of other pets, outdoor access and health status of pet cats. On the other hand, gender, physiological status, age, breed, deworming history, location of clinic/cats and type of feed showed a non-significant ($P > 0.05$) correlation. Hemato-biochemical analysis revealed a non-significant ($P > 0.05$) difference in albumin, AST, ALT, blood glucose, globulin and cholesterol levels of *T. gondii* seropositive and seropositive pet cats. However, the difference in uric acid was significant ($P < 0.05$). Data also showed that out of total pet cats owned by females, 30.05% were positive for anti-*T. gondii* antibodies indicating a threat to female owners for being infected with toxoplasmosis. In conclusion, toxoplasmosis is prevalent in pet cats of Multan which may serve as an important source of transmission of infection in other hosts with more adverse outcomes in females and generate a significant public health concern. It is suggested that pet cats should be routinely screened for toxoplasmosis for effective treatment to avoid its transmission in other hosts. The awareness campaigns about safe handling of pet cats and potential risk factors responsible for the occurrence and transmission of toxoplasmosis should also be started as a part of effective disease control strategy.

Keywords: toxoplasmosis, pet cats, sero-prevalence, IgG captured ELISA, public health



Oral presentation

Molecular Characterization of *Echinococcus granulosus sensu lato* in Livestocks and Humans in Northern of Iran

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Abstract:

Cystic echinococcosis (CE) is known to be an important zoonotic infection, caused by the metacestode of *Echinococcus granulosus sensu lato* (*s.l.*) distributed in different parts of the world. In endemic regions, it has high morbidity and mortality of rate in humans as well as significant economic losses of livestock. Identification of different genotypes of echinococcal cyst in various domestic herbivores and humans within the target area was the principal aim of the present study, performed using sequence data of *cox1* and *nad1* mitochondrial genes.

A total of 57 cystic echinococcosis (CE) cysts were isolated from indigenous livestock including 45 cattle, 9 sheep and 3 goats from several slaughterhouses in Guilan Province. Moreover, 12 formalin-fixed paraffin-embedded (FFPE) CE cyst tissues from humans were also included, obtained from the archives of several referral hospitals in Rasht, the capital of Guilan. Genetic sequencing was conducted using mitochondrial cytochrome c oxidase subunit 1 (*cox1*) and NADH dehydrogenase subunit 1 (*nad1*) genes. Our results found that 59 (85.5%), 5 (7.2%) and 5 (7.2%) of isolates were found to have the same genetic identity comparable to *E. granulosus sensu stricto* (*s.s.*) G1, *E. granulosus s.s.* G3 and *E. ortleppi*, respectively. *E. granulosus s.s.* (genotypes G1 and G3) and *E. ortleppi* were isolated from various livestock whereas all CE cysts isolated from humans were *E. granulosus s.s.* G1 genotype. This study demonstrated that *E. granulosus s.s.* G1 is the predominant genotype of *E. granulosus s.l.* among the livestock and humans in north of Iran, a finding similar to those reported from other areas of the country. Also, the results of the current study confirmed the presence *E. granulosus s.s.* G3 with low prevalence in goats, sheep, and cattle in this study area. To our best knowledge, the current study showed, for the first time, the presence of *E. ortleppi* in a limited number of cattle isolates in Iran.

Keywords: *Echinococcus granulosus sensu stricto*, *Echinococcus ortleppi*, Genotype identification, Iran

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A Survey on the Seroprevalence of Toxocariasis and Related Risk Factors in Eosinophilic Children

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Abstract:

Toxocariasis is a serious zoonotic helminthic disease with a considerable impact on public health caused by the nematodes; *Toxocara* species. Clinical manifestations of toxocariasis are depending on the organs affected such as hepatomegaly, pulmonary and ocular symptoms and also blood eosinophilia. Toxocariasis distribution is worldwide with highly-variable seroprevalence (2.4-92.8%) with more occurrences in children. Our cross-sectional study was conducted to determine the seroprevalence of toxocariasis and its association with epidemiological and related risk factors in hyper-eosinophilic children referred to the pediatrics hospital of Qazvin province in 2019-2020. A total of 200 serum/plasma samples were collected from eosinophilic children (1-13 years old) referred to the Qods Hospital. Eosinophilia was extracted from the CBC results more than 500 cells/mm³. Demographic data (age, gender, residential area, parents' occupation and literacy status), clinical symptoms and disease background (hyper-eosinophilia, idiopathic fever, ocular, pulmonary, cutaneous and hepatic disease), and dogs- and soil-contact history was collected. The presence of anti-*Toxocara* IgG antibody was evaluated by *T. canis* IgG ELISA kit. Anti-*Toxocara* IgG antibodies were detected in 14 (7%) of eosinophilic children and *Toxocara* seroprevalence showed significant correlation regarding the eosinophilia rate and clinical manifestations ($P < 0.05$). So, that the highest prevalence of toxocariasis (33.3%) was in children with hyper-eosinophilia above 2000/mm³. Seroprevalence in asymptomatic eosinophilic-children was 4.4%, while in children with history of idiopathic fever was 21.4%, eye disease 100%, lung disease 13% and in children with liver and skin disease history was zero percent. However, relationship between *Toxocara* infection with gender, age, soil- and dogs-contact, residential area, parents' occupation and literacy status were not significant ($P > 0.05$). High-prevalence of toxocariasis in eosinophilic children of Qazvin is serious. Therefore, evaluation for *Toxocara* infection is recommended for hyper-eosinophilic children and due to this alarm-situation, the strategies for controlling the disease in dogs and cats are crucial.

Keywords: seroprevalence, toxocariasis, anti-toxocara antibody, eosinophilic children.

[#]This study is financially supported by Guilan University of Medical Sciences (GUMS), Rasht, Iran.

Demographic Information of Beekeepers and Currently Used Control Methods against *Varroa destructor* in Ankara, Turkey

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Abstract:

The honey bee is the third most important working animal, directly after cows and pigs worldwide. The honey bee species *Apis mellifera* is now the only one of its kind at our temperate latitude. Their special economic value is composed of not only honey as a product, but especially as pollinators, as the honey bee pollinates around 80% of all agriculturally significant crops and wild plants which is essential to conserve biodiversity. Beekeeping has a great significance in Turkey, as the appropriate ecology, plant diversity and genetic variation of the bee species is available. Therefore, Turkey is the second largest honey-producing country in the world with at least 8 million beehives and 115.000 tons of honey production. Unfortunately, the average per beehive yield in Turkey is far below the world average (15 and 40 kg, respectively). *Varroa* mites, among many other factors, are considered to be one of the most important drivers of honey bee colony loss worldwide. The aim of this study was to collect data about beekeepers, beekeeping industry and the control methods of *Varroa destructor* from various location in Ankara. All statistical analyses of collected data were performed with Percentage and Frequency as analysis technique using SPSS 23.0 software package. According to obtained data, more than %50 of the beekeepers in Ankara were found at primary education level and they learned beekeeping mostly through their own efforts (81.8%) and considered it as a second job (59.1%). Results shows the most important problem was *Varroa destructor* which was detected with a prevalence of 100% in all apiary during sampling period (from June to August). Controlling of *Varroa* mites mainly relied on synthetic chemicals (59.1%) and some beekeepers (22.7%) included essential oils and organic acids in their control program. Besides, among the synthetic chemicals, the most preferred and active substances were determined amitraz (60.1%) and flumethrin (26.6%), respectively. The present study has clearly shown that *Varroa* mites has a great importance in Ankara hives during the summer season. Additionally, results have presented the demographic information about beekeepers and chemical compounds currently used in control of *Varroa* mites.

Keywords: *apis mellifera*, beekeepers, *varroa destructor*, control methods

Detection of *Toxoplasma gondii* Infection in Goats in Marmara Region of Turkey

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Abstract:

Toxoplasmosis is one of the most important parasitic diseases of different hosts including human, wild and domestic animals and birds in the world. *Toxoplasma gondii* is the only species that cause disease. It is not only responsible for economic losses due to abortion and neonatal deaths in infected animals, but also have zoonotic significance as it may be transmitted to humans via contact with cats (direct) or cat feces (indirect), drinking unpasteurized milk, consumption of undercooked meat, and handling raw meat. The goal of the current study was to detect the seropositivity of *Toxoplasma gondii* in goats in the Marmara Region/Turkey. The extensive management system predominates in small ruminants and the breeding of goats is an important source of milk and meat production in this region. Sera were collected from a total of 270 goats older than one year of age from twelve cities (Edirne, Düzce, Kocaeli, Istanbul, Yalova, Tekirdağ, Balıkesir, Çanakkale, Sakarya, Bilecik, Bursa, Kırklareli). They were checked for *T. gondii* antibodies using an Enzyme-Linked Immuno-Sorbent Assay (ELISA) Test. Of the samples examined, 76 (28.14%) were determined to be seropositive and 194 (71.85%) were seronegative. Seroprevalence of *T. gondii* was significantly different according to the percentage of seropositive goats were founded in each city ($P < 0.001$). Results of our study showed that *T. gondii* infection is widely distributed in goats in the Marmara Region of Turkey. It may be related to a high environmental contamination by oocysts shed in cat feces and long time viability of *T. gondii* oocysts in moist or humid environment and resistant to environmental conditions. In conclusion toxoplasmosis among animals have a great importance, because some of the infected animals play a distinct role as a source of human infection.

Keywords: *Toxoplasma gondii*, goat, Elisa, marmara region, Turkey

Investigation of *Anaplasma* Species with Veterinary and Public Health Significance in Sheep and Goats[#]

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Abstract:

This study was carried out to investigate *Anaplasma* species which are important for veterinary and public health in sheep and goats in Niğde province by using molecular methods. Blood samples were taken from randomly selected 690 animals (520 sheep and 170 goats), which were between 1 and 10 years old and from different study sites (Merkez, Bor, Çamardı, Ulukışla, Altunhisar ve Çiftlik) in Niğde province by using the vacutainer tubes containing EDTA. After the genomic DNA extractions from blood samples, the *Anaplasma* spp. 16S rRNA genes were amplified by PCR. Species-specific polymerase chain reaction (PCR) assays were performed on positive samples for the presence of *Anaplasma bovis*, *Anaplasma capra*, *Anaplasma ovis*, *Anaplasma platys*-like, and *Anaplasma phagocytophilum*. At the same time, the animals were checked for ixodid tick infestation and collected ticks were examined for identification under the stereo-microscope. The results of PCR analysis show that the overall *A. ovis* prevalence was 63.3% (437/690) in small ruminants. A total of 361 sheep (69.4%) and 76 goats (44.7%) were found to be infected with *A. ovis*, whereas no positivity was detected for *A. bovis*, *A. capra*, *A. platys*-like, and *A. phagocytophilum*. *Anaplasma ovis* positivity was observed at the highest percent in May (%74.6) while the lowest in June (%52.4). In total, 1361 ticks (579♀, 782♂) were collected from sheep and goats in Niğde. Ticks were identified as *Rhipicephalus bursa* (383, 28.1%), *R. turanicus* (607, 44.6%), *Hyalomma marginatum* (7, 0.5%), *Hy. excavatum* (247, 18.1%), *Hy. anatolicum* (23, 1.7%), *Haemaphysalis parva* (21, 1.5%), *Hae. punctate* (7, 0.5%), *Hae. sulcate* (40, 2.9%) and *Dermacentor marginatus* (26, 1.9%). In conclusion, the present study demonstrates a high prevalence of *A. ovis* 63.3% (437/690) in sheep and goats in Niğde province.

Keywords: sheep, goat, *Anaplasma*, Niğde, tick

[#]This study was supported by the Scientific Research Projects Unit of Niğde Ömer Halisdemir University (SSB 2018/09-BAGEP).

A Molecular Study on Microorganisms of Secondary Importance Which Lead to Infectious Cattle and Sheep Abortions

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Abstract:

Studies have been conducted on the abortive agents in cattle and sheep is mainly based on *Brucella*, *Toxoplasma*, *Salmonella*, BVD-MD, *Chlamydia*, and *Neospora* spp.. The microorganisms of secondary importance such as *Listeria*, *Leptospira*, *Campylobacter*, *Mycoplasma* spp. etc. are usually overlooked due to the lack of practical, well designated, and standardized culture and identification methods. This study aimed to investigate the molecular prevalences of these underestimated bacterial agents from abortive cattle and sheep cases using bacterium-specific PCR methods. For this purpose, *Campylobacter fetus*, *Leptospira* spp., *Listeria monocytogenes*, *Listeria ivanovii*, *Mycoplasma* spp., and *Yersinia* spp. were investigated by PCR in 146 abortive materials which were encountered in Blacksea, Central Anatolia, Eastern Anatolia, Eagen, Southeastern Anatolia, Marmara, and Mediterranean Region of Turkey in the year 2019 and sent to the Microbiology Laboratory, Faculty of Veterinary Medicine, Selcuk University. The total number of samples was 146 in total, including 78 vaginal swabs and 44 stomach contents from aborted cattle and 11 swabs and 13 stomach contents from aborted sheep. Five samples including the stomach contents of 4 aborted lamb and 1 calf were found to be positive for *C. fetus*. *Leptospira* spp. were found in 18 samples, including 4 cattle vaginal swabs and stomach contents of 9 aborted calves and 5 aborted lambs. Apart from this individual positivity, 3 samples were simultaneously found positive for *C. fetus* and *Leptospira* spp., including 1 cattle vaginal swab, 1 aborted calf stomach content, and 1 aborted lamb stomach content, and these cases were assumed as a mixed infection. *Mycoplasma* spp. were detected in 8 samples including 4 cattle vaginal swabs and stomach contents of 3 aborted calves and 1 aborted lamb. All samples were found negative in terms of *L. ivanovii*, *L. monocytogenes*, *Yersinia* spp.. The neglected infectious abortive agents were hereby brought to light, even three mixed infections were encountered, and literature contributions were made to the share of abortive agents reported in extremely rare even experimentally scales.

Keywords: cattle and sheep abortions, *Campylobacter fetus*, *Leptospira* spp., *Mycoplasma* spp., PCR

Isolation and Characterization of Bacteriophage against *Lactococcus garvieae*: An in-Vitro Study

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Abstract:

Aquaculture continues to develop contributing economy with increasing demand. However, this development is hampered by fish disease due to the lack of prevention and treatments. *Lactococcus garvieae* is the causative agent of lactococcosis and has been isolated from a wide variety of animals including fish. Effective vaccines and antibiotics were tried for the treatment and prevention of this infection. However, the emergence of new mutant and multidrug-resistant bacteria caused the failure in the prevention of the diseases. To handle these problems, more effective and eco-friendly methods must be developed. In this study, bacteriophages effective against *L. garvieae* strains were isolated and characterized. Firstly, six *L. garvieae* strains isolated from trout farms were confirmed by the colony morphology and the 16S rRNA gene amplification. A mixture of six *L. garvieae* isolates was used as hosts for the isolation of phage from an inland water area in Turkey. One of the six phages were selected for characterization. Isolation and enrichment of bacteriophage capable of killing *L. garvieae* were carried out by the broth enrichment method and spot assay. The phage host range was determined across 6 different *L. garvieae* strains and other fish pathogenic bacteria including *Vibrio anguillarum*, *Aeromonas hydrophila*, *Yersinia ruckeri* and *Citrobacter freundii* using Spot assay. The phage antibacterial activity against *L. garvieae* was also evaluated by spot testing at different temperatures. Bacteriophage produced clear large spot when propagated on *L. garvieae* isolates. The titer of the *L. garvieae* bacteriophage was 2.5×10^5 pfu/ml. The bacteriophage showed lytic activity against all *L. garvieae* isolates, but the other bacteria were not sensitive to this phage. Also, the best clear zones on the bacterial lawns were observed between 20-30°C. The results suggest that bacteriophage can be considered as a desirable agent to prevent the disease caused by *L. garvieae* strains in fish farming.

Keywords: fish diseases, *Lactococcus garvieae*, bacteriophage

This study was financially supported by Central Fisheries Research Institute (SUMAE).

Antibacterial Activity of Nanoemulsion of *Origanum syriacum* against Selected Bacterial Strains

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Abstract:

In the last decade, considerable attention has been paid to nano-technological applications in the food and pharmaceutical industries. Hence, researchers have been shifting their focus towards nanoemulsion technology, which is especially suitable for the development of effective the new therapeutic products. *Origanum syriacum L.* (Lauraceae), is a plant growing in western Turkey, has the strong antimicrobial activity of its oil extracted against pathogenic bacterial strains, which are making some important diseases in humans and animals. However, it has some application difficulties using as an animal feeding owing to its oil extracted form. The goal of this study was to improve the water-dispersible nanoemulsion form *Origanum syriacum L.* of oil extract protecting its antimicrobial effect. Nanoemulsion was prepared with the emulsifier Tween 60 via the help of a vortex mixer at room temperature. The droplet size and zeta potential of the nanoemulsion were determined using a Zetasizer and the values were measured to 136.4 ± 5.689 nm and -16.7 ± 0.321 mV, respectively. The effect of the nanoemulsion and oil extract was investigated by disk diffusion and liquid microdilution methods against reference strains. Antibacterial activity of the nanoemulsion of *Origanum syriacum L.* indicated that it remarkably effected on *Klebsiella pneumonia*, *Staphylococcus aureus*, *Streptococcus agalactia*, and *Salmonella typhimurium* even though it had not notably effect against *Pseudomonas aeruginosa*. It had a moderate effect on *Enterococcus faecalis*. In the disk diffusion method, the highest zone diameter was determined against *Proteus mirabilis* at concentrations of 50 and 100 μ l. This study revealed the effect of nanoemulsion of *Origanum syriacum L.* against both Gram-positive and Gram-negative bacteria. This nanoemulsion form can be further applied by adding in drinking water to protect farm animals against pathogenic bacteria prophylactically.

Keywords: antibacterial activity, bacteria, nanoemulsion, *Origanum syriacum L.*



Seroprevalence of Canine Toxoplasmosis by Sabin Feldman Dye Test in Konya Province, Turkey

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Abstract:

Toxoplasma gondii is an intracellular protozoan parasite, which is the cause of toxoplasmosis in dogs and can infect a wide variety of vertebrate animals and Humans. The present study evaluated the seropositive of *T. gondii* infection in stray dogs in Konya province, Turkey. A total of 334 plasma samples were collected from dogs of both genders (males and females) aged between (0-1> years and 1-3> years) during the period of July 2017 - July 2018. The samples were then analyzed by Sabin-Feldman dye test (SFDT) to detecting *T. gondii* - specific antibodies in plasma. The results of this study showed that the total prevalence of *T. gondii* antibodies were 98.5%. The percentage of infection was 99.2% and 98.1% by SFDT in the males and females, respectively. The number of positive cases was 14 (100%) in 0-1 years old animals, and was 315 (98.4%) in the age group of 1-3 years and significant differences in (1-3 years) age group was ($P \leq 0.05$). No significant differences were observed between sexes ($P > 0.05$). Of the animals with clinical signs, 98.3% (60/61) was positive SFDT. The number of positive in new and old entry dogs cases was 329/334 (98.5%), in new entries animals was 42/44(95.4%), and was 287/290 (99%) in the old entries animals. A significant differences were detected in old entry dogs ($P \leq 0.05$). During the study, it was recorded the clinical signs including paralysis and atrophy of hind limbs, nasal secretion, skin lesions, tick infestations, vomiting, diarrhea, nervous system disorders, and emaciation in 61 animals. One dog only, with the signs of paralysis and atrophy in hind limbs and skin lesions, were found to be positive by SFDT method.

Key words: stray dogs, clinical signs, sabin-feldman dye test, Turkey

This research was a part of PhD thesis /Konya-2019, supported by Selcuk University Scientific Research Projects Coordination((BAP)and Iraqi Ministry of Higher Education and Scientific Research(MOHESR), under the project number/17102030.



Effect of *Blastocystis hominis* on Eosinophil and Leukocyte Count in Blood

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Abstract:

Blastocystis hominis (*B. hominis*) is a possible factor in haematological abnormalities. The aim of the study is to compare eosinophil (EO) and leukocyte (WBC) count in blood in cases with *B. hominis* infection with those in *B. hominis* negative cases. Stool samples of 50 patients who were received at the Parasitology Laboratory of Van Yüzüncü Yil University Faculty of Medicine, Van, Turkey were inspected microscopically using saline and iodine-stained wet-mount preparations. The presence of 5 or more *B. hominis* in the microscopic field (X400) was evaluated as positive. In addition, for each sample collected, the patient's gender, age and the count of EO (%) and the WBC in the blood were recorded. Mann Whitney U test and Chi-square tests were used for statistical analysis. A value of $p < 0.05$ was considered significant. As a result of the examination, 20(40%) of 50 stool samples were found to be positive for *B. hominis*. In *B. hominis* positive cases, mean EO (%) and WBC (cells/ μ l) count were calculated as 0.53 ± 0.9 and 8180 ± 1990 , respectively. In *B. hominis* negative cases, these values were calculated as 0.69 ± 1.18 and 6790 ± 2270 cells/ μ l, respectively. There were statistically significant differences between the two groups regarding the distribution of WBC count ($P=0,013$). But there were not for distribution of EO (%) count ($P=0,501$). As a result, it was observed that the WBC count was higher in *B. hominis* positive cases than in negative cases. However, a more comprehensive study in a healthy population is recommended to determine the effect of *B. hominis* on blood parameters.

Keywords: *Blastocystis hominis*, eosinophil, leukocyte

Synthesis, Characterization and Evaluation of Anticancer Activity of Green Synthesized Silver Nanoparticles Coated with Plant Extract of *Centella Asiatica*

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Abstract:

In the present study, an easy one-pot synthesis procedure was developed for silver nanoparticles (AgNPs), including only silver salt and plant extract of *Centella Asiatica* (CA). CA plant extract capped AgNPs (CA-AgNPs) formation was proved by characteristic surface plasmon resonance (SPR) peaks at around 420 nm wavelength. The size and zeta potential of CA-AgNPs were found by a Zetasizer. It was found that the obtained nanoparticles had negative surface charge and the results indicated CA-AgNPs were stable. The chemical structure of the CA-AgNPs was investigated by a fourier transform infrared spectroscopy (FTIR) with ATR method and it was found that carboxylate and hydroxyl ions were involved in reduction of silver ions to AgNPs. Transmission electron microscopy (TEM) and scanning electron microscopy (SEM) examinations showed that the obtained nanoparticles have spherical shape. In addition, energy-dispersive X-ray spectroscopy (EDS) and X-ray fluorescence (XRF) analyzes were performed for the determination of silver in the structure of CA-AgNPs obtained by mixing CA plant extracts with silver nitrate. Thermal properties of CA extract and CA-AgNPs were examined by thermogravimetric analysis (TGA) and differential scanning calorimetry (DSC). It was found that the thermal stability of CA-AgNPs was higher compared to pure plant extract. With antibacterial test, it was investigated that the obtained nanoparticles have antibacterial activity on both gram-positive *Staphylococcus aureus* and gram-negative *Escherichia coli*. The cytotoxicity effects of CA and CA-AgNPs samples on L929 fibroblast were investigated by MTT test using 96-well plates. As a result, CA-AgNPs showed high cell viabilities (> 70%) up to certain concentration (1 mM) and it has been observed that the nanoparticles obtained after this concentration have a cytotoxic effect. In addition, the selected CA-AgNPs (1 mM) showed a prominent cytotoxic effect for SK-MEL-30 skin cancer, MCF-7 breast cancer, H1299 lung cancer at the highest dose (1/2 dilution rate). These results showed that CA-AgNPs at certain concentration are suitable nanoscale vehicles for many biomedical applications.

Keywords: *centella asiatica*, silver nanoparticles, antibacterial activity, biocompatibility, anticancer activity

**Molecular Investigation of *Lachnus* spp. (Hemiptera: Aphidoidea)
Distributed in Turkey[#]**

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Abstract:

Aphids can adapt easily to changing environmental conditions because of their small body, parthenogenetic reproduction and telescopic generation. Therefore, aphids spread expeditiously and the damage they give increase gradually. The plant pest as host specific aphids cause two times more damage to their host plant directly as well as indirectly as a vector of many plant viruses. Turkish aphid fauna is represented with nearly 591 aphid species. The genus *Lachnus* that feed on branches and stem of the trees in the genus Casuarinaceae, Eleagnaceae, Fagaceae, Moraceae, Quercus and Salicaceae. Although genus *Lachnus* has 28 determined species, *Lachnus crassicornis* Hille Ris Lambers, 1948, *Lachnus longirostrum* David & Ghosh, 1982, *Lachnus pallipes* (Hartig, 1841), *Lachnus roboris* (Linnaeus, 1758), *Lachnus pseudonudus* Kanturski & Wieczorek, 2014, *Lachnus swirskii* Hille Ris Lambers, 1954 and *Lachnus tuatayae* Remaudiere, 2005 recorded from Turkey. This study aimed to give information about molecular variations of *Lachnus* spp. distributed in Turkey. Samples collected from Adıyaman, Antalya, Karaman, Malatya and Muğla provinces from 2015-2021. The voucher samples were deposited in entomology laboratory of Niğde Ömer Halisdemir University. Mitochondrial cytochrome oxidase I (COI) sequences of 658 bp in length were analyzed in 20 samples from different localities and 11 haplotypes were determined. Mitochondrial 12S ribosomal RNA (rRNA) sequences of 388 bp were analyzed in 24 samples from different localities and 6 haplotypes were determined. To evaluate phylogenetic relationships of *Lachnus* members, Maksimum Likelihood (ML) and Neighbor Joining (NJ) tree constructed with 10000 replicates. Bayesian Inference (BI) tree constructed with 100000 generations.

Keywords: Aphid, COI, 12S rRNA, Hemiptera, *Lachnus*, Turkey

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Bacterial Catalase Activity Combined with Optical Device for Detection of Hydrogen Peroxide

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Abstract:

Today, the importance given to sterilization is increasing day by day. Hydrogen peroxide, which is included in the disinfectants used in daily life and sterilization studies in hospitals, appears as a highly toxic substance when not used at the appropriate dose. In case of exposure to an improperly used hydrogen peroxide content, people are at great risk. In this study, a color sensor-based concept and design to describe the presence of hydrogen peroxide based on the catalase activities of bacteria is demonstrated in a prototype. The color sensor used in the rapid detection system consists of; a transmitter which is basically a light source, a receiver that receives the reflected light and an electronic system that processes, amplifies and outputs the received signal. With the addition of color indicators to detect substances containing hydrogen peroxide, it can observe color changes and presents us the final outputs. Hydrogen peroxide is pale blue; it is a compound that becomes colorless when diluted and coloring is made by adding bromocresol purple and phenolrot color indicators to H₂O₂ in the study. Bromocresol purple turns from yellow to purple in the presence of intense hydrogen peroxide. Phenolrot turns from red to yellow in the presence of intense hydrogen peroxide. Arduino software was used in the study and this software was uploaded to the arduino uno board. Color transformations are detected by the TCS34725 color sensor connected to the arduino uno card, and the color information detected on the LCD screen connected to the circuit is instantly given to the user. In this study, the design, measurement and optimization of the measurement of the presence of hydrogen peroxide containing color indicator for the catalase activity of bacteria was carried out by using arduino software with the color sensor. The ultimate purpose of the sensor designed in the study is to monitor the presence of hydrogen peroxide under the color sensor with a detection kit containing various color indicators based on the catalase activity of bacteria which has highly toxic effect. Thanks to the study, it will be possible to use hydrogen peroxide at the appropriate doses.

Keywords: Hydrogen Peroxide, Bacteria, Catalase Activity, Color Indicators, Color Sensor, Arduino

To Overcome Multidrug Resistance of Ovarian Cancer with Carrying Anti-Bcl2 siRNA “Smart” Nanoparticles and Cisplatin

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Abstract:

Multidrug resistance (MDR) commonly reduces the cytotoxic effects of chemotherapeutics, and MDR has also been associated with cancer recurrence and chemotherapy failure. Bcl-2, one of the anti-apoptotic mediator molecules, is overexpressed by many MDR tumor types and plays a role in cancer cell survival in the presence of chemotherapy agents. The aim of this study is to investigate combinational siRNA and drug delivery for treatment of ovarian cancers using a novel nanocarrier system. Anti-Bcl-2 siRNA carrier nanoparticle is consisting of cationic smart copolymer and poly(ethylene glycol) (PEG), which is formed by using β -cyclodextrin (β -CD) as the main carrier platform. Simultaneous therapy with anti-Bcl-2 siRNA and cisplatin was provided to increase the efficacy of cisplatin by reactivating resistant ovarian cancer cell. The molar ratio of the carrier to siRNA (N/P), which is called the complexation capacity of nanocarrier with the siRNA, was investigated by gel electrophoresis protocol and the optimum rate of N/P was found at 4/1. Further, the nanoparticles were characterized by dynamic light scattering for measuring the size and zeta potential. The size of nanocarrier with different N/P ratios was determined between 150-300 nm and zeta-potential was increased by increasing N/P ratio because of the positively charged groups of the carrier. The suppression of the Bcl-2 in cisplatin-resistant ovarian cancer cells (A2780cis) treated with our developed novel “smart” β -CD based nanoparticles was also investigated. In the following experiments we have investigated inhibition of Bcl-2 protein and its therapeutic effect with cisplatin, anti-cancer agent for a combination therapy.

The prepared delivery system is a promising platform to enhance the treatment response of ovarian cancer cells with the cocktail of therapy of anticancer drug and siRNA gene therapy.

Keywords: anti-Bcl-2 siRNA, cisplatin, nanomedicine, multidrug resistance, β -cyclodextrin

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The Dicyano Compound Induces Autophagic or Apoptotic Cell Death via Twist/c-Myc Axis Depending on Metastatic Characteristics of Breast Cancer Cells

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Abstract:

Autophagy and apoptosis considered as the major programmed cell death mechanisms are among the current target mechanisms for cancer therapies, but there are some difficulties in clinical treatment such as the development of drug resistance and cancer recurrence. In this study, we hypothesized that the dicyano compound (DC) may have antiproliferative effects on breast cells, so firstly determined IC50 values of the DC on two different breast cancer cell lines, MDA-MB-231 and MCF-7 by MTT for 48 hours and observed it has antiproliferative effect on both cell lines. We wanted to examine autophagy mechanism of breast cancer cells treated by the DC, so we evaluated expression levels of LC3B, an autophagy marker, by western blotting. The results showed the DC induced autophagy in metastatic MDA-MB-231 cells while not induced in long-term manner in non-metastatic MCF-7 cells, suggesting that the DC-induced autophagy could depend on the metastatic characteristics of breast cancer cells. We performed TUNEL assay and evaluated BAX and Bcl-2 expression to determine whether DC could induce apoptosis in both cell lines and observed that it induced apoptosis in MCF-7, but not in MDA-MB-231. We evaluated c-Myc expression and our results showed that the opposite responses of breast cancer cell lines to the DC may be due to c-Myc. To identify whether autophagy induction by the DC directly correlates with c-Myc, we induced autophagy with Torin1 in MCF-7 cells while repressed autophagy with chloroquine in MDA-MB-231 and evaluated c-Myc expression. The results revealed that c-Myc could be a marker to determine cell fate during autophagy. We hypothesized that a major transcriptional activator of Twist could implicate in the DC-induced c-Myc downregulation in MCF-7 cells exhibiting an epithelial character. Then, we treated the Twist-transfected MCF-7 cell line with DC and observed that c-Myc was not downregulated upon the DC treatment in MCF-7 cells overexpressing Twist while c-Myc expression was decreased in presence of the DC treatment in the negative control MCF-7 cells. Consequently, we suggest that Twist/c-Myc axis may regulate the selection of cell death mechanism of breast cancer cells like a switch protein during the DC treatment.

Keywords: Autophagy, Apoptosis, EMT, c-Myc, Twist



**Phytochemical Screening and Evaluation of the Antioxydant Activity of
Phoenix Dactylifera L. Seeds**

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Abstract:

The date palm (*Phoenix dactylifera L.*) is a popular fruit among Middle Eastern countries. Indeed, it is a staple food for millions of people in these countries. Besides, Date palm plays an important economic, social and ecological role for people living in arid and semi-arid areas. Date seeds, also known as pits or seeds, are waste products from date processing and packaging plants. Therefore, seeds contain many precious substances such as carbohydrates, vegetable oil, dietary fiber, bioactive polyphenols, and natural antioxidants. The latter can be used in many applications such as the formulation of food supplements, cosmetics, or alternative medicine. In south Moroccan folklore, date seeds are frequently used for making non-caffeinated coffee or for making eyeliner kohl and hair coloring by ladies. They can also be used as an alternate feed ingredient for cattle to increase their weight. Phytochemical profiling indicates the presence of some important compounds such as polyphenols, flavonoids, tannins, carotenoids, saponins, terpenes, anthocyanins, and leucoanthocyanins with a lack of tannins gallic and cardiac glycosides. Likewise, date seed oil contains 38.71-50.08% of saturated fatty acid and 48.89-60.77% of unsaturated fatty acid with lauric and oleic as the main ones, respectively. The quantitative analysis of date seed extract showed a high amount of phenolics, flavonoids, and tannins content. It also contains an important amount of alkaloids and saponins. The inhibitory activity by DPPH, ABTS, and FRAP of date seed extract shows that Moroccan date palm seeds have a high antioxidant potential. It can be considered as a great source of natural antioxidants and bioactive compounds having a decent biological process, therapeutic, medicinal, and purposeful values.

Keywords: Antioxidant activity; Bioactive compounds; Date seed; *Phoenix dactylifera L.* ; Phytochemical Profiling.



Identification of Potential Antiglycating Molecules by Using Molecular Docking and In-Vitro Approach

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Abstract:

Glycation is a nonenzymatic process of interaction between the carbonyl group of sugars and amino groups of proteins. This interaction leads to generation of a group of harmful compounds collectively called as advanced glycation end products (AGEs). The glycating potential of sugars vary according to their interaction, binding affinity and concentrations. Lysine and arginine are two the most important amino acids in the protein structure to which carbonyl groups of the sugars interact. The amount of glycation products generated depends on the number of these basic amino acids and their accessibility. In the present study the binding sites of different glycating and antiglycating agents on Hemoglobin and serum albumin were analyzed. Analysis of the binding sites was done with the help of molecular docking approach. Several artificial and natural compounds were assessed for predicting their antiglycating potential. These results indicate that Ferulic acid (phytochemical) and acesulfame potassium (an artificial sweetener) had the highest binding affinity and most common interacting residues with Hemoglobin. Based on these molecular docking results the antiglycating molecules were further assessed using spectroscopic techniques and transmission electron microscopy confirming their potential role in prevention of formation of AGEs and glycation induced processes like aggregation of proteins and glycoxidative damage of DNA. It can be concluded that molecular docking tools can be used for analyzing the interaction between sugars and proteins and further characterization of their antiglycating potential.

Keywords: Artificial sweeteners, Glycation, Ferulic acid, Hemoglobin, Molecular docking



Anticancer Effect of the Cardiac Glycoside Oleandrin in Various Human Cancers

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Abstract:

Cancer is the second most fatal disease after cardiovascular diseases. In order to eliminate the side effects of drugs used in cancer treatment, it is important to determine non-toxic doses for normal cells. Oleandrin is a compound obtained from *Nerium oleander* which has been used in the treatment of different diseases throughout history. It has strong side effects because it is a cardiac glycoside. Previous studies have shown that low doses (nM) of oleandrin can be effective on cancer cells without being cytotoxic to normal cells. Objective of this study was to investigate the anticancer effect of oleandrin on human malignant melanoma cells (A375), human head and neck squamous cell carcinoma cells (SCCL-MT1) and human endometrial carcinoma cells (Ishikawa). Cells were grown in suitable medium and planted in 96 well plates. XTT proliferation tests were performed at 24, 48 and 72hour intervals, including 8 different doses between 7.5 and 300 nM. IC₅₀ doses were determined for each cell. According to XTT proliferation test results, IC₅₀ doses were determined as 47 nM, 82.9 nM and 75.3 nM at 48hour for A375, SCCL-MT1 and Ishikawa cell lines, respectively. Oleandrin was found to be cytotoxic in three different human cancer cell lines. It significantly reduced the viability of cancer cells. Oleandrin at nanomolar concentrations appears to be usable to eliminate cancer cells. However, advanced molecular analyzes are required to explain these mechanisms. In addition, cardiac effects should be evaluated at these concentrations.

Keywords: oleandrin, cytotoxicity, cancer

The Effect of a New Synthesized Benzimidazole Derivative Compound on Endoplasmic Reticulum Stress and UPR Signaling Pathway in BEAS-2B Cells Induced with Hydrogen Peroxide[#]

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Abstract:

The airway epithelium is an integral part of the respiratory tract and acts as a physical barrier between the external environment and the tissue under the epithelium. It also protects the respiratory surface from pathogens and foreign particles. The inhaled cigarette smoke, air pollution and respiratory infection causes an increase in intracellular reactive oxygen species and endoplasmic reticulum (ER) stress. This causes damage to respiratory epithelial cells in the lungs and plays an important role in the initiation and/or progression of inflammatory respiratory diseases such as chronic obstructive pulmonary disease (COPD). In this study, the human bronchial epithelial cell line (BEAS-2B) were exposed to hydrogen peroxide (H₂O₂) and an oxidatively damaged cell model was created. Under the conditions of oxidative stress, it aimed to clarify at gene level whether the newly synthesized benzimidazole derivative compound (RHE-231) has a protective effect on ER stress pathway. In this respect, BEAS-2B cells were exposed to H₂O₂ at different concentrations (0-200 µM) and durations (24 and 48 hours), and after appropriate concentrations (10 and 20 µM) and duration (24 hours) have been determined, oxidative damaged cell model created. Then, BEAS-2B cells were exposed to RHE-231 for 24 hours at different concentrations (0-100 µM) and appropriate concentrations (5 and 10 µM) were determined. After then, expression levels of IRE1α, PERK, ATF6 and GRP78 genes were evaluated. IRE1α (11.95 fold $p=0.026$ at 20 µM H₂O₂ + 5 µM RHE-231 concentration; 14.31 fold $p=0.000037$ at 20 µM H₂O₂ + 10 µM RHE-231 concentration), PERK (3.65 fold $p=0.032$ at 20 µM H₂O₂ + 5 µM RHE-231 concentration; 39.27 fold $p=0.012$ at 20 µM H₂O₂ + 10 µM RHE-231 concentration), but there was no significant difference between ATF6 and GRP78 gene expression levels ($p>0.05$). In conclusion, in this study, it was demonstrated that H₂O₂ mediated oxidative stress in BEAS-2B cells stimulated ER stress and activated the unfolded protein response (UPR) pathway, but the newly synthesized benzimidazole derivative compound RHE-231 was not effective in relieving ER stress.

Keywords: oxidative stress, BEAS-2B, ER stress, benzimidazole

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Dual Delivery of Doxorubicin and Bcl-2 siRNA Using Gold Nanoparticles for Enhanced Sensitivity to Chemotherapy

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Abstract:

Silencing of specific genes is a powerful approach for treatment wide range of diseases and make us come closer to genome based personalized treatments. Regulation of the genes, which have abnormal activity in cancer cells, has the great potential to increase treatment efficiency. Bcl-2 is one of the overexpressed genes in cancer cells inhibiting the apoptosis and maintaining the tumor survival. Most of the chemotherapeutics induces DNA damage resulting apoptosis. However, high level of Bcl-2 protein inhibits cell death mechanism and prevents chemotherapy effectiveness. In this study, simultaneous delivery of siRNA against Bcl-2 gene and doxorubicin, a commonly used antracyclin type chemotherapy drug, was intended to increase the efficiency of chemotherapy on breast cancer cells using gold nanoparticles (AuNPs). 13 nm AuNPs were synthesized and the surface of AuNPs was covered with thiol-modified siRNAs by salt aging method. Doxorubicin was then loaded to the carrier through intercalation to nucleic acid molecules, which allows drug loading without changing the chemical nature of the drug molecule. Synthesis, modification and drug loading were followed using UV/Vis spectroscopy and dynamic light scattering. The developed nanocarrier system did not show any toxic effect and was stable in serum containing environment up to 48h. Effective silencing of the Bcl-2 gene and increased internalization of doxorubicin was obtained using the AuNPs. Delivery of both Bcl-2 siRNA and doxorubicin led enhanced inhibition of triple negative breast cancer cell proliferation compared to free doxorubicin treatment. The proposed carrier system is biocompatible and provides a multi model delivery of therapeutics resulting in enhanced chemotherapy efficiency.

Keywords: Gold nanoparticles, Gene therapy, siRNA, Bcl-2, Doxorubicin, Breast cancer

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Development of β -CD Based Polymeric Carrier for Anti-TGF- β 1 siRNA Delivery on Breast Cancer Cells

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Abstract:

Gene-based therapy strategies open doors for the treatment of a wide variety of diseases, especially cancer, by manipulating gene expression. In recent years, siRNAs have been frequently used for cancer treatment. To exhibit their therapeutic capability, siRNAs have to be in the cell cytoplasm and also by-pass in various biological barriers such as, serum stability, and endosomal escape, which are the main limitation of siRNA-based therapeutics. Thus, it is clear that urgently need development of siRNA carrier systems. Here we designed β -CD based polymeric carrier for siRNA delivery to the breast cancer cells. β -cyclodextrin (β -CD) approved by FDA is used as the main platform hosting cationic copolymer in a primary surface that can complex with siRNA. The alkyne functional copolymer complexing with siRNA, consist of pH-sensitive, hydrophobic, and cationic monomers. The designed carrier system was used for effective delivery of siRNAs against transforming growth factor- β 1 (TGF- β 1), which inhibits cancer cell metastasis in advanced stages. β -CD based polymeric carrier was synthesized and characterized by using DLS, UV Spectrometer, SEM, ¹H NMR, FTIR, GPC and its complexation with siRNA was investigated by gel electrophoresis according to amine/phosphate groups (N/P) ratios. To evaluate *in vitro* gene delivery capability of the polymeric carrier fluorescence imaging and flow cytometry performed and effective gene silencing was demonstrated using Western blotting and inhibition of cell migration was evaluated with wound healing assay. The 2/1 N/P was determined as the optimum ratio at which the siRNA and the carrier were completely complexed. It was determined that the carrier complexed with FAM-labeled siRNA at 4/1 N/P ratio had cellular uptake with approximately 80% efficiency. It was observed that wound healing was suppressed by up to 85% compared with untreated group. The designed carrier system provides successful delivery of siRNA therapeutics into cytoplasm and effective silencing of TGF- β 1 in breast cancer cells resulting inhibited cancer cell proliferation and migration.

Keywords: gene therapy; short-interfering RNA (siRNA); transforming growth factor- β (TGF- β); cationic copolymer; breast cancer

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Investigation of Virulence Genes in *Escherichia coli* Strains Isolated from Blood and Urine Samples

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Abstract:

Extraintestinal *Escherichia coli* isolates are the most common gram-negative pathogens in humans and can cause urinary tract infections, sepsis, neonatal meningitis and other extraintestinal infections. The virulence factors are responsible for the severity of the infections. Knowing the virulence characteristics of *E. coli* is important for understanding its complex structures. This study aims to investigate the virulence genes (*kpsM II*, *neuc K1*, *hlyF*, *fyuA*, *afa/draBC*, *sat*, *chuA*, *fimH*, *tsh*, *yfcv*, *ibeA*, *traT*, *iucD*, *usp*, *iutA*, *cnf1*, *hlyA*, *papC*, *sfa/focDE* and *ompT*) of *E. coli* strains. A total of 150 *E. coli* strains isolated from blood and urine samples sent to Selcuk University Medical Faculty Hospital Microbiology Laboratory were included in the study. Identification and antibiotic susceptibility tests were performed with the VITEK2 automated system. PCR was used to detect virulence genes. The highest antibiotic resistance rate in *E. coli* strains was detected against ampicillin (73.3%). The resistance rates were determined to amoxicillin/clavulanic acid 58.7%, trimethoprim/sulfamethoxazole 47.3%, ceftazidime and ceftriaxone 41.3%, ciprofloxacin 34.7%, gentamicin 23.3%, piperacillin/tazobactam 13.3%, amikacin 2%, ertapenem and meropenem 0.7%. ESBL positivity was 38% in *E. coli* strains isolated from blood samples and 29% in urine isolates however, the difference was not statistically significant. The highest rates of virulence genes in *E. coli* strains were detected in *fimH* gene (92%), followed by the *iutA* gene (91.3%). *traT* was %76, *fyuA* %50, *chuA* %54,7, *iucD* %46,7, *ompT* %32,7, *yfcv* %31,3, *hlyF* %28,7, *sat* %22, *papC* and *sfa/focDE* %20, *kpsM II* %19,3, *neuc K1* %14,7, *tsh* %13,3, *cnf1* %6,7, *afa/draBC* %6, *ibeA* %5,3, *usp* %4,7, and *hlyA* %3,3. When the virulence genes were evaluated according to the samples, the difference was statistically significant for the *kpsM II*, *tsh*, *hlyA*, *papC*, *sfa/focDE*, *afa / draBC*, *iucD*, *ompT* genes. In conclusion, the high antibiotic resistance rates and virulence genes were detected in *E. coli* strains in Konya/Turkey. Our study is the first study in our country where many virulence factors were investigated and compared in *E. coli* strains isolated from urine and blood samples. Multicentre studies are needed to better understand *E. coli* virulence.

Keywords: *Escherichia coli*; virulence factors; antibiotic resistance

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***Blastocystis* spp. Detection in Patients with Urticaria and Determination of Subtypes**

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Abstract:

Blastocystis species are enteric protozoans commonly seen in humans and animals. Today, 17 subtypes have been identified, nine of which have been isolated from humans. Some subspecies detected in humans are thought to be related to pathogenicity, and some subspecies to be apatogenous. In study, it was aimed to detect *Blastocystis* spp. in patients diagnosed with urticaria, to determine the frequency of urticaria associated with the parasite, and to compare these patients with control group patients. Direct microscopic examination was performed using the native-lugol method. *Blastocystis* subtypes were determined using PCR and sequencing methods. Included a patient group consisting of 100 patients with urticaria who applied to the Dermatology outpatient clinic of Selcuk University Faculty of Medicine between February 2019 and February 2020, and a control group consisting of 100 healthy volunteers who applied to the Medical Microbiology Laboratory of Selcuk University, Faculty of Medicine. A questionnaire containing information such as patient complaints, socio-economic level and hygiene was applied to the patient group. *Blastocystis* spp. was found positive in 9 (9%) people in the patient group and in 5 (5%) people in the control group. *Entamoeba* spp. and *Blastocystis* spp. were found together in 2 (2%) of the positive samples belonging to the patient group. *Entamoeba* spp. and *Blastocystis* spp. were detected together in 1 (1%) of the positive samples belonging to the control group. *Blastocystis* subtype was found distribution determined in the patient group: ST2 (n = 4, 44,4%), ST3 (n = 3, 33,3%), ST1 (n = 1, 11,1%), ST4 (n = 1, 11,1%), *Blastocystis* subtype distribution determined in the control group: ST3 (n = 2, 40%), ST1 (n = 2, 40%), ST2 (n = 1, 20%). The high rate of ST2 in the urticaria patient group as a result of determining subtypes may indicate that it plays an important role in terms of its pathogenicity. The relationship between ST2 and the symptoms of bloating and abdominal pain is striking according to the data obtained from the questionnaire applied to patients with urticaria.

Keywords: *Blastocystis* spp., PCR, subtype, urticaria

This research was supported by the Scientific Research Projects Coordination Office of Selcuk University with the project number 19202027.



Investigation of Prevalence of *Blastocystis* spp. in Patients Admitted to Our Hospital with the Diagnosis of Gastroenteritis

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Abstract: *Blastocystis* spp. is one of the most common protozoans in worldwide. *Blastocystis* spp. may cause gastroenteritis symptoms such as diarrhea, abdominal pain, bloating, gas, cramps, vomiting, nausea, and anorexia. The aim of this study was to investigate the presence of *Blastocystis* spp. in patients with gastrointestinal complaints and to determine its prevalence in various age groups. The parasitology data between December 2018 - December 2020 in Selcuk University Medical Faculty Hospital Medical Microbiology Laboratory were retrospectively analyzed. Stool samples were examined for parasites by direct microscopic examination (native, lugol) and stool concentration methods. According to the results, the prevalence of *Blastocystis* spp. was determined in various age groups. *Blastocystis* spp. positivity was found in 256 (8.1%) of the patients out of 3147 patients diagnosed with gastroenteritis. Of the patients with positive *Blastocystis*, 135 (53.1%) were male and 121 (46.9%) were female. Of the patients who were found to be positive for *Blastocystis* spp., 52 were in the 0-18 age range, 38 were in the 18-25 age range, 87 were in the 25-40 age range, 44 were in the 40-60 age range, and 35 were over 60. Of the *Blastocystis* spp. positive samples, 65 (25.3%) were from the Emergency Medicine clinic, 44 (17.1%) from the Gastroenterology clinic, 32 (12.6%) from the Pediatric Emergency clinic and 30 (11.7%) was sent from the Child Health and Diseases Unit. *Blastocystis* spp. is one of the most common parasite agents in patients with gastroenteritis. Some *Blastocystis* subtypes are thought to be pathogenic, while others are non-pathogenic. For this reason, large-scale prospective case-control studies on *Blastocystis* spp.-related diseases will be of great importance in terms of revealing more concrete data on the pathogenicity of the parasite.

Keywords: *Blastocystis*, gastroenteritis, direct microscopy



Evaluation of Rheumatoid Factor and Antinuclear Antibody in Rheumatoid Arthritis Patients

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Abstract:

Rheumatoid arthritis (RA) is a chronic inflammatory and destructive joint disease that affects 0,5-1% of the population in the industrialized world and commonly leads to significant disability and consequently a reduction in quality of life. In this study we aim to investigate rheumatoid factor and antinuclear antibody positivity of rheumatoid arthritis patients. In the study, antinuclear antibodies and rheumatoid factor result of patients were retrospectively analyzed between 01.01.2020-31.12.2020 dates. Rheumatoid factor was studied with nephelometric method (Beckman Coulter Image 800, USA). Antinuclear antibody test was carried out in serum by Indirect Fluorescent Antibody (IFA) method and was examined under fluorescence microscopy. In this study, totally 3885 blood samples were analysed and 176 of patients were prediagnosed with rheumatoid arthritis. 89 (71,7%) of the patients were female and 35 (28,3%) of patients were male. Of the 176 rheumatoid arthritis patients, 124 were rheumatoid factor positive and 24 were ANA positive. The ANA test alone is not a diagnostic test for a rheumatic disease, but it supports the diagnosis of rheumatic diseases. 24 (20%) of the RA patients were also positive for ANA and RF. Rheumatoid factor is a sensitive, but nonspecific test for rheumatoid arthritis. We detected 70,4% of the RA patients were also positive for RF. Therefore, we suggest that rheumatoid factor and ANA tests positivity should be controlled for rheumatoid arthritis patients.

Keywords: Antinuclear Antibody, Rheumatoid Arthritis, Rheumatoid Factor



Microbiological Evaluation of the Pathogens Isolated from the Sputum Samples of the Adult Patients Followed in the Intensive Care Units

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Abstract:

Nosocomial infections commonly occur and cause high mortality rates in the intensive care units (ICU). Using of broad-spectrum antibiotics, mechanical ventilation or catheterization are the most important causes for emerge of resistant pathogens in the ICU. In the present study, we examined the sputum samples of the adult patients followed in the ICU in Karabuk University Training and Research Hospital and we aimed to evaluate the causative pathogens and their antimicrobial resistance profiles for the lower respiratory tract infections. The sputum samples of the ICU patients were retrospectively evaluated during the one-year period between April 2019-2020. For the identification of pathogens automated systems and conventional methods were used. Antimicrobial susceptibility testing results were interpreted according to European Committee on Antimicrobial Susceptibility Testing (EUCAST) guidelines. 255 sputum cultures of 42 patients between the ages of 33-90 were analyzed. Totally 69% of the patients included in the study were male and 31% were female. In 226 (87%) of 255 samples were determined 13 different pathogen microorganisms, no growth was observed in 29 samples (13%). *Klebsiella pneumoniae* (33.7%) was the most common pathogen isolated from sputum followed by *Pseudomonas aeruginosa* (18%) and *Acinetobacter baumannii* (12%). Antibiotic susceptibility test was performed on all the samples with pathogenic microorganism growth, and antibiotic resistance was detected in 66.8% (151/226) of the samples. High rate multi antibiotic resistance was detected in *Klebsiella pneumoniae* isolates against to the most used antibiotics. *Acinetobacter baumannii* and *Pseudomonas aeruginosa* isolates antibiotic resistance was detected as 80% (24/30) and 45.6% (21/46) respectively. Tigesiklin were the susceptible drugs for *Acinetobacter baumannii* isolates and Ciprofloksasin and Ceftazidime for the *Pseudomonas aeruginosa* isolates. A total of 18 strains of *Escherichia coli* were determined in this study and 16 of the *Escherichia coli* isolates were ESBL (+) (extended spectrum beta lactamases). Necessary preventive measures should be done since multi high-resistance rates among *K. pneumoniae*, increasing resistance among *A. baumannii* isolates together with ESBL positivity among *E. coli* isolates will cause serious problems especially for the ICU patients in the future.

Keywords: antibiotic resistance, sputum, intensive care units.

Staphylococcal Infections: Epidemiology and Antibiotic Resistance

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Abstract:

Staphylococci are number one among the Gram-positive bacteria responsible for multiple infections in hospitals. The most dangerous strains those which are multi-resistant to antibiotics. This is the case of methicillin resistant staphylococci (MRS) which represents a major public health problem. The aim of this survey is to isolate and identify strains of staphylococci and to study their behavior towards the main active antibiotics. Prospective study carried out in the microbiology laboratory of hospital in Biskra (South East region of Algeria) for period of 12 months (August 2019 - August 2020). Our strains have been isolated from different products (pus, urine, blood...), from hospitalized patients and outpatients. Strains isolation was performed on several culture media: blood agar, nutrient agar, and Chapman's selective medium and identified by using conventional bacteriological techniques (Gram stain, catalase, coagulase, mannitol test, Dnase...), and automate identification by using Vitek2 (BioMérieux). The antibiotic sensitivity profile was determined by the Mueller-Hinton agar diffusion technique. Methicillin resistance was verified for each strain by a disc loaded with 5µg of oxacillin or cefoxitin (30µg). In a study period, 408 strains of *staphylococcus* were isolated which 165 strains (40.44%) are *Staphylococcus aureus*, while 59.56% of other strains represented coagulase negative staphylococci (SCN). among these isolated strains, a proportion of 30.37% are resistant to methicillin (SARM). The majority of staphylococci come from the blood culture (33.15%) followed by pus (24.75%), Most strains were isolated at the level of internal medicine services (39.25% of cases) with a percentage of 77.5% in adults, including 58.14% of cases recorded in females. All isolated strains of staphylococci showed resistance levels greater than 75% to betalactams and cephalosporins. No resistance was reported for glycopeptides and cyclins. However, there is a decreased resistance to sulfonamides (with 27%) and to macrolides (25% for erythromycin), Aminoglycosides remains active (gentamicin 9%, amikacin 0%); other resistance rates were 50% for ofloxacin, 40% for clindamycin and rifampicin. Multidrug resistant staphylococci remain among the most important and serious pathogens in human infections, and continued monitoring of antibiotic resistance is required for a better therapeutic approach.

Keywords: glycopeptides - methicillin - antibiotic resistance - staphylococci.



Changing of Initial Symptoms of COVID-19 by Months

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Abstract:

The aim of the study is to examine the monthly changings of the complaints that caused the first admission of patients diagnosed with Covid-19 to health institutions. It is to enable family physicians to determine strategies for approaching patients according to these changes, and to plan effective referrals to tested centers for early diagnosis, especially in healthcare institutions that cannot be tested. The study was done by retrospective data analysis method. In the study, the initial symptoms that caused 1506 Covid-19 patients diagnosed with PCR + between March and September 2020 to apply to health institutions were questioned. The variation of these symptoms and complaints by months was investigated. The data collected in the analysis of the study were recorded in the SPSS 22.0 program. In addition to descriptive statistical methods (mean, standard deviation, percentage, highest value, lowest value), the Chi-square test was used to compare qualitative data between groups. Results were considered significant at the $p < 0.05$ level. The average age of the participants ($n = 1506$) was 38.66 ± 16.51 (min 1, max 87). The most common first presentation symptom in Covid-19 patients was cough. It was seen in 92.24% ($n = 1389$) of the study participants. In the study, it was found that the incidence of fever and cough complaints varied significantly by months. ($p < 0.001$) There was no significant difference in the frequency of first-admission complaints by months, according to age and gender ($p > 0.05$). Cough and fever complaints, which cause Covid-19 patients to apply to health institutions, vary by month. In FMCs where Covid-19 PCR test cannot be performed, in the first applications of Covid-19 suspicious patients; It is important for family physicians to refer patients with cough symptoms in September and patients with fever symptoms in April to health institutions where they are tested.

Keywords: Covid-19, cough, fever, months, family physician



Arcobacter as a Neglected Abortion Agent in Ruminants

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Abstract:

Zoonotic abortive diseases that are transmitted by domestic and wild animals affect human and animal welfares. Among these that cause abortion, especially in sheep, goats and cattle; *Brucella melitensis*, *Campylobacter fetus*, *Chlamydia* spp., and *Salmonella* spp. are the most common agents. Studies on the epidemiology of *Arcobacter* spp., which are seen all over the world and are assumed as food-borne zoonotic agents, are very limited. In this study, *Arcobacter* species in sheep and cattle, which are mostly ignored and grouped as idiopathic diseases, were investigated. For this purpose, *Arcobacter butzleri*, *Arcobacter cryaerophilus*, *Arcobacter skirrowii* were molecularly investigated by PCR in a total number of 146 clinical cases of aborted sheep and cattle samples which are consisted of 13 sheep fetal stomach contents, 11 sheep vaginal swabs, 44 cattle fetal stomach contents and 78 cattle vaginal swabs. The molecular prevalence of *Arcobacter* species was found as 14.3%. Totally 11 samples (7 cattle vaginal swab and 4 cattle fetal stomach contents) were found positive for *A. butzleri*; four samples (2 cattle fetal stomach content and 2 cattle vaginal swabs) were found positive for *A. cryaerophilus* and six samples (3 cattle vaginal swab and 3 cattle fetal stomach contents) were found positive for *A. skirrowii*. None of the sheep clinical materials were found positive in terms of *Arcobacter* spp. The individual positivity rate was determined as 7.5% for *A. butzleri*, 2.7% for *A. cryaerophilus* and 4.1% for *A. skirrowii*. The high positivity rate found in the present study suggests that *Arcobacter* species as the abortion agents should not be ignored in the routine laboratory diagnosis. A surveillance system is recommended to implement control measures and prevent the spread of the agents.

Keywords: *Arcobacter butzleri*, *Arcobacter cryaerophilus*, *Arcobacter skirrowii*, cattle and sheep abortions, PCR.

Bloodstream Infections Caused by Multidrug-Resistant Gram-Negative Bacteria at a Teaching Hospital of Constantine, Algeria

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Abstract:

Bacterial bloodstream infections cause high morbidity and mortality worldwide in humans due to the emergence of drug-resistant pathogens, resulting in infections which are difficult to treat or even untreatable with conventional antimicrobials. The aim of this study is to describe the epidemiological aspects of bloodstream infections caused by multi drug resistant gram-negative bacilli (MDR-GNB), for that a prospective study was conducted at the University Hospital of Constantine, Algeria from September 2018 to February 2019. The disk diffusion method was used for antimicrobial susceptibility testing according to Clinical & Laboratory Standards Institute methodologies (CLSI) from different antibiotics (Ampicillin, Ticarcillin, Piperacillin, Ticarcillin/Clavulanate, piperacillin / Tazobactam, Ceftazidim, Cefepim, Aztreonam, Imipenem, Fosfomycin, Gentamycin, Pefloxacin, sulfamethoxazol / Trimetoprim, Colistin), in order to target multi-resistant strains. The search for ESBL-producing strains was according to the recommendations of CLSI. Our results showed a total of 54 isolates were collected from blood streams. Of the patients, 68% were male and 60% come from burn intensive care unit. Regardless of the specimen, there was two nosocomial organisms, *Acinetobacter baumannii* (*A. baumannii*) comprised 69% and *Pseudomonas aeruginosa* (*P.aeruginosa*) (31%). The isolates of *A. baumannii* and *P.aeruginosa* were resistant to commonly used antibiotics, the antibiotic resistance rates of *A. baumannii* isolates were higher: Carbenicillin (100%, 64.7%), Piperacillin (100%, 64.7%), Imipenem (83%, 35.3%), Ticarcillin (91.9%, 70.6%), Ticarcillin/clavulanate (94.6%, 47.1%), Cefepim (86.5 %, 41.2%), Aztreonam (86.5 %, 17.6%), Gentamicine (89.2%, 47.1%), Pefloxacin (86.5%, 64.7%), Tazobactam (83.8%, 41.2%), Ceftazidime (91.9%, 41.2%), Fosfomycin (86.5%, 47.1%), Sulfamethoxazol / Trimetoprim (83.8%, 94%). Among the *A. baumannii* strains 85% were MDR while *P.aeruginosa* isolates (42%). Colistin was the most effective against *A. baumannii* strains and *P.aeruginosa* with 100% sensitivity. To conclude bacteremia with resistant BGNNF is considered to be serious conditions, responsible for significant morbidity and mortality worldwide. Continuous monitoring of susceptibility profiles of pathogens to important antibiotics is warranted to provide appropriate antimicrobial regimens against bloodstream infections.

Keywords: blood stream infection, resistance, antibiotics, non-fermenting gram-negative bacilli.



Antioxidant and Antimicrobial Activity of *Asplenium ceterach*

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Abstract:

Asplenium ceterach L. or rusty-back fern is a plant species traditionally used in Mediterranean countries as an expectorant, diuretic, against spleen complaints, kidney stones and hemorrhoids. The objective or the aim of this research was to valuated *Asplenium ceterach* plant from the Tiaret region. Algeria. By the content of phenolic compounds and flavonoids, as well as the study of the antioxidant power and the antimicrobial activity organic extracts of this plant. Organic extracts were obtained by maceration using methanol as a solvent. The yield of extraction was 8%. The total content of phenolic compounds was determined using Folin-Ciocalteu reagent, which was 167.5 µg GAE/mg. The flavonoids were evaluated using AlCl₃ method, their content was 57.07 µg QE/mg. Antioxidant activity was evaluated using free radical reduction method (DPPH). It gave an IC₅₀ equal to 492 µg/ml. Antimicrobial activity was evaluated on six bacterial strains and one yeast, using well diffusion method. The obtained minimum inhibitory concentration (MIC) were 0.39 µg/ml for *Pseudomonas aeruginosa* ATCC 27853, 1.56 µg/ml for *Proteus mirabilis* ATCC 35659 and *Klebsiella pneumoniae* ATCC 13883, 3.125 µg/ml for *Staphylococcus aureus* ATCC 33862 and *Escherichia coli* ATCC 25922 and 25 µg/ml for *Candida albicans* ATCC 10231 and *Bacillus cereus* ATCC 10876. Our extract showed an effect on all the microorganisms tested.

Keywords: *Asplenium ceterach*, organic extracts, Phenolic compounds, antioxidant activity, antimicrobial activity.



Synthesis and α -Glucosidase Inhibitory Activities of Semicarbazone Derivatives Containing Benzimidazole Ring

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Abstract:

Diabetes Mellitus (DM), known simply as diabetes, is a major health problem as a metabolic disease and characterized by a failure of insulin production. If diet and exercise fail to adequately control blood glucose levels, it is recommended to start oral drug therapy such as α -glucosidase inhibitors. α -Glucosidase inhibitors delay the hydrolysis of carbohydrates and this action reduces the glucose absorption. α -Glucosidase enzyme plays a role in carbohydrate metabolism and has an important function in diabetes, viral infection, and cancer. Benzimidazoles are important nitrogen-containing heterocyclic compounds and literature review showed that there are a great number of studies on α -glucosidase inhibitory activity of benzimidazole derivatives. On the other hand, semicarbazones, as medicinally significant scaffolds, are imine derivatives formed by condensation reaction between aldehyde/ketone functional groups and $-\text{NH}_2$ group of semicarbazides. These derivatives are known to have a broad range of biological activity. Considering the importance of semicarbazone and benzimidazole bearing compounds, a series of 2-[(substituted phenyl)methylidene]-*N*-[6-(propylsulfanyl)-1*H*-benzimidazol-2-yl]hydrazine-1-carboxamide derivatives were synthesized from antihelmintic drug albendazole. The reaction of albendazole and hydrazine hydrate obtain *N*-[6-(propylsulfanyl)-1*H*-benzimidazol-2-yl]hydrazinecarboxamide and by the reaction of this compound with various aldehydes was gained 2-[(substitutedphenyl)methylidene]-*N*-[6-(propylsulfanyl)-1*H*-benzimidazol-2-yl]hydrazine-1-carboxamide derivatives. Structures of all the synthesized compounds were confirmed by $^1\text{H-NMR}$, FTIR, and elemental analysis. Also, all the newly compounds were checked for their purity using TLC and HPLC analyses. All the target compounds were evaluated for their α -glucosidase inhibitory activity and acarbose was used as a positive control. These benzimidazole derivatives show the inhibitory activity in the range of $\text{IC}_{50} = 12.88 \pm 0.98$ to 44.35 ± 0.21 $\mu\text{g/mL}$ compared with acarbose ($\text{IC}_{50} = 40.06 \pm 2.14$ $\mu\text{g/mL}$). In conclusion, most of the synthesized compounds showed the highest potential inhibitory activity against α -glucosidase. Thus, these compounds might be the best candidates for designing and discovering novel α -glucosidase inhibitors after further studies.

Keywords: benzimidazole, semicarbazone, glucosidase activity, albendazole



Computational Selection of Novel 4-Thiazolidinone Derivatives Containing Benzenesulfonohydrazide Structure as Inhibitors Against Mpro and RdRp of SARS-Cov-2 and Their Predicted ADMET Profiles

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Abstract:

COVID-19 (Human coronavirus) that has spread rapidly around the world since December 2019, is a disease with fatal consequences. The disease was declared a pandemic on 11th March, 2020 by WHO and 99.363.697 confirmed cases of COVID-19, including 2.135.959 deaths were reported until today. The Severe Acute Respiratory Syndrome Corona Virus 2 (SARS-CoV-2) strain is the cause of the disease which has brought serious economic problems caused by the mandatory isolation and quarantine of millions of people besides global health problems since the day it emerged. While vaccination studies against SARS-CoV-2 strain are continuing, there are no specific drugs are available for the treatment and management of this disease and the need for the development of specific antiviral agents against the mentioned virus is increasing day by day. Many clinical research and drug discovery efforts to identify potential treatments against COVID-19 require high costs and time. In this respect, computer-aided drug discovery provides an important advantage for predicting potential molecules before synthesis and in vitro testing. RNA-dependent RNA polymerase (RdRp) and the main protease have been important drug targets for molecular docking studies and they were identified by structural biological approaches for the SARS-CoV-2. RdRp is an essential enzyme involved in the replication of RNA viruses including SARS-CoV-2, and targeting various viral infections. However, inhibiting the activity of proteases that catalyze the proteolysis of polyproteins converted into non-structural proteins, which are necessary to package the nascent virion and viral replication from the viral genome, will inhibit the replication of the virus. In previous studies by our group, 1,3-thiazolidin-4-one derivatives were determined as inhibitor of HCV RdRp enzyme. In this study, *in silico* inhibition potentials of new 5-arylidene-1,3-thiazolidin-4-one derivatives containing benzenesulfonohydrazide structure designed against SARS-CoV-2 RdRp (nsp12) and main protease (MPro) and their ADMET profiles were investigated. As results of these studies, H-bond interactions of both sulfonohydrazide and thiazolidinone groups with the active site of related targets have been observed. Concerning *in silico* toxicity results for mutagenicity, tumorigenicity, irritant and reproductive effects, almost all designed compounds which have no violation for Lipinski rules', were estimated as safe.

Keywords: SARS-CoV-2 RdRp, SARS-CoV-2 MPro, 1,3-thiazolidin-4-one, molecular docking, ADMET.



Inhibition of Carbonic Anhydrase VII Isozyme with a Group of Amide Derivative

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Abstract:

Taurine (2-aminoethanesulfonic acid) is the only free, non-proteogenic amino acid in mammals which differs from conventional amino acids by comprising sulfonic acid instead of carboxylic acid function. The studies indicate that, it is a conjugating agent for bile acids, regulator of osmotic pressure, modulator of calcium homeostasis and signaling, enhancer for energy metabolism and muscle contraction strength, neuromodulator in the CNS and exerts antiepileptic, antioxidant, anticancer, antipyretic, anti-inflammatory and, anti-aging activities. Various derivatization studies have been conducted to use taurine as a drug substance however, there isn't any study evaluating taurine derivatives as carbonic anhydrase inhibitors. CA enzyme, which belong to metalloenzyme family, is responsible for the reversible hydration of carbon dioxide to bicarbonate ion and proton. Sixteen CA isoform has been investigated to date and contribution of CA I, II to edema; CA VA, VB to obesity; CA II, VII, XII to neuropathic pain; CA II, IX, XII to inflammation; CA IX, XII to tumorigenesis has been well documented. Herein our aim was to investigate the inhibition profile of taurine derivatives against CA VII isoform which is specifically expressed in brain tissues. Final compounds were obtained as amide derivatives by the reaction of taurinamidobenzensulfonamides with substituted benzoic acids. Chemical structures of the titled compounds were confirmed by spectral analysis. Compounds were tested for their CA inhibitory activity by using stop flow CO₂ Hydration Assay. The CA I, II and VII inhibitory activity of the final compounds were evaluated in terms of structure activity relationship. As a result; among the tested compounds; 4-methyl-N-(2-(N-(4-sulfamoylphenyl)sulfamoyl)ethyl)benzamide derivative displayed 4- to 11- fold better affinity against CA VII compared to other derivatives.

Keywords: taurine, carbonic anhydrase inhibitors, CA VII isozyme.

Acknowledgements:

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Investigation Chemical Compounds of *Datura* and *Hyoscyamus* Species

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Abstract:

The aim of study is investigation of chemical compounds of *D. innoxia*, *D. stramonium*, *H. niger*, *H. reticulatus* (Solanaceae) from Azerbaijan. In this study we research fatty acids in seeds oils of four species, alkaloids of *D. innoxia* and *H. niger*, amino acids, essential oils, triterpenic acids of *D. innoxia*. *Datura* species were collected around of Baku city, *H. niger* from Gadabay, *H. reticulatus* from Lerik districts of Azerbaijan. Alkaloids were extracted with 95% ethanol, isolated by acid-base extraction method (0.2 M H₂SO₄, NH₄OH, CHCl₃) and alkaloid bases used for determination. Alkaloids were determined by TLC, GC-MS (Shimadzu 2010), NMR (Bruker 600 MHz, CDCl₃). From *H. niger* leaves (1st year of vegetation) alkaloid mixture was extracted with CHCl₃ : CH₃OH : NH₄OH – 15:5:1. Solvent was evaporated, dry residue obtained, CHCl₃ and 1N H₂SO₄ added and shaken in separatory funnel. Aqueous acid phase was collected and basified with NH₄OH (25%) on the ice bath. Alkaloids were extracted with CHCl₃, filtered over Na₂SO₄, solvent evaporated, dry residue used for GC-MS analysis. Fatty acids of seed oils (extracted with hexane) of four species were analyzed by GC-FID method in comparison with the mixture of 37 fatty acids standards. Essential oils of *D. innoxia* leaves were extracted by hydrodistillation and analyzed by GC-MS (Agilent 5977A/7890B) in comparison with NIST 14 database. Amino acids of aerial parts of *D. innoxia* were determined with HPLC (equipped by ion-exchange column and amino acid detector - Hitachi L-8800) by ISO 13903:2005 methods. Scopolamine, ursolic and oleanolic acids were isolated from seeds of *D. innoxia* and determined by NMR. Main alkaloids of *H. niger* leaves were atropine, scopolamine, tropinone, homatropine, other tropane and traces of piperidine, pyrrol and indole derivatives. The main compounds of fatty acids are polyunsaturated types. 13 different compounds were observed in the essential oils of *D. innoxia* leaf. Some amino acids predominate in *D. innoxia* (total 22%) - aspartic acid (4.5%), glutamic acid (2.5%).

Key words: *hyoscyamus*, *datura*, alkaloids, amino acids, fatty acids

Investigating the Antidepressant-Like Activity of Tofisopam and the Underlying Pharmacological Mechanisms

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Abstract:

Depression is a psychiatric disorder that substantially reduces patients' quality of life. An anxiolytic drug with a structure of 2,3-benzodiazepine, tofisopam, is different from the classical 1,4-benzodiazepines and has a notable potential of inducing variety of effects on the central nervous system, including emotional state and behavior. Therefore, in this study, possible antidepressant-like activity of tofisopam was investigated and related underlying pharmacological mechanisms were elucidated subsequently. The putative antidepressant-like effect of tofisopam (25 and 50 mg/kg) was assessed by modified forced swimming test (MFST) and tail suspension test (TST). Possible involvement of the catecholaminergic and serotonergic systems in the activity was investigated using α -methyl-para-tyrosine methyl ester (AMPT, an inhibitor of catecholamine synthesis, 100 mg/kg, *i.p.*) and *p*-chlorophenylalanine methyl ester (PCPA, an inhibitor of serotonin synthesis, 100 mg/kg, *i.p.*, administered for 4 consecutive days), respectively. Further, spontaneous locomotor activity of the mice was evaluated by an activity cage apparatus. The experimental protocol was approved by the Local Ethical Committee on Animal Experimentation of Anadolu University, Eskisehir, Turkey. Obtained data indicated that tofisopam administered at 50 mg/kg dose caused a reduction in the immobility times of the animals in both in TST and MFST, which is comparable to the reference drug escitalopram (10 mg/kg); while 25 mg/kg dose was ineffective. In addition, tofisopam (50 mg/kg) increased the swimming and climbing times in MFST. The mechanistic studies showed that, the anti-immobility effect of tofisopam in the TST was reversed following the AMPT and PCPA pre-administrations. In the activity cage tests, horizontal and vertical locomotor activities of the mice were not changed, indicating the exhibited effects were specific. Obtained results suggest that tofisopam has a dual antidepressant-like effect, which is closely related to the central catecholamine and serotonin levels. However, beside the serotonergic and noradrenergic systems, different mechanisms involving the opioidergic, GABAergic, glutaminergic and nitrergic systems should also be investigated with further studies.

Keywords: tofisopam, modified forced swimming test, tail suspension test, catecholaminergic, serotonergic

Preparation and Characterization of Nebivolol Loaded Pluronic F-127 Coated Liposomes for Oral Drug Delivery

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Abstract:

Nebivolol hydrochloride (NB), a BCS (Biopharmaceutics Classification System) class II drug, is well known as a β 1-adrenergic blocking agent is widely used by the oral route in the treatment of hypertension and congestive heart failure. Although oral delivery is a first choice with respect to patient compliance, the poor aqueous solubility of drugs limits effective absorption. Liposomes are well known drug delivery systems that can enhance the delivery of both hydrophilic and hydrophobic drugs. It has been shown that coating the liposomes with various polymers could improve the stability of the formulation and increase the retention time at the specific site via the mucoadhesive properties. In this study, nebivolol loaded liposomes DPPC:cholesterol;stearyl amine liposomes (Lip-SA) or pluronic coated DPPC:cholesterol;stearyl amine liposomes (Lip-SA-Plu) have been prepared via film hydration method and characterized in terms of particle size, polydispersity index (PDI), zeta potential, physical stability, stability in simulated gastrointestinal fluids and interaction with mucin. Lip-SA-Plu showed a higher particle size and PDI and lower zeta potential than Lip-SA due to coating with the non-ionic copolymer pluronic F-127. In physical stability study, Lip-SA-Plu showed an increase in particle size in time although no aggregation was observed. However, particle size of Lip-SA slightly changed during four weeks. The results obtained indicate that the liposome formulations maintained their stability in both medium (SGF pH:1.2 and SIF pH:6.8). After the addition of mucin to the liposome formulations, higher size and turbidity was measured. Moreover, zeta potential decreased from positive values and reached zero. The turbidity change in the mixture of Lip-SA and mucin was found higher compared to Lip-SA-Plu. In this study, we aimed to develop stable NB-loaded liposomes that could improve bioavailability and show increased interactions with mucin, enhancing the retention time of the drug in oral cavity. Lip-SA and Lip-SA-Plu were stable in simulated gastrointestinal fluids and physical stability was achieved for four weeks at 4°C. In addition, Lip-SA formulation showed better interaction with mucin compared to Lip-SA-plu. It can be concluded that these liposome formulations can be good candidates for the delivery of poorly water-soluble drug, nebivolol hydrochloride by oral route.

Keywords: nebivolol hydrochloride, liposome, nanocarrier, oral route, pluronic.

This study was supported by Scientific Research Projects Coordination Unit of Istanbul University, No: 29675.

Solubility Improvement of Cefdinir Using Polyvinylpyrrolidone (PVP): Preparation of Solid Dispersions and Their Characteristic Properties

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Abstract:

Cefdinir (CEF) is an antimicrobial drug with a wide spectrum of activity. It is mainly used in infections yet is not the first choice considering its solubility and bioavailability problems. The main aim of this study is to improve therapy with CEF by enhancing its solubility and improving dissolution properties. Solid dispersions have been preferred for this purpose and polyvinylpyrrolidone (PVP) has been used to develop two different formulations, PVP-1 and PVP-2. Physical mixture of PVP and CEF was also prepared for comparison. Formulations were prepared by lyophilization following probe sonication with different conditions. To ensure that our formulations have reached their purposes, further experiments were conducted. A specific and selective UV-visible spectrophotometric method was used to determine CEF concentration and the method was validated according to ICH guidelines for linearity, accuracy, and precision. Solubility studies were conducted with pure CEF, physical mixture (PM-PVP) and our solid dispersions, PVP-1, and PVP-2. Solubility studies confirmed CEF's low solubility, less than 1 mg/mL, and showed a significant difference between pure CEF and solid dispersions. While there was also a significant difference between PM-PVP and both PVP-1 and PVP-2, there were no significant differences between PVP-1 and PVP-2. Therefore, PVP-2 was chosen as the optimum formulation and dissolution studies were conducted with PVP-2 and pure CEF in three different mediums, water, pH 1.2 and simulated intestinal fluid (SIF, pH 6.8), respectively. Solubility and dissolution profiles of pure CEF and the formulations were compared and evaluated according to literature. Our formulations were found to be successful in the purpose of improving therapy with CEF by demonstrating a better solubility with better dissolution profiles in all mediums.

Keywords: Cefdinir; solid dispersions; solubility enhancement; probe sonication



Effects of Gel and Extract Forms of Aloe Vera in GC-MS Compositions

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Abstract:

Aloe vera leaves consist of Av latex (extract) and Av gel in two basic part. Av gel has characteristics of polysaccharides. So this biochemical structure is antibacterial, antiviral and antifungal activity together with this, it is also effective most of the biological activities Furthermore, it has many properties such as antioxidant effects, antidiabetic properties, anti-inflammatory properties, stimulating repair properties against radioactive damage, stimulation of hematopoiesis, antineoplastic, immunomodulatory and gastroprotective effects. The aim of this study to reveal the extract and gel structures of Av as well as the effectiveness of Av on some microorganisms and to investigate possible use of Av in foods by being a natural antimicrobial and antioxidant activities which can be used to increase the quality of foods and extend shelf life. In this study, Aloe vera gel (*Aloe barbadensis* MILLER) and its extract (*Aloe barbadensis*) compositions were identified. Because, varieties of AV are natural antimicrobial for food and food product. Researchs continue to prove its antimicrobial properties on some microorganisms according to International Standart Organization Methods (ISO). Taking 0.5 mL of Av gel and extract and diluting with 4.5 mL of methanol, 5 mL of the mixture was taken into vials for GC-MS analysis. Then, Av gel and Av extract (*Aloe barbadensis*) compositions were identified by Thermo 8000 Gas Chromatography-Mass Spectrometry (GC-MS). Most of the compositions are Antimicrobial and Antifungal and some of them Antioxidant,. Furthermore Av is provides biological activities (lactic acide bacteria, probiotic bacteria counts of increase) both of them. In recent years most people prefer natural foods with food additives. Av gel and extract are natural antimicrobials and antioxidants for improving food quality hence extend shelf life, and with food quality assurance ensured. Therefore, most of work should done Av extract and gel structure should be used food additives.

Keywords: Aloe vera gel, Aloe vera extract, antimicrobial activity, GC-MS



**Quantitative Estimation of Tannins Fraction Extracted from Algerian Fir
(*Abies numidica* De Lannoy) Needles and Evaluation of its Biological
Activities**

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Abstract:

Nowadays a huge number of researches have been directed to plant, and use it as an alternative to synthetic remedies. We are interested in an Algerian endemic evergreen tree, the Algerian fir (*Abies numidica* De Lannoy). This plant possesses different therapeutic virtue; it was used in traditional medicine to treat inflammation, cataplasm, and respiratory problems. This research was aimed to extract tannins from *A. numidica* leaves and to examine their biological activities. The tannins content was determined by HPLC analysis, and their antioxidant activity was tested using DPPH, ABTS, CUPRAC, and reducing power assays, while, the antibacterial activity was investigated using disc diffusion method. The results showed that these plant leaves were rich in flavonoids, tannins, and saponins; reducing sugars were also found in considerable quantities; Anthocyanins and triterpenes were presented in low amounts; sterols were found in traces, however coumarins and alkaloids were absent. The tannins extract disclosed a potential antiradical agent in different tests examined at 1 mg/ml, and strong antibacterial activity with an inhibition diameter ranged from 6, 33±0, 58 mm to 14, 33±2, 08mm. To the best of our knowledge, we reported here for the first time the extraction of tannins from *A. numidica* leaves and their biological activities investigation. The findings of the current study showed, that the tannins extract could be used as a natural product in pharmaceutics or in the food industry and as a valuable source of natural antioxidants.

Keywords: *Abies numidica* leaves, tannins, HPLC analysis, antioxidant assays, antibacterial activity.



Evaluation of Algerian Durum Wheat Resistance against Fusarium Crown Rot and Fusarium Head Blight

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Abstract:

This research was conducted to evaluate multiple methods and parameters, for assessment of varietal resistance of 8 durum wheat (GTAdur, Cirta, Waha, Simeto, Hogar, Ammar6, Setifis and Bousselem) cultivars (cv) widely cultivated in Algeria against Fusarium crown rot (FCR) and Fusarium head blight (FHB). A highly pathogenic strain of *Fusarium culmorum* (FC11: MW151664/ MW149489), recognized as a common causal agent of both diseases in Algeria, was used in three susceptibility tests. Several phenotypic parameters were measured, the Petri dish test with the germination inhibition percentage (%GI) parameter for germination resistance, and the Area Under the Disease Progress Curve (AUDPC1) standard for resistance to initial infection of sprouted seed, the second test is the inoculation of the crown in the growth chamber with the Disease Severity (DS) standard for resistance to FCR, and the inoculation of the spike in the greenhouse by the AUDPC2 standard to measure the resistance to FHB, other additional parameters were measured after harvest. Results revealed that there is no significant correlation between the different parameters, except %GI and AUDPC1 with a highly significant correlation ($r=0.972$, $P < 0.001$). This result indicates that a simple, easy and stable *in vitro* Petri dish test can be used to predict the varietal resistance of different durum wheat cultivars against the initial seed infection by *F. culmorum*. On the other hand the cv. Setifis showed the highest levels of resistance with the lowest sensitivity values in all tests AUDPC1=25.61%, DS=48.75%, and AUDPC2=11.97%, so it can be a very promising source of genetic resistance to FCR and FHB in breeding programs, and an alternative for farmers to *Fusarium* sensitive cultivars. This study highlighted the complexity of resistance testing for FCR and FHB, and demonstrated the need to use many resistance testing protocols as possible.

Keywords: *Triticum durum*, *Fusarium culmorum*, resistance, cultivar.



Preparation and Characterization of Vitamin A Palmitate Loaded PLGA Based Nanodermacosmetics

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Abstract:

The way nanotechnology is used in the dermacosmetic / cosmetics industry under today's conditions is to transfer very small sized products such as nanoparticles produced in nanometric dimensions to the cosmetic content. Vitamin A palmitate is a very important component of many important and various biological functions such as reproduction, embryological development, cellular differentiation, growth, immunity and vision. Vitamin A palmitate also has antioxidant and sunscreen effects. This study describes the development and evaluation of poly (lactic-*co*-glycolic acid) (PLGA) nanoparticles for dermal delivery of Vitamin A palmitate. Structures of PLGA nanoparticles were elucidated by particle size, polydispersity index (PDI) and zeta potential. The particle size of the blank formulation was 181.77 nm whereas particle size of Vitamin A palmitate containing nanoparticles was 196.33 nm. The average PDI of all nanoparticle formulations were below 0.12 and all prepared nanoparticles had a negative zeta potential value. Particle size, PDI and zeta potential values of formulations prepared confirmed the successful preparation of Vitamin A palmitate into PLGA nanoparticles. Nanoparticle formulations seem to be promising for dermal delivery of Vitamin A palmitate for dermacosmetic use.

Keywords: PLGA, Vitamin A Palmitate, Nanoparticle, Dermacosmetic, Nanocosmetic.



Investigation of the Cytotoxic Effects of GLP-1R Agonist on 3T3-L1 Adipocytes

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Abstract:

The frequency of obesity, which is a multifactorial disease, poses a serious risk to public health. The world health organization has declared obesity a more serious global chronic health problem than malnutrition. Obesity is a risk factor for some of the preventable deaths in type 2 diabetes, cardiovascular disease, and many types of cancer. Therefore, there is a need for a successful obesity treatment. Pharmacological strategies developed to treat obesity are evaluated by focusing on drugs in phase 2 and 3 clinical development based on the physiological regulation of energy homeostasis. Incretin-based treatments are currently being developed to control weight. While incretins increase glucose-dependent insulin secretion in the pancreas, they suppress glucagon secretion. The aim of this study is to investigate the cytotoxic effect of Glucagon-like peptide-1 receptor agonist on 3T3-L1 adipocytes *in vitro*. Commercially available 3T3-L1 fibroblast cells (ATCC® CL-173) were transformed into adipocyte cells. 3T3-L1 adipocyte transformation was detected by the oil red o staining method. Cytotoxic activity of glucagon-like peptide-1 receptor agonist on 3T3-L1 adipocytes was determined by 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl Tetrazolium Bromide method. Different doses of glucagon-like peptide-1 receptor agonist were applied to 3T3-L1 adipocytes for 48 hours and IC50 value was calculated with GraphPad Prism 5.0 program. The IC50 value was 688 nM after the application of glucagon-like peptide-1 receptor agonist to 3T3-L1 adipocytes for 48 hours. Cytotoxic effect of glucagon-like peptide-1 receptor agonist on adipocytes provides a promising approach in the treatment of obese patients.

Keywords: Obesity, 3T3-L1 adipocyte, Glucagon-like peptide-1 receptor agonists (GLP-1RA)

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Oral Presentation

The Pharmacokinetics of Racecadotril in Neonatal Calves with Healthy and Infectious Diarrhea

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Abstract:

Racecadotril is an oral enkephalinase inhibitor that prevents the excessive secretion of water and electrolytes into the intestinal lumen with antisecretoric mechanism of action and is used in the treatment of acute diarrhea in humans and dogs. In this study, it was aimed to determine the pharmacokinetics of racecadotril following oral administration at a dose of 2.5 mg/kg in neonatal calves with healthy and infectious diarrhea. The study was carried out on a total of 24 Holstein calves, 6 healthy and 18 with infectious diarrhea, aged between 5-20 days. Calves determined to be healthy as a result of the general examination were included in the control group. Other calves were divided into 3 groups after the determination of infectious agents (*Escherichia coli*, *Cryptosporidium parvum* and rotavirus/coronavirus) that cause diarrhea, and the study was conducted in 4 groups. Racecadotril was administered to calves orally at a dose of 2.5 mg/kg. Blood samples from animals in all groups were taken into tubes with EDTA before (0 hour) drug administration and 0.25, 0.5, 0.75, 1, 1.5, 2, 4, 6, 8, 10 and 12 hours after drug administration. Plasma concentrations of racecadotril and its metabolite thiorphan were determined using high performance liquid chromatography ultraviolet detector (HPLC-UV). Pharmacokinetic parameters were analyzed using the non-compartmental method. In calves with infectious diarrhea, racecadotril and thiorphan (also in the control group) were not detected at most of the sampling time. Racecadotril showed wide distribution volume, rapid elimination and slow, and poor metabolism into thiorphan in healthy calves.

Keywords: racecadotril, thiorphan, infectious diarrhea, pharmacokinetics, calve.

This study was supported by The Coordination of Scientific Research Projects, University of Selcuk, Turkey (Project No. 18401078).



Implications of Risk Conferred by 5p15.33 Loci Genetic Variants; Human Telomerase Reverse Transcriptase rs2736098 and rs2736100 in Predisposition of Bladder Cancer

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Abstract:

The current study aimed to elucidate the assessment of prognostic role of hTERT gene polymorphism (rs2736098, rs2736100) in bladder cancer patients in comparison to healthy controls. The polymorphic variations of human telomerase reverse transcriptase (hTERT) gene play an important role in predisposition to carcinogenesis. Overall confirmed 130 patients of bladder cancer and 200 healthy controls were genotyped by PCR-RFLP to determine different variants *hTERT* rs2736098 and rs2736100. *hTERT* rs2736098 was found to have a significant impact in conferring strong risk to bladder cancer. Haplotype CA and AG also depicted to have a strong association with the bladder cancer in Kashmiri population. *hTERT* rs2736098 homozygous variant AA genotype frequency was observed to significantly differ 2-fold between cases and controls as 26.15% vs. 13.5% respectively ($p=0.02$). In addition, rare 'A' allele significantly differed among two groups (cases; 0.45 versus controls; 0.39: $p=0.03$). *hTERT* rs2736098 was observed to be presented significantly more in high stage tumors ($p=0.04$). *hTERT* rs2736100 genotype AA or variant allele A showed no significant difference between cases and controls. Haplotype CA displayed significantly different pattern of frequency as 0.15 in cases as compared to 0.04 in controls with ($p>0.000$). Combination of variant A/G haplotype frequency implicated more in cases than in controls (0.10 vs. 0.04, $p=0.001$). It is concluded that *hTERT* rs2736098 polymorphic variant has vital role to confer a strong risk to bladder cancer in our population. Further, *hTERT* haplotypes CA and AG in *hTERT* could prove as a promising tool to screen the risk for bladder cancer.

Keywords: human telomerase reverse transcriptase, bladder cancer, homozygous variant, haplotype, allele.



Preparation and Antibacterial Effect of Novel Amino Acid Methyl Ester Schiff Base

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Abstract:

Amino acid-derived Schiff bases have attracted more attention because of incorporating amino acid component to the structure, taking important parts in chemical processes in living organisms. There are so many studies about the synthesis and the biological activities of amino acid Schiff bases and metal complexes. The purpose of this work was to synthesize novel Schiff base, from amino acid methyl ester and salicylaldehyde derivatives. Structures of the obtained Schiff base compounds were elucidated by FT-IR and UV-Vis spectrometry, elemental analysis, ¹H-NMR and ¹³C-NMR techniques. Besides, antibacterial activities of compound were investigated. Schiff bases were synthesized by condensation reactions of salicylaldehyde derivative and amino acid methyl ester in alkaline chloroform media. All analysis results were in accordance with suggested Schiff base structure. Antibacterial activities of these synthesized compounds were investigated by *E.coli* and *S.aureus* bacteria. As a result, these compounds synthesized have a great potential for biological activity.

Keywords: amino acid schiff bases, antibacterial effect, NMR spectra

Oral presentation

Comparative Analysis on Bioactive Compounds and Antioxidant Activity of Algerian Fenugreek (*Trigonella Foenum graecum* L.) and Syrian Cumin (*Cuminum cyminum* L.) Seeds

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Abstract:

Natural products with their diverse biological and pharmacological activities represent a gold mine for scientists searching for lead compounds for the treatment of health disorders and infections, however the recent research activities are focused on finding natural sources of antioxidants. Therefore the present study aimed to determine the phytochemical profile of Algerian fenugreek (*Trigonella foenum-graecum* L.), and Syrian cumin (*Cuminum cyminum* L.) seeds, to characterize their phenolic compounds and to evaluate their antioxidant properties. Total phenolic, flavonoids, condensed and hydrolysable tannins contents were determined using Folin-Ciocalteu, aluminium chloride, vanillin and ferric chloride methods respectively. Phenolic compounds were identified by HPLC method and antioxidant activity was measured using DPPH assay. Fenugreek gave the higher amounts of total phenolic compounds, flavonoids, condensed and hydrolysable tannins. Chromatographic analysis of the samples showed that eight phytochemical molecules were identified in cumin methanolic extract: (caffeic acid, isoquercetine, vanillic acid, myricetine 3-O rutinoside, syringaresinol, citrusine, rosmarinic acid, and p-coumaric acid) and seven molecules in fenugreek methanolic extract: (gallic acid, sinapic acid, caffeic acid, asterogenic acid, pyrogallol, hyperoside and ferulic acid). Moreover, fenugreek possessed the higher antioxidant activity. This study affirmed that our plants are rich in phenolic contents and possessed a potent antioxidant activity.

Keywords: *Trigonella foenum-graecum* L., *Cuminum cyminum* L., phytochemistry, chromatographic analysis, antioxidant activity.



Effect of Erdosteine on Diazinon-Induced Lipid Peroxidation

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Abstract:

Today, the use of pesticides for pest control and advanced agriculture is quite common. Diazinon (DZN) is an Organic Phosphorus Insecticide (OFI); It is one of the most frequently used substances for this purpose. However, the widespread use of DZN increases the likelihood of possible intoxication cases. The primary effect of these intoxication conditions is not the cholinergic syndrome due to acetylcholine esterase enzyme inhibition. It is expressed that it is shaped by changes on oxidative stress development. In our study, the protective effects of erdosteine (ERDOS) application on subacute DZN exposure were investigated. A total of 24 male Wistar Albino rats were randomly divided into four groups as 1) Control, 2) DZN, 3) ERDOS and 4) DZN + ERDOS. In our study, it was observed that whole blood Malondialdehyde (MDA) level was higher and Reduced Glutathione (GSH) level was lower in rats in DZN group compared to other groups ($p < .05$). It was determined that erdosteine treatment had a decreasing effect on MDA and increasing effect on GSH levels ($p < .05$). In addition to Erdosteine's mucolytic activity, it can be stated that it shows free radical scavenging and antioxidant character. Also, the healing properties of erdosteine can be used in possible diazinon toxicity situations.

Keywords: diazinon, erdosteine, malondialdehyde, reduced glutathione

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Researching the Antibacterial Antiviral Effects of Natural Medicinal Aromatic Oils and Presenting to Traditional Complementary Therapy

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Abstract:

This study aimed to determine the components of the essential oil derived from natural medicinal aromatic plants grown in Turkey, and to examine their pharmacological-toxicological effects. We analyzed the effects on health by evaluating the data obtained and other published research results. First, the components of aromatic oils were examined, standardized and synergistically effective ones were formulated and their effects on infectious agents were investigated. The first findings of our research, which is planned as R&D project, were pleasing with their surprising effects. Medicinal aromatic plants and essential oils are known to be used in traditional treatment for public health and animal health from past to present. The pharmacological effects of Thyme, Medicinal peppermint, Eucalyptus, Lavender, Black head flower, Nigella and Olive oil on the respiratory and immune system and generally to the metabolism come to the forefront. While the production of aromatic essential oils was obtained by the distillation method, purification was carried out with special separation techniques. Chemical analyzes were made GC-MS method, antimicrobial effect tests were performed by disc diffusion method, Antiviral effect tests were done by cell culture method. Very successful results were obtained in antiviral efficacy and cytotoxicity tests by using RAW 264,7 cell culture and Murine norovirus. Cytotoxicity tests results; The preparation containing Carvacrol 20% is cytotoxic at 1/1.000 dilution and non-cytotoxic at 1/10.000 dilution. 75% Carvacrol is cytotoxic at 1/10.000 dilution and non-cytotoxic at 1/100.000 dilution. Antiviral activity at 1/100,000 dilution and 4 log₁₀ reduction of virus titre were detected for both products. In antibacterial Activity tests it has been determined that Carvacrol achieved very successful high-efficiency levels against resistant bacteria and other infectious agents that cause hospital infections when compared to pharmaceutical defined antibiotics (gentamicin) and control groups

Keywords: aromatic oils, antibacterial, antiviral, cytotoxicity.



In-Silico Investigation of Six FDA-Approved Antiviral Drugs against SARS-CoV-2

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Abstract:

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has presented a significant and urgent threat to global health, leading to a major concern of increased mortality in the world. Many countries have developed various treatment strategies using different antiviral drugs for combating the SARS-CoV-2. In this study, comparative in-silico analysis of six FDA-approved antiviral drugs which have been in the treatment guidelines of the six countries was performed. Drug structures of the favipiravir, lopinavir, oseltamivir, remdesivir, ritonavir and tenofovir AF were downloaded from PubChem database. Protein Data Bank (PDB) files of the target proteins of SARS-CoV-2, namely spike glycoprotein (6VXX, 6VYB), main protease (6LU7, 6Y84) and RNA-dependent RNA polymerase (6M71) were downloaded from the PDB database. Prior use of ligands, they were optimized with DFT/B3LYP/6-31G(d) method by using Gaussian 09W and GaussView 5 software packages. All protein structures retrieved from the PDB database were screened and water and ligand molecules were removed using BIOVIA Discovery Studio[®] (ver. 2020). Prepared proteins and optimized ligand structures were converted to PDBQT format using AutoDock-Vina (ver. 1.12) with default parameter and binding affinity energies (ΔG , kcal/mol) were calculated by blind docking. 2D and 3D protein-ligand interactions analysis and visualizations of the obtained data were performed with BIOVIA Discovery Studio[®] (ver. 2020). This in-silico investigation is shedding light on the different usage of antiviral drugs preferred by the six countries in the treatment of SARS-CoV-2.

Keywords: SARS-CoV-2, COVID-19, in-silico analysis, antiviral drugs

Determination of Vanadium Element in Eagle- Owl Blood

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Abstract:

Birds are bioindicator creatures since they can accumulate environmental poisons in their bodies. It is used to determine the harmful effects of environmental pollution that occurs with the developing technology on human health. Birds are exposed to heavy metals through drinking water, food, soil, skin, and respiration. Heavy metals cause mutations in birds by suppressing the immune system, thinning of the eggshell, retardation in embryo development, and oxidative stress. Vanadium is a heavy metal pollutant rich in the earth's crust. It is thought to be necessary for living organisms at low concentrations. Vanadium has been found to have detrimental effects on bone development and cause reproductive anomalies in chicks. Vanadium is released into the atmosphere as a result of the burning of coal and oil. There are concerns that the concentration of vanadium in the biosphere will increase for a long time in the air, water, and soil. Vanadium found in the atmosphere, water and soil have harmful effects on the health of microorganisms, invertebrates, and plants. The Eagle owl (*Bubo bubo*) is a nocturnal raptor from the Strigidae family. The Eagle owl (*Bubo bubo*) is a raptor bird local living in Southeast Anatolia Region. Blood analysis is preferred for heavy metal detection in wild animals. ICP-MS (Inductively Coupled Plasma Mass Spectrometry) is used effectively and widely because of its high sensitivity, accuracy, wide dynamic range in determining multiple elements at trace levels. In this study, the blood samples were taken from 3 Eagle owl (*Bubo bubo*) birds brought to the Şanlıurfa Nature Conservation and National Parks Regional Directorate for treatment were analyzed on the ICP-MS device. Blood samples were measured as 4.91 ± 1.11 ppb, 7.50 ± 1.25 ppb, 2.95 ± 0.24 ppb Vanadium, respectively. In the literature review, it was determined that the Vanadium value in the present study was higher.

Keywords: Blood, environmental pollution, Eagle owl (*Bubo bubo*), Vanadium

Investigating Antioxidant Potential of Goat Milk Cells: Activities of Glucose-6-Phosphate Dehydrogenase, Glutathione Peroxidase and Levels of Reduced Nicotinamide Adenine Dinucleotide Phosphate, Total Glutathione, Malondialdehyde and Vitamin C

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Abstract:

In this study, to reveal the antioxidant potential of goat milk cells, the activities of glucose-6-phosphate dehydrogenase (G6PD), glutathione peroxidase (GPx) and the levels of reduced nicotinamide adenine dinucleotide phosphate (NADPH), total glutathione (tGSH), malondialdehyde (MDA), vitamin C (Vit C) and total protein (TP) in goat milk cells were determined and correlations between these parameters were evaluated. Milk samples were collected from 19 clinically healthy goats from a private goat farm. Briefly, milk cells were collected from milk by centrifugation and then they were sonicated. Supernatant G6PD, GPx activities and NADPH, tGSH, MDA, Vit C and total protein levels were determined by spectrophotometric methods. As regards correlations: milk cell MDA levels were positively correlated with milk cell tGSH ($r= 0.725$, $P < 0.01$), milk cell Vit C ($r= 0.622$, $P < 0.01$) and milk cell NADPH ($r= 0.763$, $P < 0.01$) levels. There was a positive correlation between milk cell GPx activity and milk cell NADPH levels ($r= 0.659$, $P < 0.01$). Milk cell tGSH levels were positively correlated with milk cell Vit C ($r= 0.615$, $P < 0.05$) and milk cell NADPH ($r= 0.846$, $P < 0.01$) levels. Milk cell NADPH levels was positively correlated with milk cell Vit C levels ($r= 0.791$, $P < 0.01$). As a conclusion, the antioxidant potential of goat milk cells were evaluated and discusses.

Keywords: Goat milk cell, GPx, G6PD, NADPH, tGSH.



Parameters of the Immune System When a Secondary Infection Overlaps with Hepatitis C

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Abstract:

This research article discusses the mechanisms by which immune system parameters change with hepatitis C. We focused on the antimicrobial peptides, and along with them on T-lymphocytes clusters indicating the ability of the immune system to react violently, reducing the sensitivity to bacteria. To describe the immune system changes in hepatitis C, 87 individuals with chronic hepatitis C were tested. To compare the effect of the disease severity on the immune status, all patients were divided into two groups: with chronic hepatitis C, and the group of patients complicated by pneumonia. The diagnosis of hepatitis C was confirmed by the classification of the World Congress of Gastroenterology (1994). Determination of endotoxins and LBP carried out using the ELISA technique. The CD clusters was determined by an indirect immunofluorescence reaction. The determination of circulating immune clusters (CIC) based on method of precipitation with a 3.5% solution of polyethylene glycol method. Statistical processing of the obtained results was carried out by determining the Wilkison's U-test (Mann-Whitney). In our study, CD25+ decreased by about half (1.9 times) in the group of patients with hepatitis C, and nearly three times (2.6) – in group with hepatitis aggravated by pneumonia. In II group CD25+ indicator was even 1.4 times less than in the group without pneumonia. Defensin concentration levels were significantly higher in the group with elevated endotoxin (297 ng/ml versus 38.6 ng/ml. $p < 0.001$) compared with the group with normal levels of endotoxin (0.1 IU/ml). In the group aggravated by pneumonia endotoxin elevated even more, the same direction changed defensin concentration levels (1467.3 ng/ml in group with pneumonia versus 297 ng/ml in group without pneumonia). We observed no significant difference in bilirubin concentrations ($p < 0.05$), γ -glutamyl transpeptidase and AST ($p < 0.05$), usually used for diagnosis of hepatitis, between control patients and patients with hepatitis C. The results of this study show that instead of standard tests for liver damage: bilirubin, ALT and γ -glutamyl transpeptidase, it is much more expedient to use the antimicrobial peptides defensin and LBP, which are more informative in the diagnosis of hepatitis C, and especially in patients with pneumonia.

Keywords: circulating immune complexes, defensin, endogenous antimicrobial peptides, lipopolysaccharide binding protein.

The Effect of Tribulus Terrestris Aqueous Extract on Canine Semen Quality During Storage At 4 °C

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Abstract:

This study comprises exploring the possible benefits of action of Tribulus Terrestris aqueous extract for chilling (4 °C) canine sperm over a period of 3 days. In this study, 24 ejaculates were obtained from three mixed-breed dogs and were diluted in a Tris-based extender. Then, they were divided into five equal amounts of 20, 40, and 50 µg/ml of Tribulus Terrestris aqueous extract, control (without antioxidant), and control sham (distilled water). Sperm parameters quality were assessed prior to refrigeration and every 24h for three days. Sperm parameters including, sperm motility evaluation (Total motility, progressive motility), motility characteristics, viability, DNA, and plasma membrane integrity were evaluated. Progressive motility and total motility were higher with the 40 µg/ml Tribulus Terrestris aqueous extract concentration, compared to the control group following 72 hours of storage in the liquid storage. Motility characteristics, viability, and hypo-osmotic swelling test (HOST) percentages were significantly improved in 40 µg/ml Tribulus Terrestris aqueous extract concentration compared to other groups. The 40 µg/ml Tribulus Terrestris aqueous extract concentration, showed significantly reduced percentages of spermatozoa with DNA integrity compared to the control group. In conclusion, our study showed that the addition of 40 µg/ml Tribulus Terrestris aqueous extract to the canine semen extenders more improved canine semen parameters after 72 hours of storage in the liquid storage.

Keywords: canine semen, Tribulus Terrestris extract

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The Genetic Potential of a Germplasm of Interspecific Crosses between Durum Wheats and Their Relatives

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Abstract:

Wheat endosperm storage proteins are the major components of gluten. They play an important role in dough properties and in bread making quality in various wheat varieties. In the present study, the different alleles encoded at the 5 glutenin loci were identified from a set of 38 tetraploid wheat germplasm obtained from interspecific crosses between durum wheats (*Triticum turgidum* L. ssp. durum (Desf.) Husn.) and their relatives (*T. dicoccum* Schübl. and *T. polonicum* L.) using SDS-PAGE. At Glu-A1 and Glu-B1, encoding high molecular weight glutenin subunits (HMW-GS), 2 and 4 alleles were observed, respectively. Low molecular weight glutenin subunits (LMW-GS) displayed similar polymorphism, as 3, 5 and 3 alleles were identified at loci Glu-A3, Glu-B3 and Glu-B2, respectively. One new allele was detected at Glu-B3 locus and appeared in nine accessions obtained from five crosses. This allele codes for five subunits (2 +8+9+13+18), encoded by the Glu-B3b without subunit 16 plus subunits 2 and 18. A total of 38 patterns resulted from the genetic combination of the alleles encoding at the five glutenin loci. This led to a significantly higher Nei coefficient of genetic variation in Glu-1, Glu-3 and Glu-B2 loci (0.54). The germplasm analyzed exhibited allelic variation in HMW and LMW glutenin subunit composition and the variation differed from that of tetraploid wheats of other countries. The presence of high quality alleles in glutenin loci have led the accessions to be considered as an asset in breeding programs aimed for wheat quality.

Keywords: genetic diversity, glutenin subunits, polymorphism, durum wheats and relatives, interspecific crosses



The Effect of Koumiss on Some Yield Traits in Japanese Quails (*Coturnix Coturnix Japonica*)

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Abstract:

The research was carried out to determine the effect of adding koumiss to the drinking water of quails at different rates on fattening performance. Animals used in the study, Kyrgyzstan-Turkey Manas University, reared 128 total Japanese quail (*Coturnix coturnix japonica*) in poultry unit of Veterinary Medicine was created. During the trial, who is; It was supplied daily from traditionally producing family businesses in Bishkek. Drinking water was added to the first group, which was separated as the control group, at the rate of 2.5 cc of koumiss / liter to the second group, 5 cc of koumiss / liter to the third group and 7.5 cc of koumiss / liter to the fourth group. During the trial, the part that is not consumed by the quails was prepared fresh by pouring it every morning. The same ration was given to all groups during the trial. The daily feed consumption was determined by weighing the leftover feeds given to the control and experiment groups. The animals in the control and experimental groups were weighed individually every week, starting from the first day, and group averages and body weight gains were determined. Deaths in all groups were recorded daily during the trial. The research lasted seven weeks, and the average live weights at the end of the seventh week were 123.34±4.40, 116.56±7.02, 113.15±6.67 and 125.11±6.29 g ($p > 0.05$) respectively. Feed consumption (g / quail / day) during the seven-week period was 20.25, 18.17, 18,00 ve 17.75, respectively. Hot carcass weight averages in quails were 72.92, 77.38, 77.61 and 78.43 g ($p > 0.05$). The vitality in the trial groups was 81.25, 81.25, 84.38 and 87.50%, respectively. Although there was no statistical difference in all fattening performance and vitality characteristics examined at the end of the experiment, it was concluded that the third experimental group was a more lively and active group and the study should be repeated in other breeding subjects.

Keywords: Japanese Quails, Koumiss, Some Yield Traits



The Potential of Inclusion Processed Conocarpus Leaves in Domestic Animals Feeding by *in vitro* Experiments

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Abstract:

This study was conducted to investigate the effect of various methods of processing on chemical composition, *in vitro* digestibility and improvement of the nutritional value of pruned conocarpus leaves in domestic animal nutrition. Experimental treatments included conocarpus foliage ensiled with hydrochloric acid, molasses + acid, natozyme enzyme and lactic acid bacteria (*Lactobacillus fermentum*). The silos were opened after one month, air-dried and chemical properties of of ensiled samples were measured by standard methods of AOAC. Fermentation and gas production parameters were determined by gas test technique and *in vitro* digestibility by tilly and terry technique. To prepare rumen fluid, 4 Arabi sheep were fed conocarpus foliage for 2 weeks, then rumen fluid was taken for *in vitro* trials. The results of this experiment showed that the highest amount of dry matter was for molasses+hydrochloric acid silage and the lowest amount was observed in treatment of *Lactobacillus fermentum* ($P < 0.05$). Molasses+acid and acid silage contained the highest and lowest crude protein, respectively. Various additives reduced the amount of organic matter, insoluble fibers in neutral detergent fiber and acidic detergent of silages, and enzyme treatment had the lowest amount of neutral detergent fiber ($P < 0.05$). Also silage additives results in decrease of pH and ammonia nitrogen of silage and the lowest amount was observed in treatments containing molasses + acid and acid ($P < 0.05$). According to the results, organic matter digestibility, metabolizable energy and dry matter degradability for treatment containing acid + molasses was the highest. Also this treatment had the greatest amount of gas production, potential and rate of gas production and short chain fatty acid concentrations. The highest amount of microbial biomass was observed in the treatment containing acid + molasses ($P < 0.05$). The highest dry matter and NDF digestibility was observed in the treatment containing molasses + acid. Therefore, the results of this experiment showed that the addition of hydrochloric acid with molasses improved the fermentation and gas production of and the digestibility of pruned Conocarpus foliage in comparison with enzyme and lactic acid bacteria additives, which can be a proper alternative for forage in livestock diet.

Keywords: Conocarpus, forage, digestibility, processing, animal



Investigation of Some Environmental Factors Affecting Race Performance in Thoroughbred Horses

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Abstract: The main yield of thoroughbred horses raised for sports purposes is the race performance. It is a quantitative breed characteristic for horses and changes between breeds and individuals within the breed. Race performance is affected by genetic and environmental factors. In order to improve racing performance, it is very important to know the genotypic and phenotypic parameters that affect this feature and to evaluate the environmental factors. In order to obtain high performance from horses, environmental conditions should be optimized as well as improving genetic capacity. The aim of this study is to evaluate the relationships between some environmental factors and race performance of thoroughbred horses in the Turkey Jockey Club. In the study, 448 of the racing data of 2020 for thoroughbred horses registered with The Jockey Club of Turkey were used. Race data information included gender, age, age of dam, race track, race distance, race speed, and race city. While analyzing the data, the General Linear Model was used in SPSS 20. Tukey's multiple comparison test was used to evaluate the significance of the differences among averages of the subgroups. The average race performances for thoroughbred horses were 16.00 ± 0.03 m/sec. The effects of race city, age, and track-type were found significant ($P < 0,001$). Higher race performances were found for Istanbul city, 4 years of age, turf, and synthetic tracks. There were no statistically important relationships between race performance and age of dam and race distance. In conclusion horses with good racing performance is very valuable and should be used not only in races but also in inbreeding. Determining race performance is important in increasing efficiency. More comprehensive studies and more horse data should be used for evaluating the environmental factors that affected thoroughbred horses' race performance.

Keywords: thoroughbred horse, race performance, environmental factors, inbreeding.



Influence of Husbandry Conditions on Animal Welfare at Cattle Farms in Turkey

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Abstract:

In appropriate and economical livestock breeding with optimal breeding conditions the environment, in which the animals are reared should be controlled while considering their physiological and ethological needs based on scientific knowledge and experience concerning the species, developmental stage, adaptation and the domestication situation of the animal. The aim of this study was to analyse husbandry conditions in terms of their impact on animal welfare at beef and dairy cattle farms and the perceptions of cattle producers in the Malatya province of Turkey. A total of 172 cattle farms altogether rearing about 12 thousand cattle were investigated in three administrative districts with the highest numbers of farms in the province, selected using a randomised sampling method. The survey forms developed by the Agriculture and Rural Development Supporting Agency were used in this study. Volunteer-based face-to-face interviews were conducted with these breeders. Additionally, farms were visited to evaluate the suitability of their livestock husbandry conditions. The statistical analysis included the counts and percentage frequencies (%) measured for each question answered in the survey. This study revealed that 63.4% of the farms had sufficient information on the care and feeding of animals, 100% routinely checked the animals at least once a day to detect any kinds of problems, 96.5% treated the animals well and 95.9% treated sick or injured animals properly and immediately based on good feeding, good health and appropriate behaviours specified in animal-based welfare indicators. The study also revealed that in 93% of the farms sufficient space was provided to meet the needs of the animals and livestock farming. Husbandry and housing conditions in cattle farms were observed to be insufficient with regard to some of the parameters evaluated. To solve the identified problems, priority should be given to the education of farm workers, official control and surveillance operations should be established, while the adaptation of farms to ensure optimal animal management conditions should be considered as an important criterion in animal support programmes.

Keywords: animal welfare, cattle husbandry, livestock farming

Growth Performance, Carcass Yield and Characteristics, and Breast Meat Quality of Broiler Chickens Fed Supplemental Herbal Blend Alone or in Combination with *Bacillus licheniformis*

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Abstract:

In this study, we investigated the effect of dietary herbal blend alone or in combination with *Bacillus licheniformis* on growth performance, carcass yield and characteristics, and breast meat quality of broiler chickens. For this purpose, three experimental groups (control, herbal blend, and herbal blend + *B. licheniformis*) each consisting of 5 replicates were established with 20 one-d-old chickens per replicate (300 birds in total). Corn soybean meal-based basal diet without any supplementation was fed to the control group whereas other groups received basal diet fortified with 60 ppm/kg herbal blend (characterized by capsaicin, glucosinolate, saponins, terpenes, and curcumin) alone or in combination with 0.5 g/kg *B. licheniformis* (3.2×10^9 cfu/g). Growth performance was recorded periodically whereas 4 birds were slaughtered from each replicate to evaluate the carcass yield and characteristics, and breast meat quality. Data were analyzed with one-way analysis of variance (ANOVA) with least square difference (LSD) as post-hoc test. Growth performance, slaughter weight, liver, breast, and thigh yields were similar among the groups ($P > 0.05$), however, carcass yield of broilers fed herbal blend alone or in combination with *B. licheniformis* was greater than control group ($P = 0.043$). Moreover, breast meat quality at slaughter (pH and color) and 24-h post-slaughter (pH, color, drip loss, and cooking loss) remained unaffected among the treatments. In conclusion, this study suggests that herbal blend alone or in combination with *B. licheniformis* may not improve growth performance, parts yields, and meat quality, nonetheless, these may enhance the carcass yield of broiler chickens.

Keywords: broilers, herbal blend, *Bacillus licheniformis*, carcass yield, meat quality



Determination of Changes in Nutrient Content and In Vitro Digestibility of Kermes Oak (*Quercus coccifera*) Growing in the Provincial Borders of Burdur During the Year #

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Abstract:

The purpose of this study is to investigate the in vitro dry matter digestibility (IVDMD) of nutrient content, cell wall components, condensed and extractable tannin content of kermes oak (*Quercus coccifera* L.), which is the main feed source for goat herds. Kermes oak which is found in the İstiklal campus of Mehmet Akif Ersoy University within the boundaries of Burdur province was exemplified. Sampling; in the direction indicated by the goatherds was made to include leaves, young shoots and some branches which were consumed by the goats. Sampling was made from 3 different stations within the area. Weende analysis (dry matter, (DM%), crude ash (CA%), crude protein (CP%), crude fibre (CF%) eter extract (EE%)), cell wall components (ADF%, NDF%, ADL%), total soluble tannin and condensed tannin content with IVDMD (by using two-stage technique) were determined on the samples (12 x 3 = 36 unit) between January 2017 and December 2017. It can be stated that, in terms of season average of CP, there was no statistically significant difference among the seasons under the conditions of Burdur climate province. On the other hand, we found that average CF in spring and summer was significantly lower than the average CF in winter ($p < 0,05$) and the highest EE during the year was in the autumn season ($p < 0,05$). The average IVDMD of winter months was significantly lower than the average of summer and autumn months ($p < 0,05$). In terms of total soluble tannin content, the average of autumn months was significantly lower than the average of winter and spring months ($p < 0,05$). Under the conditions of Burdur province climate, it was concluded that, Kermes oak had low nutrient values and IVDMD in December, January and February during 2017.

Keywords: Kermes oak, nutrient, digestibility, Burdur, in vitro method

This study was supported by Burdur Mehmet Akif Ersoy University with the project number of 0470-YL-17. It was summarised from a first author's master's thesis and published from Veterinary Journal of Ankara University.



**Effects of Age, Body Region and Mineral Contents on Fleece
Characteristics of Central Anatolian Merino Sheep**

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Abstract:

Historical use of natural fibres in textile, with the purpose of clothing and protection from severe natural conditions, was recently found to be dating approximately 170.000 years ago. The fibre characteristics of fleece determine its fate through textile industry. Parameters such as diameter, length, elasticity and strength define the functional quality of fleece. The aim of the present study was to investigate the effects of different environmental factors as well as wool mineral contents on fleece fibre quality traits in Central Anatolian Merino sheep. Additionally, the descriptive characteristics of mineral contents of Central Anatolian Merino fleece were determined. With this purpose, 300 samples were equally collected from 3 different body regions (shoulder, rib and rump) of 100 animals which belong to five different age groups were used. The fleece samples were analysed for fibre quality (diameter, length, elasticity and strength) traits and mineral contents (calcium, iron, potassium, magnesium, copper, manganese and zinc). In this study, the relationship between environmental factors such as age, body region and fleece mineral contents and the fleece characteristics were investigated in Central Anatolian Merino sheep. Furthermore, amount of various macro- and microelements in fleece were characterized. A wide range of statistical relationships were found among the focused traits and those factors. Findings of this study highlights the importance of minerals as well as environmental factors on fleece quality parameters. In addition, minerals are crucial for growth and development of many tissues including hair growth, indicators reflecting the mineral status of the organism are also of high value for monitoring the overall status of the flocks.

Keywords: Central Anatolian Merino, sheep, wool quality, minerals, age, body region.



**A Research on the Determination of the Maintenance and Feeding
Conditions in Ankara Province Akkaraman Sheep Enterprises in National
Sheep and Goat Breeding Project of Turkey**

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Abstract:

The adequate and balanced nutrition has always been one of the most fundamental problems in the changing and developing world. In addition to meeting the animal protein needs for people, livestock activities have had a strategic and important function for the rural and economic development of countries for decades. The purpose of this research was to determine the general characteristics and care and feeding practices of 15 Akkaraman sheep farms located in Ankara, within National Sheep and Goat Breeding Project of Turkey, coordinated by Agricultural Research and Policy General Directorate (TAGEM). Within the scope of this purpose, a questionnaire study was conducted with the owners of 15 Akkaraman sheep enterprises. The questionnaire consists of general information was determined about business owners, herd management, animal care and feeding methods and the effectiveness of the National Sheep and Goat Breeding Project. 60% of the producer's ages are between the ages of 41-50. The breeders are graduated 73.33% primary school, 20% high school and 7% undergraduate. 53% of the producers have sufficient land. Approximately 53% of the sheep enterprises have 200-400 sheep. It has been determined that all of the enterprises feed the sheep before birth and 93% to the rams before the ram participation. Approximately 67% of the enterprises are milking and obtaining 350 g milk per sheep. National Sheep and Goat Breeding Project is positively affected record keeping, sheep-ram breed characteristics, lamb growth performances. All of the producers find positive to National Sheep and Goat Breeding Project and want the project to continue.

Keywords: Sheep Enterprises, Care-Feeding Conditions, National Sheep and Goat Breeding Project, Ankara Province



The Effects of the Season on Superovulatory Response and Embryo Quality in Anatolian Black Cows

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Abstract:

This study was designed to determine the effect of the season on superovulatory response, includes embryo number and quality in Anatolian Black cow. The animal material used in the study consisted of 15 head Anatolian Black cows that 3-5 years old and gave their first birth. A total of four superovulation programs were applied to the cows, once per season since April. The program was started with intra-vaginal Cue-mate® application containing 1.56 g progesterone. On the 7th day of the application, follicle stimulating hormone (FSH) was injected at single time, as 175 IU epidurally and 175 IU intramuscularly. On the morning of the 9th day of the superovulatory treatments, an additional 500 µg prostaglandin F2α was administered to all cows in the groups. Then, intravaginal Cue-mate application was removed in the evening on same day. On the eleventh and twelfth days, all cows were artificially inseminated (AI) twice with frozen semen collected from Anatolian Black bulls with at 12 hours intervals. Superovulated cows were non-surgically flushed 7 days after AI. Embryos were morphologically evaluated and classified according to the criteria recommended by the International Embryo Transfer Society (IETS). The results obtained were compared according to the seasons. No significant differences were observed in the number of unfertilized oocytes (UFO) and rates between seasons ($P>0.05$). Significant differences were observed seasonally in the number of corpus luteum (CL), transferrable embryo, non-transferable embryos and the rates obtained were found as significant ($P<0.05$). As a result, it was found that the effect of summer season on embryo quality was significant in Anatolian Black cows. However, it was concluded that the results obtained in our study should be strengthened with further studies.

Keywords: Anatolian Black cows, embryo, FSH, season, superovulation.

This study was supported by TUBİTAK KAMAG (106 G 113) Project



Potential Protective Effect of Escin against Cyclophosphamid Induced Oxidative Stress on Rat Tissues

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Abstract:

Cyclophosphamide (CP), also known as cytophosphane is an alkylating agent that has many side effects in humans and rats including bladder bleeding, infertility, pulmonary fibrosis, and hepatotoxicity. To evaluate the protective effect of escin (ES) obtained from horse chestnut plant (*Aesculum hippocastanum*) on acute damage induced by alkylating agent, experimental rats were intraperitoneally (i.p.) injected with CP to cause tissue damage. The rats were divided into 5 different groups: control group, ethanol group, ES group (100 mg/kg ES for 14 days by gastric gavage), ES+CP group (100 mg/kg ES for 14 days by gastric gavage and 75 mg/kg CP i.p. on 14th day) and CP group (75mg/kg CPM i.p. on 14th day). After completion of the experiment, blood and tissues samples (liver, kidney, heart, brain, lung, and testis) were collected from the rats under anesthesia. Malondialdehyde (MDA) and glutathione (GSH) levels and superoxide dismutase (SOD) and catalase (CAT) enzyme activities were determined in erythrocyte and all tissue. The CP group revealed a significant increase in MDA and decrease in GSH levels in all tissues except lungs ($P<0.05$). On the other hand, ES+CP group revealed high GSH and low MDA levels in all tissues except kidneys and lungs ($P<0.05$). There was no statistical change in the activities of SOD and CAT enzymes in all tissues. In histopathological examination, degeneration and necrobiosis were observed in the tissues of CP group. In contrast, ES reduced the damage induced by CP in all tissues. As a result, it was determined that ES has a protective effect against CP induced tissue damage in rats because of its antioxidant properties.

Keywords: Cyclophosphamide, escin, histopathology, rat, oxidative stress

#This study was supported by Afyon Kocatepe University Scientific Research Council, Afyonkarahisar, Turkey (Project no: 17.KARIYER.189).



Effect on Hematological Parameters of Vitamin C Supplementation in Aged Male Rats*

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Abstract:

As the elderly population is increasing day by day both in the world and in our country, interest in understanding the mechanisms that regulate aging has increased in recent years. This situation has led to an increase of the health and long life expectancy worldwide and led to the need to explore the physiology of the elderly. It is aimed to reveal the role of Vitamin C supplements in healthy life and to reveal the effects on hemogram parameters of daily high dose Vitamin C. Our study consists of 2 groups of aged (over 18 months) 14 Sprague Dawley male rats. In the control group (n: 7), saline solution was administered with 1 ml gastric gavage, and 500 mg/kg CA dose of Vitamin C solution was administered daily by gastric gavage for 30 days to the Vitamin C group (n: 7). At the end of the experimental period of 30 days in total, blood samples from animals were taken into K3 EDTA tubes by cardiac puncture under anesthesia. From the blood samples taken; WBC: Leukocyte, NEU: Neutrophil, LYM: Lymphocyte, MONO: Monocyte, EOS: Eosinophil, BASO: Basophil, RBC: Erythrocyte, HGB: Hemoglobin, MCV: Average Erythrocyte Volume, MCHC: Hemoglobin Density in a Certain Red Blood Cell, RDW: Erythrocyte Distribution Width, PLT: Platelet, HCT: Hematocrit and MCH: The Average Hemoglobin parameters in Each Red Blood Cell were determined. It was concluded that vitamin C supplements administered orally to rats did not cause changes in hematological parameters except for NEU, MCH and HCT values. New researches at different ages, genders, pharmacological doses, and different administration routes may provide a better understanding of the functional properties of vitamin C supplementation on the hemogram parameters.

Keywords: vitamin c, hemogram, age, rat.

* The data in this study are taken from the first authors PhD dissertation supported with 19. Sağ.Bil. 20 project number by Afyon Kocatepe University Scientific Research Coordination Unit.



Effect of Age on Liver Vitamin C Concentrations in Rats*

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Abstract: Vitamin C is both the main water-soluble antioxidant and important for the conversion of cholesterol to bile acids in liver. However, in vivo kinetics of vitamin C regarding its accumulation in liver depending on age is still largely unknown. Thus, this study was aimed to determine the liver vitamin C concentrations in different aged rats. In the study, totally 21 male Sprague Dawley rats were used, with 7 animals in each group, young (2-3 months), adult (12-18 months) and old (18 months and above). Vitamin C levels of liver tissues taken from animals were determined after 30 days of feeding on the same rat diet. Vitamin C concentrations in liver of young, adult and old male rats were determined. The adult animals had significantly ($P<0.05$) higher vitamin C in their liver tissues than the other age groups. When age-related liver tissue vitamin C (nmol/g) distribution is evaluated, from high value to lower value: adult (3.61 ± 0.12) > old (1.59 ± 0.14) > young (1.45 ± 0.07) groups show ranking. As a result, age affects the liver vitamin C concentrations.

Keywords: Age, rat, vitamin C, liver.

*The data in this study were taken from the first author's master thesis.

*This study was supported by the scientific research coordination unit of Afyon Kocatepe University with the project number 20.SAG.BİL.20.



Effect of Vitamin C Supplementation on the Blood Coenzyme Q10 Concentrations in Rats*

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Abstract:

Vitamin C is a water-soluble, slightly acidic carbohydrate that cannot be synthesized in the body, known as ascorbic acid. It is not stored in the body, it fills its day. Coenzyme Q10 is a non-fat-soluble vitamin but a vitamin-like benzoquinone compound. Coenzyme Q10 (CoQ₁₀), an important antioxidant, is reported to decrease blood and tissue levels, which is associated with an increase in free radical levels and a decrease in antioxidant defense. However, there is no published data to date on how the blood CoQ₁₀ levels are affected by vitamin C supplementation, a powerful intra cellular antioxidant. Aging is defined as the constant decrease in the vital functions and productivity of the individual and the ability to adapt to environmental factors. In recent years, studies have found a relationship between aging and coenzyme q10, and it is still ongoing. The aim of this study was to determine the effects of vitamin C supplementation on blood CoQ₁₀ concentrations in rats. A total of 14 Sprague-Dawley male rats weighing 400-450 g were used in the study and divided to the control and vitamin C groups containing 7 animals for each group. While the saline solution was administered with 1 ml gastric gavage to animals in the control group, vitamin C at 500 mg/kg was given daily by gastric gavage to the animals in the Vitamin C group throughout experimental period lasted 30 days. At the end of the experimental period, blood samples from animals were taken by cardiac puncture under anesthesia. The CoQ₁₀ concentration were measured in the blood samples. There was no difference for the blood CoQ₁₀ concentration between the control and the vitamin C groups. We concluded that vitamin C supplementation, the main water-soluble antioxidant, has no effect on the blood CoQ₁₀ concentration.

*The data in this study were taken from the first author's master thesis.

Keywords: Vitamin C, age, gender, rat, Coenzyme Q10.

Effect of Alcohol and 3,4-Dichlorophenoxy Acetic Acid (2,4 D) on Vitamin A and Beta Carotene Concentrations of Blood and Liver in Rats[#]

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Abstract:

Concerns about the dangers of 2,4-dichlorophenoxyacetic acid (2,4-D) to the environment and, human and animal health have been raised in many in vivo and in vitro studies. In this study, changes in vitamin A and beta carotene levels in blood and liver tissue were investigated in rats exposed to alcohol consumption simultaneously with 2,4-dichlorophenoxy acetic acid (2,4-D). A total of 28 Sprague Dawley male rats weighing 300-400 g were used in the study. Standard rat food and drinking water were given fresh every day for feeding rats. The rats were divided into 4 groups as control, alcohol, 2,4D and alcohol + 2,4 D, containing 7 animals in each group. Only basal diet and water were given to the control group. Ethyl alcohol at a dose of 3 g / kg to the animals of alcohol group, 5mg / kg 2,4-D to the animals of 2,4-D group; 5 mg / kg 2,4-D and 3 g / kg ethyl alcohol to the animals of 2,4-D + alcohol group was administered by gastric gavage. In the end of experimental period lasted totally 60 days, the vitamin A and beta carotene concentrations were measured the blood and liver tissue samples taken from animals. While only alcohol increased serum beta carotene levels, there was no effect of treatments on liver beta carotene levels. While all of treatments increased serum vitamin A levels, 2.4 D and alcohol + 2.4 D treatments increased vitamin A levels in the liver. However, the animals treated 2,4 D had significantly more vitamin A concentration in liver than the animals treated alcohol + 2.4 D. As a result, the exposure to 2,4-D may raise liver vitamin A levels, resulting in hypervitaminose A. In this context, new studies are required to clarify the physiological and biochemical mechanism underlying the changes in liver vitamin A metabolism caused by exposure to 2,4-D.

Keywords: 2,4 D (Diklorofenoksi Asetik Asit), alkol, plazma, karaciğer, vitamin A, beta karoten, rat

*: This study was supported by the Scientific Research Projects Coordination Unit of Afyon Kocatepe University (Project no: 18.KARİYER.161).



Variations in Plasma Levels of Oxidative Stress Parameters in Angora Cats Depending on Age and Gender[#]

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Abstract:

Oxidative stress is well defined as imbalance between oxidant and antioxidant mechanisms in the body. It is also known that aging has a potential to effect on the oxidative status as well as gender. In this study, it was aimed to determine the variations in plasma levels of oxidant and antioxidant parameters of Angora cats according to age and gender. Thirty healthy and vaccinated cats that housed at the same conditions were classified as young (n=16) and adult (n=14) and classified as male (n=17) and female (n=13) as well. Plasma samples were obtained by centrifugation at 1000 x g for 10 min at 4 °C of the blood samples which were collected from vena saphena medialis of all cats, and then stored at -80 °C for further analysis of some oxidant-antioxidant parameters. The results of the study showed that while total oxidant capacities (TOC) of young and male cats were significantly ($p<0.001$, $p<0.05$) higher than adults and females, total antioxidant capacity (TAC) was significantly ($p<0.05$) higher in young cats compared to adults. Oxidative stress index was statistically differed according to age ($p<0.05$) but not affected by gender ($p>0.05$). Superoxide dismutase (SOD) and glutathione peroxidase (GPX) were significantly higher in adults ($p<0.01$) and males ($p<0.05$) compared to young and female cats, respectively. On the other hand, age, and sex related changes in catalase (CAT) level were non-significant ($p>0.05$). In conclusion, serum / plasma oxidation activity was found higher in young and male cats, while enzymatic oxidants (SOD and CAT) were found higher in adults and females, except GPX. This study revealed the normal values of oxidative stress parameters of healthy Angora cats at different age and gender. These results may help the veterinarians and researchers when considering the health status of Angora cats.

Keywords: angora cats, oxidative stress, health status, age, gender

[#] This study was supported by the Scientific Research Projects Coordination Unit of Kırıkkale University, grant no: 2019/110.



Biogenic Iron Nanoparticles: Synthesis, Characterization and Antibacterial Activity

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Abstract:

Nanotechnology; It has emerged as one of the key disciplines with the support of advanced research and technological advances in various scientific fields such as physics, chemistry, biology, environment, materials science, medicine and pharmacy. Nanoparticles (NPs), which form the basis of nanotechnology, have remarkable properties due to their specific dimensions, shapes, compositions, larger surface area/volume ratios and purity of individual components. NPs produced from biological materials are known as biogenic NPs and the related synthesis process is called green synthesis. Plant mediated biosynthesis of metallic NPs takes place through biomolecules found in plant biomass and containing organic functional groups. Biological synthesis, also known as green synthesis; It is the preferred practical method for obtaining NPs easily and ecologically without the need for high pressure, high temperatures values and toxic chemicals. Green synthesis of NPs is performed using different biomaterials such as bacteria, fungi, yeast, viruses, microalgae and plant biomass/extract. In this study, iron nanoparticle biosynthesis by *Malva vulgaris* plants was investigated. Characterization was performed by UV-VIS absorption spectroscopy, FT-IR, XRD and SEM analysis. The antibacterial effect of FeNPs obtained from *Malva vulgaris* demonstrated antibacterial effect against all tested bacteria strains. The results obtained showed that *Malva vulgaris* plant extract can be used as a good bioreducing agent for the synthesis of iron nanoparticles.

Keywords: nanoparticle, green synthesis, *Malva vulgaris*, antibacterial activities

Fabrication of Cu Nanoclusters based Thiolated Chitosan Nano-carriers Loaded with Levofloxacin and Their Evaluation for Antimicrobial Analysis against MDR Bacteria

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Abstract:

In the present study, the copper nanoclusters based thiolated chitosan (TCS-Cu NCs) Nano-carriers were designed as Nano-cargoes for the delivery of an antibiotic (Levofloxacin) with improved targeting ability and enhanced antibacterial potential against a multidrug resistant strain of Methicillin resistant Staphylococcus aureus (MRSA). The targeting, stabilizing and antibacterial potential of Nano-formulation was explored by synthesizing of copper nanoclusters (Cu NCs) and thiolated chitosan (TCS) with levofloxacin (LEV) as model hydrophobic antibiotic. The newly prepared Cu NCs were characterized to determine the optical properties, surface chemistry and the oxidation state of prepared nanoclusters. TCS was prepared and characterized using FTIR spectrophotometer to confirm the substitution of thiol group. TCS NPs were prepared via ionic reaction between TCS and sodium tripolyphosphate (TPP). Hybrid Nano-formulations comprising of TCS, Cu NCs and the levofloxacin (drug) were prepared via the ionic gelation method and were characterized via zeta sizer analysis, scanning electron microscopy and FTIR spectroscopy. The quantity of entrapped LEV in LEV-TCS-Cu NCs Nano-formulation was found to be 78.3% that was determined using HPLC. The antibacterial potential of LEV-TCS- Cu NCs was evaluated against multidrug resistant strain MRSA. LEV-TCS-Cu NCs showed significantly efficient inhibitory results against the MRSA growth as compared to levofloxacin and vancomycin. In-vitro cytotoxicity investigation revealed that LEV-TCS-Cu NCs can significantly be used to treat MRSA associated infections as compared to native levofloxacin. Acute oral toxicity study of LEV-TCS-Cu NCs indicated no evidence of any toxic results due to biodegradability and biocompatibility. On the basis of these evidences, LEV-TCS-Cu NCs seems to be auspiciously used Nano-carriers for drug delivery with improved antibacterial potential against MDR bacteria.

Keywords: Levofloxacin; Vancomycin; Spectroscopy; Toxicity; Bacteria



**Effects of *Hibiscus Sabdariffa* L. (Hibiskus), a Medicinal Plant, on
Aggregation Properties of Probiotic
Bacterium *Lactobacillus rhamnosus* GG**

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Abstract:

Hibiscus sabdariffa L., in the Malvaceae family, is a bushy plant and found in many places such as Asia and America. *Hibiscus sabdariffa* L. draws attention with its anticancer, antibacterial and antispasmodic effects in addition to its use as a sweetener and herbal tea in various foods. Beneficial microorganisms in the human body interact with herbal compounds in the digestive system and affect each other positively. Probiotic enriched foods are products that could change the microbiota and had a beneficial effect on the host when taken in sufficient amount into the body. Among probiotics, *lactobacillus* species are the most studied. With this study, the effects of *Hibiscus sabdariffa* L. on the aggregation properties of *Lactobacillus rhamnosus* GG, one of the probiotic bacteria, were investigated. For this, different concentrations of *Hibiscus sabdariffa* L. extract together were added to the medium of *L. rhamnosus* GG and their effects on bacterial growth kinetics, auto-aggregation and co-aggregation were examined. Aggregation property plays an important role in the adhesion of probiotic bacteria to mucosal surfaces and epithelial cells. Auto-aggregation is the aggregation of the same type of bacteria and co-aggregation of genetically different bacterial cells prevents pathogens from adhering to the intestinal mucosa. The results obtained in the present study suggest that it is possible to alter the probiotic properties of lactic acid bacteria, especially *Lactobacillus rhamnosus*. Furthermore, combination of two different category of functional foods may give insight into new food formulations.

Keywords: co-aggregation, auto-aggregation, *L. rhamnosus* GG, probiotics, medicinal plant.

Investigation of Mammalian Cells Expressing SARS-CoV-2 Proteins by Surface-Enhanced Raman Scattering (SERS)

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Abstract:

Coronavirus Disease 2019 (COVID-19) is an infectious disease that caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) virus and has spread worldwide, causing deaths of millions of people. With emergence of COVID-19, development of new diagnostic methods has become important both to diagnose and to control pandemic. Current methods used to diagnose COVID-19 such as RT-PCR and ELISA are not enough due to the disadvantages such as time consuming, high-cost, false negative results, and requiring trained person. Therefore, methods that provide rapid, low cost, reliable results and not requiring trained person should be preferred to be detected infected patients. In this study, we developed cellular model was analyzed with Surface-enhanced Raman scattering (SERS) and multivariate analysis to diagnose COVID-19. Plasmids expressing spike (S), protein of SARS-CoV-2 were transfected HEK293 (Human embryonic kidney) cells via polyethylenimine (PEI), which is a cationic polymer. PEI/plasmid of complexes ratio were determined according to N/P ratio. After complexing of PEI/plasmid, plasmids transfected to cells. Plasmid expressing GFP were evaluated for their cellular uptake using flow cytometry and fluorescence microscopy. 52% of cellular uptake was obtained at 24/1 (PEI/plasmid). It was observed that cellular uptake was decreased at 32/1 ratio. Plasmid transfected cells were evaluated with Western blot analysis and SERS spectra were collected from the S-protein transfected cells. To do that gold nanoparticles were used as a SERS substrate. Non-plasmid transfected HEK293 cells were used as a control group. Spectra obtained from transfected cells and control group will be compared with different classification methods to highlight the difference between infected and healthy cells. This SERS-based strategy could be a rapid, low-cost, and reliable solution for the detection of COVID-19.

Keywords: COVID-19 detection, SARS-CoV-2, SERS, transfection, plasmid

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Triple-combination Therapy Against Cisplatin-resistant Ovarian Cancer Cells

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Abstract:

Cisplatin resistance is an important problem in ovarian cancer. Drug resistance develops in different ways such as efflux, influx, drug detoxification, DNA repair, and apoptosis failure. The existence of different resistance-building mechanisms indicates that a strategy targeting a particular pathway may not produce an efficient sensitization to the drug. Therefore, more effective treatments are needed in cancer cells that have acquired drug resistance. Ultrasound has a wide range of applications in medicine and is widely used in both diagnosis and treatment. Exposing biological systems to low-intensity ultrasonic waves causes mechanical and thermal effects known as biological effects. Ultrasound waves cause thermal/mechanic effects leading to increases cell membrane permeability. The combined effect of low-intensity ultrasound and chemotherapy is a promising method in anti-cancer therapy. With the increased membrane porosity in the presence of ultrasound energy, more chemotherapy agents are allowed to enter the cells. Solid cavitation agents can be used to increase the effectiveness of ultrasound therapy because they do not deform quickly in the presence of acoustic energy. Among these agents, gold nanocones (AuNCs) synthesized by the oil-in-water emulsion method attract attention with their large, rough surface areas and biocompatibility. In this study, we developed ultrasound active AuNCs and treated the cisplatin sensitive ovarian cancer cells (A2780) and cisplatin resistance ovarian cancer cells (A2780cis) with therapeutic ultrasound (TUS)+AuNCs+cisplatin to overcome drug resistance. When both cell lines were treated with the calculated IC₅₀ values of cisplatin, AuNCs, and TUS, less than 20% cell viability was obtained. Our proposed treatment strategy was statistically significant and effective compared to the other treatment groups. The results show promise in the development of effective therapy against cisplatin-resistant cells.

Keywords: therapeutic ultrasound, gold nanocone, cisplatin resistance, ovarian cancer

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Ontogeny of Extraocular Muscles in Indian Buffalo

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Abstract:

Present study was carried out on the histogenesis of extraocular muscles in embryos/fetuses of Indian buffalo. Total 18 specimen of ascending gestational ages (divided in 3 groups as CVRL < 20.0 cm, > 20.0 cm - 40.0 cm, > 40.0 cm) were subjected for histological and histochemical observations. The first evidence of muscular development was seen at CVRL 5.1 cm. The primordia of these muscles appeared as condensation of mesodermal cells which were derived from cranial mesoderm. In buffalo fetuses, a total of seven primordia were observed. These muscles were later attached with developing sclera. The striations became distinct in second group. In third group, muscle bundles were divided into different fascicles by connective tissue septae. With the advanced fetal age, these muscles were fully developed with all the features of skeletal muscles. The muscles were comprised of bundles, divided by connective tissue sheets as epimysium, perimysium and endomysium rich in blood vessel and reticular fibers. Phosphotungstic-acid hematoxylin (PTAH) method showed very prominent cross striations in all muscles. The muscle fibers had peripherally arranged elongated nuclei. The thickest muscle bundles were present in rectus muscles ($12.80 + 1.34\mu$) and the thinnest in retractor muscles ($10.32 + 1.79\mu$). Myenteric plexuses were observed and arranged in specific manner as they were aligned at a line in retractor muscles whereas they were arranged in different locations in rectus and oblique muscles. Some ganglions were also noticed towards the periphery of muscle mass. The moderate to strong PAS activity was observed in the muscle fibers, but weak in the connective tissue of rectus, oblique and retractor muscles. The alcianophilic reaction could not be demonstrated in the muscle fibers but it was moderate in connective tissue. A very strong reaction of basic proteins in connective tissues i.e. perimysium, endomysium and epimysium, but weak in the muscular bundles in all the extra ocular muscles. The lipid moieties were observed in the connective tissues between the muscle fibers with the maximum reaction in retractor muscle of the eye. Phospholipid moieties were noticed in the connective tissue of the extra ocular muscles with maximum concentration of the reaction product in the retractor oculi muscle.

Keywords: extraocular muscles, histochemistry, histology, Indian buffalo, ontogeny.

The Radiographic Skull Measurements of Taygan Puppies

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Abstract

The aim of this study was to reveal the skull measurements of two-month old Taygan puppies, like cranial (CU), facial (FU) and skull length (KU), cranial (CG) and skull width (KG), using radiography of two females and a male. Besides, the cranial (CGx100/CU), facial (KGx100/FU) and skull index (KGx100/KU) were calculated from the measurements. For this purpose, radiographic exams were performed by a radiological unit (Roskom PXP-40 HF) using 54 kV 0.5 mAS beams. Latero-lateral and dorso-ventral views of the skull were obtained for each puppy. The measurements points were firstly determined inion, nasion, prosthion. On latero-lateral view of radiography, CU was measured from inion to nasion and FU was measured from nasion to prosthion, while the KU was taken the range from inion to prosthion. On dorso-ventral view, the CG was measured between the most lateral points of the cranial cavity, whereas the KG was determined from the most lateral points of zygomatic arc. At the end of the measurements, it was determined that the mean CU was 113.48 mm in the females and 84.59 mm in male, the mean KU was 168.95 mm in females and 128.93 mm in male, the mean YU was 60.79 mm in females and 50.33 mm in male, the mean CG was 62.02 mm in the females and 62.02 mm in male, the mean KG was 85.60 mm in female puppies and 71.21 in male puppy. It was calculated that the skull index was 50.67 mm in females and 55.23 mm in male, the cranial index was 54.65 mm in females and 68.70 mm in male, the facial index was 140.81 mm in females and 141.49 mm in male. It was seen that the skull measurement values of female were higher than that of male, the facial index values were found to be close in male and female. It was observed that the cranial and skull index values of male was higher than that of females.

Keywords: Taygan puppy, Radiography, Skull Morphometry.



A Morphological and Stereological Investigation on the Tongue of the Merlin

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Abstract:

Merlin is the smallest bird of the *Falconidae* family and lives in America, the northern regions of Europe and Asia, the Middle East, and Central Asia. Since the poultry does not have teeth, lips, and cheeks, the tongue fulfills significant functions related to nutrition, and it differs morphologically as a result of differences in eating habits.

In this study, the tongues obtained from five adult merlin (*falco columbarius*) were examined morphologically and stereologically. It was determined that the tongue of the merlin was thin, long, and rectangular, the front part was oval, W-shaped *papilla linguales caudales* were found between the *corpus linguae* and *radix linguae*. The average length of the tongue was 26.32 ± 1.38 mm, the width was 7.26 ± 0.32 mm, and the thickness was 1.58 ± 0.14 mm. The histology of the tongue of the Merlin showed that the *dorsal* and *ventral* surfaces are covered with keratinized multilayered squamous epithelium; there are taste buds in the epithelial layer, the number of taste buds is higher especially on the *radix lingua* side; and the presence of *paraglossum*, which is in the hyaline cartilage structure. The volume calculated stereologically was as an average of 374.2 ± 14.08 mm³.

In conclusion, the morphological structure of the tongue of the Merlin was revealed and the volume was calculated with the stereological method, and it is thought that this study can be a source of many studies that can reveal species differences.

Keywords: *Falco columbarius*, merlin, morphology, stereology, tongue.

We declare that, this study was financially supported by the Scientific Research Projects Committee (Project number: 18.KARIYER.118), Afyon Kocatepe University, Afyonkarahisar, Turkey.



Estimating Some Internal Quality Characteristics in Goose Eggs with Mathematical Equations

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Abstract:

Morphometric studies on goose breeding have an important place in recent years. The egg is indispensable element in poultry sector, and geese support this sector. For this, studies on chicken egg quality should also be tested on goose eggs. Haugh Unit, albumen weight, albumen rate, yolk weight and yolk ratio are important variables in determining the internal quality of eggs. These variables were estimated by using formulas based on the Length and Breadth measurements of the egg without breaking the egg. In the study, 360 eggs belonging to three goose genotypes, Grey China, Linda and Native geese of Aksaray region collected from the public were analyzed. The Length and Breadth lengths of the eggs were made with a digital caliper capable of measuring 200 mm distance with a precision of 0.01 mm. In Native, China and Linda geese, egg weight; 138.3, 129.5 and 156.2g, Haugh Unit; 138.6, 126.8 and 151.6, egg yolk weight; 52.83, 49.39 and 59.79g, egg yolk ratio; 38.18%, 38.13% and 38.27%, the albumen weight; 72.71, 68.25 and 81.72g, and the albumen ratio; 52.59%, 52.71% and 52.34%, were calculated respectively. Except for the formula that calculates Haugh Unit without breaking the egg, recommended by Narushin and Morgun, the formulas that calculate other variables gave realistic results.

Keywords: Egg composition, haugh unit, geese.



Identification, 3D Modelling, and Morphometry of Intracranial Arteries of New Zealand Rabbits by Computed Tomography Angiography

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Abstract:

The aim of the present study was to determine identification, three-dimensional modelling, and morphometry of intracranial arteries in New Zealand Rabbit by using computed tomography angiography. A total of 20 adult White New Zealand Rabbits from both sexes were used in the study. General anesthesia procedure was followed before computed tomography angiography imaging. Rabbits were placed in prone position for imaging. Computed tomography angiography imaging was performed by injecting contrast media through vena auricularis marginalis of rabbits. Morphometric measurements of the specified spots were taken by MIMICS 16.0 program using the computed tomography angiography images acquired. Three-dimensional intracranial artery model was prepared from the two-dimensional images on the same program. Measurements were statistically compared in terms of sex and side. It was observed in the study that arteria basilaris was generated by bilateral arteria vertebralis at the basal level of medulla oblongata. In the study, a statistically significant difference was determined only in diameter values of arteria cerebri caudalis dextra et sinistra in both female and male rabbits. On the other hand, no statistically significant difference was determined with respect to side. Consequently, we think that data of the present study will contribute to further studies on cerebrovascular pathology, clinicians or researchers.

Keywords: Angiography, Arterial Morphometry, Computed Tomography, Vascular Modelling, Rabbit



Veterinary Anatomy Distance Education through YouTube and Anatomical 3D Models during Pandemic Covid-19 Period

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Abstract:

Since April 2020, all higher education activities, excluding only some of them, have been run online using distance learning systems in Turkey. During this period, MSKU Veterinary Medicine Faculty - Anatomy Department has designed 3 dimensional anatomical models based on ZBrush and created corresponding videos to share in the department's YouTube channel in order to eliminate the students' lack of practice. When asked the channel followers, 98% have stated that they are students of various veterinary medicine faculties. According to YouTube Analytics data gathered from our channel's followers, age, gender, hardware used, operating system, video-watch durations, the popular topics and the contribution to these students have been analyzed. This research covers a period starting in the beginning of 2020-2021 Fall Semester till the end. When we check the proportions: most of the channel visitors are women, most commonly used hardware are computers, mobile phones, tablets and TVs in order and the most commonly used operating system is Microsoft Windows. While most of the visitors are from Turkey, we observed that the rest includes: Kyrgyzstan, UAE, Germany, USA and Cyprus. When the channel viewing chart is checked, it has been observed that the channel is visited and stayed more during the examination periods. When comments are checked, it has been understood that the channel content helped students very positively to understand the veterinary anatomy during distance learning and also effected their exam results positively. Veterinary Anatomy field, in which the practical training is mandatory, is difficult to grasp with distance learning. However, digital teaching material may help students understand the topics and the medical terminology in an easier way.

Keywords: anatomy, distance education, 3d models, youtube, covid

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Thalamus, Hypothalamus, Corpus Amygdaloideum, Corpus Mamillare Volume Ratios Obtained by MRICloud Method in Alzheimer's Patients

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Abstract:

Alzheimer's disease (AD) affects more than 35 million people around the worldwide and its incidence is predicted to triple by 2050. According to The World Health Organization, Turkey will be one of the four countries with the highest AD in the world in 2050. In the literature, pathological involvement has been observed in subcortical structures that play a role in cognitive process in AD. Therefore we aimed to determine the changes in volume ratios in Alzheimer's disease. The study included 24 AD, 16 CG, a total of 40 people. Telencephalon (Telen), Brain Spinal Fluid (CSF), Thalamus (Thal), Hypothalamus (HypoTh), Corpus amygdaloideum (Amyg), Corpus mamillare (Mama) data was obtained from the Type 2 L5 statistics table in the web based MRICloud program. The SPSS 27.0 program was used in the analysis of the data. TelenL / AmygL, TelenL / MamaL, TelenR / AmygR and TelenR / MamaR ratios were found to be higher in the AH group ($p < 0.05$). Although the rates of TelenL / ThalL, TelenL / HypoThL and TelenR / ThalR were higher in the AD group, no significant difference was observed ($p > 0.05$). CSF / TotAmyg, CSF / ThalamT, CSF / TotHypoth and CSF / TotMam ratios were found to be higher in AH group ($p < 0.05$). The higher ratio of the thalamus, hypothalamus, corpus amygdaloideum and corpus mamillare volumes to the CSF which are subcortical structures of the limbic system makes think that these rates may be more specific for diagnosis in AD group. Multicenter studies with more AH are needed to support the decrease of volumes of the thalamus, hypothalamus, corpus amygdaloideum and corpus mamillare are shrinking in patients with AH.

Keywords: Alzheimer's Disease, MRICloud, Thalamus, Hypothalamus, Corpus Amygdaloideum, Corpus Mamillare



The Proliferative Effects of PRP on Cattle Ovarian Culture

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Abstract:

Platelet rich plasma (PRP) is currently used in human and veterinary medicine. It is a blood product with features such as injecting damaged area or applying it topically. The main purpose of using PRP is to secrete alpha granules rich in growth factors and cytokines for therapeutic purposes. PRP contains several growth factors that induce cytokines that could stimulate follicular growth and steroidogenesis. In the ovary, apoptosis is the cellular mechanism removing all but few growing follicles during their way to ovulation. The aim of this study is to determine the proliferative and / or apoptotic effects of low and high PRP doses on ovarian tissue. For this purpose, ovaries were collected from slaughterhouse. Ovarian tissue was sliced (5 slices/ovary) and placed into the culture medium for 3 days. Ovaries were divided into 3 groups; control group, low dose group (700×10^3 platelets/ml) and high dose group (2100×10^3 platelets/ml). After 3 days, the slices were fixed and routine immunohistochemistry method were performed with PCNA (proliferating cell nuclear antigens) to determine proliferating effects and active PARP-1 to determine apoptotic effects. As a result , it was observed that, PRP protects the follicles against apoptosis and atresia and stimulates follicular development. This report is the first known study of PRP in ovarian cultures and has a potential innovation for future studies, which will ty to define follicular proliferation and apoptosis in cow's ovaries.

Keywords: PRP, ovarian culture, proliferation



The Effects of Red Hot Pepper on Pancreatic and Ovarian Cancers

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Abstract:

Pancreatic ductal adenocarcinoma accounts for more than 90% of all pancreatic cancers and has a poor prognosis and a high mortality rate. Ovarian cancer is one of the most lethal gynecological cancers and affects 1 out of every 75 women in the world. The presence of metastasis in 75% of cases negatively affects the prognosis. Capsaicin (CAP) (trans -8-methyl-N-vanillyl-6-nonendamide) belongs to the Capsicum family and pungent ingredient in red hot peppers. In addition to showing the protective properties of CAP against different types of cancer, recent studies have proved that CAP also has an effect preventing tumor formation. The purpose of this study is to determine proliferative and/or apoptotic effects of low and high doses of CAP on PANC-1 cells a model of pancreatic ductal adenocarcinoma and SKOV-3 cells a model of ovarian adenocarcinoma. For this purpose, the cells were treated with basal medium (control group), 50 μ M CAP (low dose group) and 250 μ M CAP (high dose group). After 48 hours of treatment, the cells were fixed and immunocytochemistry procedure was performed with Ki-67 for determination of proliferative effects and cleaved-caspase-3 for determination of apoptotic effects. As a result of the study, Ki-67 expression decrease, and cleaved-caspase-3 expression increase with increased doses of CAP in both groups of cells. In consequence of the present study, the apoptotic effects of CAP on pancreatic and ovarian cancers can be lead of future chemoprevention studies and CAP can be combined with chemotherapeutic agents and used in treatment of pancreatic adenocarcinoma and ovarian adenocarcinoma.

Keywords: capsaicin, pancreatic cancer, ovarian cancer, apoptosis



The Proliferative and Apoptotic Effects of Capsaicin on Cattle Ovarian Culture

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Abstract:

Ovaries are responsible for fertility and the basic functional unit of the ovary is the follicle. The structure of the follicle consists of an oocyte and surrounding granulosa and theca cells. Apoptosis and proliferation are essential for ovarian functions and development, and a mechanism that regulates biological timing in females. Capsaicin (CAP) (N-vanillyl-8-methyl-alpha nonenamide) is the active ingredient in red hot pepper. CAP has been shown to stimulate the release several neuropeptides, so it has an important role in ovarian steroidogenesis, follicular development, and ovulation. The aim of this study is to determine the proliferative and / or apoptotic effects of low and high CAP doses on ovary. For this purpose, ovaries were collected from cattles. Ovarian tissue were sliced (5 slices/ovary) and placed into culture medium for 3 days. Ovaries were divided into 3 groups; control group, 100 μ M CAP (low dose group) and 500 μ M CAP (high dose group). After 3 days, ovarian slices were fixed and routine immunohistochemistry method were performed with PCNA (proliferating cell nuclear antigens) to determine proliferating effects and active PARP-1 to determine apoptotic effects. As a result of the study, it was observed that, low-dose CAP protects the follicles from apoptosis and atresia and stimulates follicular development. On the contrary, high doses of CAP causes apoptosis in the follicles. Ovarian culture method is very important specially on cattles. It is thought that our study will make a significant contribution to the literature, since it is the first study in this field to examine the direct effects of CAP on the ovary in cattles.

Keywords: Capsaicin, ovarian culture, apoptosis, proliferation



A Macroanatomic and Subgross Study on the Structure of Heart in Chukar Partridge

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Abstract:

Chukar partridge is a species of *Alectoris chukar* belonging to the genus *Alectoris* from the *Perdiciace* subfamily of the family *Phasianidae* of the order *Galliformes* in the class *aves*. This study was conducted to determine the macroanatomic properties of the heart in a chukar partridge (*Alectoris chukar*). In the literature, there is a need of conducting such study due to the limited number of studies conducted on partridge heart. In the study, 10 chukar partridges were used regardless of the sex. It was found that the heart of the chukar partridge was located between the second and fifth ribs in the thoracoabdominal region. It was observed that in chukar partridges, the heart was attached to sternum by sternopericardial ligaments. It was determined that apex cordis was completely formed by left ventricle in the heart of the partridge. While trabecula carnea were determined in left ventricle, their number was higher compared to right ventricle. The presence of the structures called as papillary muscles and tendinous cords was revealed in right ventricle. It was determined that left auricle in left atrium was more notched than right auricle in right atrium. The presence of a funnel-shaped enlargement was determined on the base of right atrium. Compared to the cavity of right atrium, the cavity of left atrium was smaller.

Keywords: atrium, chuckar partridge, heart, ventricle

This study was supported by Research Fund of the Van Yuzuncu Yil University with the project number of 2015- SBE-YL314. E.



Treatment of Open Fractures in Dogs with External Fixator

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Abstract:

Bone fracture cases are big parts of pet problems in the clinic, the treatment of open fractures was problematic and need a long time. In such cases, internal implantation is not appropriate due to the contaminated/infected character of the open fracture. However, external fixators allow stabilization while the treatment process of the fracture continues and because of these advantages, they stand out as an effective option in the treatment of open/infected fractures. In the present study, clinical and radiological findings of linear external fixator application was evaluated in long extremity bones of dogs with open fracture or nonunion cases and to assess complications encountered during the treatment process. Three of the five dogs in the study have infected and necrotic, open Radius-Ulna fracture and 2 dogs have nonunion (1 femur and 1 radius-ulna) fractures. The patients were hospitalized in our faculty clinic until they were discharged and their postoperative care was performed daily. The recovery was good except for 1 case. In 1 case, amputation of the related limb was performed because of postoperative infection could not be prevented due to extensive necrotic and infected area. As a result, linear external fixator application was observed to be a successful application in open infected fracture and nonunion cases.

Keywords: dog, external skeletal fixation, fracture.



Investigation of the Effects of Modified 8 Suture Technique and the Simple Interrupted Suture on Healing in the Rat Abdominal Hernia Model

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Abstract:

The treatment of the hernia varies according to the region, type, and tissue. There are many studies on treatment methods. This study was aimed to find out the differences between the modified 8 suture technique and the standard suture technique. In this study, 14 adult male Albino Wistar rats weighing 250-300 gr were used. The animals used in the study were randomly divided into two groups as the control group and the experimental group. First, an experimental abdominal hernia was created. The paramedian line was chosen as the skin incision site. After the skin incision, the subcutaneous connective tissue was stripped and the muscles of the ventral abdomen were opened by blunt dissection to create a 3 cm hernia hole. Standard simple separate sutures were placed in the control group for hernia repair. In the study group, after the modified 8 technique was applied to the hernia hole, the skin was closed with simple separate sutures. On the 21st postoperative day, the animals were euthanized using CO₂. For histopathological examination, 5x5 cm tissue samples were taken from the operation site. Histopathologically, it was noted that fibrosis related to inflammatory changes, necrosis areas with tissue loss, and increase in the connective tissue around the region was less severe and collagen development was higher in the modified 8 suture technique. Changes in fibrosis formation were more prominent and more common in patients with normal sutures but less collagenation. Consequently, when the data obtained after the study were compared, it was found that the modified 8 suture technique had a more effective hernial ring closure than the simple suture and the regeneration process was shorter than the standard suture. It was concluded that this technique can be proposed as an alternative technique to classical suture applications for hernias that are large enough to confront the wound line.

Keywords: hernia repair, modified 8 suture, rat, wound healing.

Clinical and Radiological Evaluation of Complications Associated with Treatment of Extremity Long Bone Fractures in Cats and Dogs

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Abstract:

The purpose of this current study, by increasing fractures in domestic carnivores which live in the same area in the city with human being, is to achieve treatment of the anatomical structures and the function of the extremity as soon as possible. In this manner, our aim is to introduce that the complications in fracture healing seen at the postoperative period of the fracture management associated with knowledge, surgery skills and method choice of the orthopedic surgeon, lack of postoperative care and following; to guide for decreasing of these situations and to accommodate with the similar studies. Medical and radiographic records of 22 cats and 18 dogs “totally 40 cases” at different age and gender that brought to the Ankara University, Faculty of Veterinary Medicine, Department of Surgery Clinic between 2015-2018 years and determined complications related to fracture treatment in their long extremity bones were evaluated. When evaluated results of the study cases, the femur is found that the complications most occurred long bone among the “49” complications in “40” cases. Numerical distribution of the complications according to long bones was determined as 20 in the femur, 15 in the tibia, 10 in the radius, and 4 in the humerus. According to callus formation, complications were categorized as exuberant callus, insufficient callus, delayed union, malunion, and nonunion. Complications arised from fracture management, and treatment methods were determined as incorrect implant choice for the related long bone, inadequate application of the proper implant, inappropriate and insufficient reduction of the fracture, lack of postoperative care and control, and incorrect bandaging. The treatment methods that applied to the cases were IM nailing, a combination of IM nail with cerclage wire, threaded pin, a combination of the threaded pin with cerclage wire, bone plate osteosynthesis, the combination of a bone plate with cerclage wire, and modified acrylic type I ESF. In 2 cases, because of infection totally 6 cases developed nonunion. In 16 cases, exuberant callus was determined that arises from different kinds of causes. In 8 cases, malunion occurred. In 2 cases, contracture in the quadriceps muscle has developed. In 9 cases recovered by functional healing and 6 cases could not be followed.

Keywords: Cat, complication, dog, fracture, treatment.



Clinical Evaluations of the Results and Distribution of Long Bone Fractures of Limbs in Dogs Caused by a Traffic Accident

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Abstract:

In the present, study a total of 74 dogs of a different breed, age, and sex, which had traumatic lesions in their long bones of limbs and brought to the Surgery Clinic of Ankara University, Faculty of Veterinary Medicine, were examined. The clinical and radiological examinations of the patients brought to the Clinic due to traffic accidents revealed the distribution of fracture in the limbs as Humerus (21%) in 16 dogs, Radius-Ulna (23%) in 18 dogs, Femur (29%) in 23 dogs and Tibia (27%) in 21 dogs. Clinical examination was performed according to the anamnesis and examination findings of the patients which had fractures in their bones caused by traffic accidents. The related limbs were examined regarding the pain, temperature, swelling, deformity, abnormal movement, crepitation, and asymmetry. The indicated treatment type was applied. In this study, a general description, localization, and detailed evaluation of the long bone fractures of the limbs in dogs caused by traffic accidents were presented. In conclusion, traffic accidents pose a vital danger to humans as well as to the pet animals which they are living with. Similar prevention methods should be carried out as well.

Keywords: Dog, fracture, limb, traffic accident, trauma



Computed Tomographic (CT) Evaluation of Skull Fractures in Cats with Head Trauma

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Abstract:

The aim of the study; is the evaluation of skull bones with computed tomographic imaging in cats with head injuries. Twenty cats (9 female, 11 male) with head injuries were evaluated in the study. A CT scan of the head was performed within 72 hours after the trauma. The patient was premedicated with medetomidine (0.08 ml/kg/IM), and anesthesia was induced with propofol (4-6 mg/kg/IV) and maintained with isoflurane in oxygen. For the tomography (Asteion, Toshiba Medical Systems Corporation, Japan), 120 kV, 100 mA, and 2 mm cross-section thickness values were selected and performed in the helical cranial scanning mode. CT application was used only for the evaluation of the head bones. CT results of the cats, a separation of the symphysis mandible (n=13), a temporomandibular joint (TMJ) fracture (n = 5), an os temporale fracture (n=2), an os zygomaticus fracture (n = 2), and a separation of the palatal bone (n=11) were observed. Overall, according to the CT scans, the most frequent injuries included a separation of the mandibular symphysis, maxilla fractures, and TMJ fractures. The findings of this study show that fractures affecting the skull in cats following head trauma are a common and predictable distribution pattern. It is often seen other jaw and skull fractures when viewed with CT rather than plain radiographs in cats with mandibular and palatal bone problems.

Keywords: feline, craniomaxillofacial fractures, head trauma, ct.

Efficacy of a Proteolytic Enzymes Combination and Azithromycin in The Treatment of Bovine Cutaneous Papillomatosis[#]

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Abstract:

Although various methods have been used in the treatment of Bovine cutaneous papillomatosis (BCP), no definite agent has yet been established. No study has been conducted on the efficacy of azithromycin (AZ) or of any combination of trypsin, chymotrypsin, and papain proteolytic enzymes (PEC) in the treatment of BCP. The aim of this study was to provide comparative evaluations of the effectiveness of PEC (containing trypsin, chymotrypsin and papain) and azithromycin, a macrolide antibiotic, in the treatment of spontaneous or idiopathic BCP cases. The study material involved a total of 24 female Holstein cattle aged 6-17 months with spontaneous BCP. In addition to the clinical findings, the diagnosis was confirmed with histopathological examinations. These animals were randomly divided into three groups (n = 8). The AZ group was applied 10 mg/kg/day PO for 10 days. In the PEC group, an injectable suspension of proteolytic enzymes was applied IM at 0.4 ml / 10 kg dose, three times at an interval of 8-10 days and the spray was used topically once a day for 10 days. However, the control group (CO) was not treated. The mean decreases in groups' papilloma warts were 92.4% in the AZ, 83.38% in the PEC, and 59.48% in the CO. Statistical differences were found in warts' decreases between the three groups (p <0.05). In this study, both azithromycin and a combination of proteolytic enzymes (containing trypsin, chymotrypsin, and papain) were shown to be effective in the treatment of Bovine Cutaneous Papillomatosis. Also, these two treatment protocols were not found to have any undesirable or side effects. In addition, based on this study, the use of azithromycin in BCP treatment was found to be more effective than the combination of the proteolytic enzyme that includes trypsin, chymotrypsin, and papain. In future studies, it may be suggested to investigate the effects of these two protocols which can be used in the treatment of BCP cases in different doses in order to achieve faster treatment success. Studies on the mechanisms of action of these drugs in BCP may also be recommended.

Keywords: cattle, herd, papillomavirus, skin, wart.

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A Case of Ulna Fracture in Two Years Old Pheasant

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Abstract:

The material of this case was a 2-year-old male pheasant (*Phasianus colchicus*) brought to our clinic with the complaint of inability to fly as the result of a gunshot wound. Examination revealed an open wound in the radius ulna area of the left wing of the animal. Radiological examination revealed a complete fracture in the metaphyseal region of the bird's ulna. It was decided to perform a surgical operation. For this purpose, the animal was anesthetized with xylazine at a dose of 2 mg / kg and ketamine at a dose of 30 mg / kg. The area was shaved and disinfected. Soft tissues were opened. Bones were exposed. The ends of the bones were made to meet and a Steinmann pin was retrogradely inserted into the intramedullary canal. Then the stabilization of the bone was achieved. Radiological x-rays were taken again. After it was concluded that the pin was in the intramedullary canal, the rest of the operating place was closed in accordance with the rule. Then the bird's wing was bandaged with a gauze pad for stabilization, and the wing was fixed to the body. Antibiotics and painkillers were administered to the bird postoperatively. Vitamins and minerals were added to the water as a support. It was observed that recovery was at a good point within 20 days. The pin was removed one month later. Two months later, training and physical treatments were given to the bird's wings so that the bird could fly. Two months later the bird was released into nature

Keywords: pheasant, fracture, osteosynthesis



Evaluation of Printable 3D Keel Bone Models for Using the Assessment of Keel Bone Damage in Laying Hens

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Abstract:

Keel bone damage is one of the most important welfare problems in laying hens especially in cage-free housing systems. Hens with damaged keels feel pain and suffering, so their egg production decreases. Apart from other assessment methods such as Ultrasound, X-Ray; the most practical method to assess the level of this problem at on-farm level is palpation. However, palpation is mostly reliable on the accuracy of the person who makes the palpation. The aim of this study was to test the usefulness of Three-Dimensional (3D) keel bone models in order to improve the inter- and intra-observer reliability of palpation of damaged keels in egg-laying chickens. Three different 3D models were developed according to severity of keel bones. When the 3D models were used, a scoring sheet was developed with a 4-scale scoring system and the keel bones of the hens were scored according to the severity of the damage. The scores were 0 (no damage, perfect keel bone), 1 (mild damage), 2 (moderate damage), 3 (severe damage). Same hens were scored with and without the models to test the effectiveness of the models. Two assessors palpated 12 hens on average in each trail and overall 50 hens were palpated. On each trail, numbered rings were put on the legs of each bird and the numbers were recorded in order to avoid repeated palpations. According to the results, the reliability value with the models was above 0.6 in each trail. However, these were only two palpators and only 50 hens were palpated. In conclusion, using 3D models seems to be a promising method for the keel bone damage assessment. However, the same application should be done with greater number of palpators and with more number of hens in order to test accurately the reliability of this method.

Key Words: laying hen, welfare, keel bone, palpation

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Evaluation of Consumers' Awareness Levels towards Functional Foods and Their Consumption Behaviors: A Study in Isparta Province

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Abstract:

The objective of this study was to evaluate the awareness levels of consumers in terms of functional foods and to determine their consumption behaviors towards these foods. For this purpose, a survey was performed with 362 participants in Isparta Province, Turkey. According to the study results, 183 (50.6%) of participants were female. 215 (59.3%) of participants were between the ages of 21 and 40. 164 (45.3%) of participants stated that they were associate or bachelor's degree whereas 84 (23%) of participants were high school graduates. 204 (56.3%) of participants have total income over 4000 TL (542 \$). Meantime, 246 (68.2%) of participants allocate a budget of less than 1500 TL (203 \$) for food expenditure. Almost half of the participants (47.2%) stated that they have knowledge about the concept of functional food. Most of the participants reported that their awareness about functional foods were formed through the internet and TV commercials. The study results indicated that its beneficial effects on health and the digestive system were the most important factors affecting functional food consumption ($P < 0.05$). On the other hand, the effects of functional foods on mood and weight control had a lower level of importance on their consumption ($P < 0.05$). The most preferred functional foods of participants were fermented foods, mineral water and probiotic dairy products, respectively. Furthermore, participants stated that they knew gluten-free foods and products containing prebiotics, but they never tried them. Participants generally thought that functional foods had positive effects on human health. However, some participants noted that there were safety concerns regarding the consumption of these products. The participants also stated that the functional foods were enriched foods in terms of nutritional content. In conclusion, the awareness levels and consumption behaviors towards functional foods of consumers living in Isparta Province are presented in this study. It was observed that the participants had limited knowledge about functional foods and they have a skeptical approach to their consumption. It is recommended to inform consumers about the importance of functional foods by using written and visual introductory-informative components.

Keywords: functional food, consumer, awereness, behavior.



Microbial Quality of Milk Taken from Bulk Tank Milk

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Abstract:

Microbial quality of milk, which has an important place in human nutrition, is an important factor in both human health and production of dairy products. Milk can be contaminated with many microorganisms during milking and storage. Microbial risk increases because milk collected from many places and dairy farms is kept together in bulk tank milk. This study was carried out to reveal the microbiological quality of raw milk samples taken from 40 separate bulk tank milk in Bucak in November (2020). Milk samples taken into sterile containers were brought to the laboratory under the cold chain and analyzed for pH value, total bacteria, yeast-mold and coliform number. The pH values of the samples were determined between 6.1-6.7 and the average is 6.5. The total aerobic mesophilic bacteria was found between 6.2×10^6 - 3.9×10^8 , of which 14 (35%) is <7.0 log cfu / ml (log), 21 (52.5%) is between 7.0-8.0 log and 5 (12.5%) were determined as >8.0 log. The average total aerobic mesophilic bacteria count was determined as 7.4 log in the samples. Yeast mold was detected in 6 (15%) of the samples examined as <1 log, in 13 of the samples as (32.5%) 1.00-3.00 log, and in 21 of the samples as (52.5%) 3.0-5.2 log. The average yeast mold count was 3.49 log, and the highest number was determined as 5.2 log in the samples. Coliform bacteria were counted between 2.00-4.00 log in 24 (60%), between 4.00-5.34 log in 12 (30%), and <2 log in 4 of the samples (10%). The mean coliform bacteria count in the samples was 3.40 log and the highest coliform bacteria was 5.34 log. It is important to note that the high number of coliforms, total bacteria, yeast and mold in the analyzed raw milk samples may cause some negativities during the production and may threaten the public health. The findings obtained at the end of the study can contribute to hygiene planning and strategies in enterprises necessary measures should be taken by the authorized institutions in enterprises with low raw milk quality by conducting wider screening studies.

Keywords: milk, bulk tank milk, hygiene, microbiology.



Oral presentation

Determination of Aflatoxin M₁ Levels in Turkish Cheeses Provided from Different Regions of Turkey

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Abstract:

Hygienic quality is very important problem in milk and dairy products. Aflatoxins are one of the mycotoxins produced by moulds and it is known that the Aflatoxin M₁ type, which can be found in milk and dairy products, is a potential risk for the public health. In this study, the presence of Aflatoxin M₁ in white and tulum cheese samples collected from three different provinces of Turkey (Burdur, Bursa and Elazig) was investigated by ELISA method. 42 white and 42 tulum cheese samples (total 84) were analyzed and the samples were evaluated in terms of their compliance with the limits of the Turkish Food Codex. According to the results; 34 (40.47 %) of 84 cheese samples were contaminated with Aflatoxin M₁ ranging from 250 to 559 ng/kg. 50 (59.52 %) cheese samples were found below the detection limit and these are negative in terms of Aflatoxin M₁. On the other hand, 2 samples (2.38 %) were over the tolerance limit of the Turkish Food Codex. Also, the incidence of Aflatoxin M₁ in white cheeses was 35.71 % and in tulum cheeses was 45.23 %. Although the number of samples above the legal limit is small, Aflatoxin M₁ contamination in cheese reduces the quality of the food and adversely affects human health. Therefore, it should be treated more carefully about the issues such as the use of quality feeds in the feeding of dairy animals and the production of milk and dairy products under hygienic conditions.

Keywords: Aflatoxin M₁, white cheese, tulum cheese, public health, ELISA



**Enteral Nutrition Initiatives in Surgical and Internal Intensive Care Units:
A Systematic Mapping Study**

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Abstract:

Nutritional support is a routine part of intensive care treatment. Enteral nutrition, compatible with evidence-based practices, initiated for critically ill patients at an early stage has been reported to improve clinical outcomes, reduce mortality rates, and the length of hospital stay. This study was aimed at determining the characteristics, methods, and general trends of enteral nutrition studies, conducted in internal and surgical intensive care units (ICU), based on the studies published in international journals between 2008-2018. A total of 95 studies, conducted since 2008, on enteral nutrition have been examined by the systematic matching method. In this context, studies were carried out in three phases: Planning, conducting and documenting the examination. A review protocol for study data was developed based on research questions. The data were analyzed with the SPSS version 22.0 package program. Descriptive statistics of variables were presented with mean, standard deviation, frequency. Since the study is a database scan, it does not require ethics committee approval. While most studies were published between 2014-2016, 27 were between 2017-2018. Of the published studies, 48 were descriptive, 22 randomized controlled, 14 cohort, and 11 retrospective. Majority of them aimed at determining the effect of enteral nutrition. 86 of them were performed in both internal and surgical ICUs, 7 in surgical ICU, and 2 in anesthesia ICU. Of all the studies, 84 of them included patients as a sample group, 8 included nurses, and 3 included healthcare professionals such as physicians, pharmacists, and dieticians. In these studies, the mean length of stay of the patients in ICUs was 13.9 days, and enteral nutrition was administered for a mean of 11 days during this period. Aspiration pneumonia, diarrhea, and vomiting were the most common complications in the reviewed studies. When the mortality rates of studies were examined, it was determined to be 0-10% in 35 studies and 11-20% in 11. This study reveals that enteral nutrition is frequently used in ICUs, and its metabolic effects, complications, and the level of knowledge of healthcare professionals are the variables examining the effect of enteral nutritional intervention.

Keywords: enteral nutrition, intensive care, systematic mapping.

Traditional Methods of Weaning Used by Mothers, Problems Experienced by Mothers During the Weaning Process, and Reactions of Babies to Weaning Process; A Study in the Northern Region of Turkey

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Abstract:

It is known that mother-infant attachment and breastfeeding is important in a child's development process. In this study, we aimed to determine the traditional practices used in the weaning process in the northern region of Turkey, the reaction of babies to the process, duration of this reaction, and the difficulties experienced by mothers in this process. Between April and September 2019, mothers (n=236) in a pediatric clinic of the hospital with their child and who had at least 6 months of breastfeeding experience constituted the sample of the study. The study is cross-sectional and descriptive research. The permission of the institution for the study and the approval of the Ethics Committee were obtained from the Ethics Committee of Clinical Research. In the data collection, we used a semi-structured form of 27 questions prepared by the researchers by reviewing the literature to determine the socio-demographic characteristics of mothers, the reasons, methods and difficulties of weaning. We evaluated obtained data in the study by using numbers, percentages and Student's t test. The average age of the mothers was 31.27 ± 5.58 , the average number of children was 2.19 ± 0.91 . It was determined that the average breastfeeding rate of mothers was 20.35 ± 7.6 months, 69.5% of them considered the duration of breastfeeding adequate. It was found that mothers decreased their daily breastfeeding number (41.1%) and suddenly (31.4%) ended breastfeeding. We found that mothers used various methods in order to show the child the taste, smell and appearance of the breast poorly. Moreover, we determined that 92.8% of the mothers had problems with the baby and 94.9% of them had problems with themselves during the weaning. It was found that as the duration of problems experienced by mothers with the baby increases, the level of difficulty increases ($p < 0.05$). As a result, we determined that mothers used traumatic and unsuitable traditional methods that would cause psychological harm to the child's development while weaning and that both children and themselves had difficulties in coping with this process. Creating a guide that mothers can benefit in the process of weaning can minimize the difficulties.

Keywords: weaning, maternal infant bonding, traditional methods, child development, difficulties



The Effect of Occupational Health Nursing Course on Compliance of Nursing Students with Standard Precautions

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Abstract:

The aim of this study is to evaluate the effect of the Occupational Health Nursing course on compliance of nursing students with standard precautions. The sample of the study consists of 75 third grade students who chose the Occupational Health Nursing elective course and agreed to participate in the study. Occupational Health Nursing elective course that takes part in the 5th term of the nursing faculty curriculum is two hours per week during a term. As data collection tools were used the sociodemographic characteristics questionnaire and Compliance with Standard Precautions Scale. Socio-Demographic Characteristics Questionnaire consisted of questions including age, gender. Compliance with Standard Precautions Scale are 20 items on a Likert-type scale ranging from 1="never" to 4="always". As calculating the scale scores, a score of 1 was interpreted as an "always" response, while 0 was for the other responses. A total range score of 0–20 is expected, with higher scores signifying better compliance with standard precautions. IBM SPSS (Statistical Package for the Social Sciences) software (version 20) was used for data analysis. The paired sample t-test was used to compare mean scores of the Compliance with Standard Precautions Scale at the pretest and posttest. A p-value of <0.05 was considered significant. The mean age of nursing students is 21.69±0.97. 94.7% of them are women. The pre-test and post-test mean scores of the nursing students in Compliance with Standard Precautions Scale were 14.53±2.41, 15.05±2.48, respectively. There were statistically significant differences between the pre and post-test Compliance with Standard Precautions Scale scores of nursing students (p<0.05). The results of this study demonstrated that Occupational Health Nursing Course provided to increase compliance of nursing students with standard precautions. In order to reduce occupational accidents by increasing the compliance of nursing students with the standard precautions, it is recommended to increase the subjects and practices regarding occupational health in the nursing curriculum.

Keywords: nursing education; nursing students; occupational health, standard precautions



Career Orientations of Nursing Students After Graduation

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Abstract:

This research was made descriptively in order to determine the career orientation of senior nursing students. The population of the study consisted of 335 senior students studying at the nursing department of a university in Izmir. Since it was aimed to reach the whole universe of the study, no sample selection was made. 296 students who accepted to participate in the study constituted the sample of the study. A question form created by the researchers in line with the literature information was used to collect the research data. Written and verbal consents were obtained from the relevant institution and from the participants in the study. The data collected were distributed in numbers and percentages using the SPSS package program on the computer. 73.3% of the students participating in the study were in the 20-23 age group, and the average age was determined as $\bar{x} = 23.04 \pm 1.20$. 79.1% of the students participating in the study were girls, 60.1% were graduates of Anatolian high schools, 13.5% were working, 63.5% came voluntarily from the nursing department, 34.6% preferred this department at the request of their family and relatives, mostly in surgical units they want to work (20.4%), 47.6% have a career plan, 59.1% want to do a master's degree, 24.7% do not have a future plan, 39.9% want to work in the field of education outside the clinic, 64.9% It was determined that he received education. According to the results, it was determined that most of the students wanted to have a career and most of them wanted to work in the field of education rather than the clinical environment. It was determined that the students participating in the study found the working conditions of the nursing profession very difficult, but they had to do this profession due to economic conditions and they were indecisive about continuing the profession.

Keywords: career, nursing, university students.



Opinions of Healthcare Professionals Working at Intensive Care Units About Terminal Stage and Death

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Abstract:

Over the world and in our country, nearly 60% of all deaths occur at hospitals and nearly 60% of those deaths occurring at hospitals occur at intensive care units. The aim of this study is to assess the opinions of healthcare professionals working at intensive care units about terminal stage and death. The study was initiated at the intensive care units of a private university hospital in İstanbul after the necessary official approvals and individual consents were obtained. 77 healthcare professionals working at these units and accepting to join the study were recruited for the study. The data were collected using a questionnaire form. The data were processed using SPSS 22.0 statistical program. It was found in the study that 64.9% of the healthcare professionals were female, 75.3% of them were single, 57.1% of them were nurses, 27.3% of them were doctors, 15.6% of them were assistant care givers, 41.6% of them had a working period of less than one year and 27.3% of them had a professional working period of ≥ 5 years. Most of the participant emphasized that they felt “sorry” in first death case, felt “helplessness” while providing care to a patient in the end of life process and finally comforted themselves by accepting that death is a natural process. Most of the health care professionals believed that diagnosis should be told to a patient who is in the terminal stage and patient should spend the terminal stage at their homes. As for CPR intervention to the terminal patient; it was seen that half of the participants told that it should be done while other half told that it should not be done. In light of the study-results; we are of the opinion that training programs and counseling about terminal stage and death should be given to the healthcare professionals working at intensive care units and also training programs that will increase healthcare professionals’ mental, emotional and attitudinal awareness and enhance their coping methods should be held.

Keywords: Healthcare Professionals, Feelings, Terminal Stage, Death, Intensive Care Unit.



Perceptions and Attitude of Nursing Students towards Distance Education: Meta-Analysis

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Abstract:

Distance education is an education method performed independently of time and place and using information technologies. As with any education method, the distance education method has many advantages and disadvantages. The aim of this study is to examine undergraduate nursing students' perceptions and attitudes towards distance education. The study was conducted on January 10-22, 2021, from Google Scholar, Pubmed, Science Direct and Clinical Key databases: "nursing, student, online, distance, mobile, education, perception, attitude, opinion, nursing, student, online, remote, online, mobile, education, perception, attitude, opinion". The universe comprised 2300 articles. The inclusion criteria of the study are that it examines the perceptions and attitudes of nursing undergraduate students towards distance education, published between 2010 and 2021, in a descriptive, cross-sectional and semi-structured type, accessible in full text, in Turkish and English. 4 articles meeting the inclusion criteria constituted the sample of the study. The data of the research were formed by the findings of these studies. The sample size of the articles reached as a result of the screening ranges between 63 and 387. The average age of the students is between 20.5 and 22.7 years, and most of them are women. 47.6% and 85.9% of the students consider themselves competent in computer and internet use, 65.1% and 87.5% of them find it sufficient to access the internet. 65.2% and 98.4% of the students use the internet to do homework and access information. While students find distance education sufficient in web-based supportive education, the majority of students think that distance education is costly, limited in terms of communication, and nursing skills cannot be adequately gained through distance education. Nursing students think that all nursing skills cannot be gained enough with distance education. The fact that the articles published on the subject were mostly made to all university students or graduate students using mixed methods and compilation/systematic review limited the sample of this study. It is necessary to increase researches on the effectiveness of distance education with nursing undergraduate students.

Keywords: nursing, student, distance education, perception

Investigation of Dose Dependent Cell Viability Protection Effect of Caffeic Acid Phenethyl Ester on Experimental Oxidative Stress Generated by Using Paraquat in A549 Lung Epithelial Cell Line

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Abstract:

Paraquat (PQ) is a high toxic, quarternary nitrogen herbicide. It is widely used in the world due to its low price, rapid effect and safe. The main target organs affected by accidental or intentional PQ exposure are the lungs. In PQ toxicity, induction of reactive oxygen species takes an important place. Therefore, the use of antioxidants against the formation of induced reactive oxygen species is seen as an alternative treatment method. Caffeic acid phenethyl ester (CAPE) is a polyphenol found in some plants, which is also one of the active components of propolis produced by honeybees. CAPE is an effective antioxidant molecule against infection, oxidative stress, inflammation, cancer, diabetes, neurodegeneration, and anxiety. The aim of our study is to investigate whether the CAPE treatment could have a protective effect against PQ toxicity in A549 lung epithelial cells. For this purpose, only 400 µM paraquat applied to a group for 24 hours. The same dose of PQ and respectively 1, 2, 5 and 5 µg/ml CAPE were applied to the other A549 cell line groups for 24 hours. At the end of 24 hours, protective activity of CAPE against paraquat toxicity was evaluated by cell viability (MTT) assay. It was determined that in the groups that applied paraquat + 1 µg/ml CAPE and paraquat+ 2, 5 µg/ml CAPE, cell viability was increased compared to the group that paraquat applied alone. Application of 5 µg/ml CAPE with paraquat had no curative effect on cell viability, compared to the group that paraquat applied alone. In this study to evaluate the protective effects of CAPE, which has antioxidant effects, on cellular toxicity caused by PQ, low doses of CAPE protected the cells from the toxic effect of paraquat. These results can be a source for similar studies to be conducted.

Keywords: paraquat, A549, CAPE

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Unusual Locations of Intraabdominal Hydatid Cysts: Adnexal Area

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Abstract:

Echinococcosis is a multi-system disease that tends to involve any organ, an unusual anatomical region, and can mimic any disease process. Hydatid cyst can be seen all over the world and Echinococcosis Granulosus is detected in 95% of the cases. The parasite usually spreads via hematogenous or small bowel lymphatics; however, pelvic hydatid cyst mostly occurs by spreading the scolexes into the peritoneum resulted from rupture of the cyst localized in the liver. In this case report, we aimed to present a patient with hydatid cyst involvement in the adnexal area. In reproductive organs, the involvement is secondary in most cases. Our case belongs to a 37-year-old young woman who applied to our gynecology outpatient clinic with abdominal and right groin pain. In the vaginal ultrasound of the patient, a 7 * 8 cm honey-foamed cystic mass was observed in the right adnexal area. An appearance of inactive hydatid cyst in the right lobe of the liver was detected in the entire abdominal ultrasound of the patient. The patient's Ca 125 value was found to be slightly higher than normal 42U / ml. Medical treatment was initiated in the patient, who was consulted by general surgery and infectious diseases. Hydatid serology, using the indirect hemagglutination test, was positive. Isolated primary intra-abdominal hydatid cyst without cystic lesions in other intra-abdominal organs is extremely rare and is reported as 2% of all intra-abdominal hydatid cysts. In the differential diagnosis of primary intra-abdominal hydatid cysts; soft tissue tumors, intraabdominal abscess, cystic lymphangioma, embryonal cyst, ovarian tumors, teratoma and other cystic and necrotic solid tumors. Early diagnosed patients medical methods or a minimally invasive method treatment with puncture, aspiration, injection, reinspiration (PAIR) is possible.

Key words: adnexal area, echinococcosis granulosus, medical treatment



Genotoxic Assessment in Trace Mineral Deficient Patients

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Abstract:

Current study designed to evaluate the genotoxicity status in mineral deficient patients as compared with normal persons. Blood samples (n=200) were taken from the individuals having the confirmed status of mineral deficiency. These patients were free of any kind of other diseases i.e. cancer or diabetes etc. Healthy individuals who were free from any kind of deficiency and infectious disease, non-smokers, no drug addicts were taken as a negative control. Different techniques such as Comet assay, micronucleus and chromosomal aberration assay were performed to evaluate the genotoxic effects in mineral deficient patients. The comparison between healthy and defective persons revealed that Different minerals i.e. sodium, potassium chloride and phosphorus were deficient in patients with mineral difficiency. Patients were having high deficiency of sodium compared to other minerals. There were significant amount of DNA damage in the form of comet, micronuclei formation and chromosomal aberrations in these patients. Negative control individuals were having no significant genotoxic effects. We found that mineral difficiency can lead to DNA damage. If deficiency of minerals persists for long time, It can be dangerous for body and may cause other infections and diseases. Short time deficiency shows less amount of DNA damage.

Keywords: DNA damage,oxidative stress, minerals deficiency,tests for DNA damages



Effects of Increasing Body Mass Index and Age on Weight Distribution in Feet, Computerized Gait Analysis

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Abstract:

Gait analysis is a helpful method for physical examination and other diagnostic tests in detecting walking problems. In this study, gait analysis was performed in different age groups to investigate how the balance of weight distribution changes in the right and left foot according to the weight distribution, age and body mass index. The study included 243 healthy participants aged 1 to 73 years without any disease that could cause walking pathology. Gait analysis was applied to all participants. Participants were compared in terms of parameters such as forefoot and hindfoot load distribution. A moderately direct correlation was found between age and body mass index and the forefoot load ratio, and a moderately inverse correlation was found between the hindfoot load ratio. The data obtained from study will provide valuable information in terms of whether the patients need surgery or not, and by creating a database, they will both be a source for the studies to be conducted and will help the appropriate treatment modalities for patients. Our study results show that body weight is concentrated on the hind leg in childhood, and load balance is transferred from the back foot to the front as the age and body mass index increase.

Keywords: gait analysis, weight distribution, body mass index

Comparison of Different Physical Therapy Modalities on Physical Function, Pain, and Quality of Life in Patients with Knee Osteoarthritis

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Abstract:

Physical therapy aims to reduce pain by applying exercise along with different modalities to protect the range of motion and to dissolve the spasm in the affected muscles or to strengthen the muscles in knee osteoarthritis (OA). The main physical therapy methods used in the treatment of knee osteoarthritis are hot treatments (hot package, infrared, ultrasound and shortwave) transcutaneous electrical nerve stimulation, interferential current, exercise, massage, spa treatment and laser. In this study, we aimed to evaluate the functional status of patients with knee osteoarthritis and to investigate the effects of transcutaneous electrical nerve stimulation, interference and laser treatments on the pain, physical functions and quality of life of patients with physical therapy modalities frequently used in the treatment of knee OA. Patients with knee OA were randomized into three groups: Group 1 received TENS + hot pack + US + quadriceps strengthening exercise and electrical stimulation for 3 weeks, Group 2 received interferential current + hot pack + US + quadriceps strengthening exercise and electrical stimulation for 3 weeks, and Group 3 received low-power laser therapy, stimulation and strengthening exercises for quadriceps muscle for 3 weeks. Pain levels of patients evaluated with visual analog scale (VAS), functionality with Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), and quality of life evaluated with short form-36 (SF-36). Significant improvements were observed in SF-36, WOMAC and VAS parameters evaluated in all three therapy groups at the end of the study ($p < 0.05$). However, there was no significant difference between the groups in terms of baseline SF-36 subgroup score ($p > 0.05$), VAS score ($p = 0.442$) and WOMAC pain ($p = 0.278$), WOMAC stiffness ($p = 0.775$) and WOMAC function scores ($p = 0.262$). Our results suggest no difference between these physical therapy methods in terms of physical function, pain, and quality of life in patients with knee OA, nonetheless; more future randomized controlled studies are needed. We think these modalities can be conducted in tailored fashion regarding the individual needs of each patient.

Keywords: Knee; Osteoarthritis; Rehabilitation; TENS; Interferential current



Investigation of Preoperative Cognitive Functions in Patients Undergoing Total Knee Arthroplasty

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Abstract:

Tourniquet is frequently used for the exsanguination of operation sites in patients undergoing total knee arthroplasty (TKA). Cerebral blood flow may reduce due to increasing extremity blood flow after the postoperative deflating of the tourniquet. Also, cognitive impairment rates are considerably higher than the general surgery patients undergoing similar types of anesthesia. The aim of this study was to investigate the effect of tourniquet usage on cognitive function in patients undergoing total knee arthroplasty. Eleven TKA patients and 12 healthy participants with a mean age of 61.23 ± 8.76 were included in this pilot study (2017/67). Patients' cognitive functions were assessed with Mini-Mental State Examination test, Verbal Memory Processes Test (VMPT), and Boston Naming Tests (BNT) before the TKA. Participants' age, sex, and preoperative analgesic usage showed a normal distribution. The preoperative assessments were performed 24 hours prior to surgery on both TKA patients and healthy partners of patients. There was a significant cognitive function difference between the groups in both VMPT and BNT scores ($P < 0.05$). There was not any difference in Mini-mental state examination scores between the groups ($P > 0.05$). The results of this pilot study suggest that cognitive function impairments might exist before TKA. Therefore, increased postoperative cognitive dysfunction rates of TKA might have resulted from the patients' prior cognitive impairment. The underlying mechanism of this increased cognitive dysfunction needs to be further investigated.

Keywords: cognitive impairment, cerebral blood flow, total knee arthroplasty



Simultaneous Contralateral Elbow and Knee Dislocation after Falling. A Case Report

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Abstract:

Trauma is one of the leading causes of death in adults and children in developing and underdeveloped countries. Therefore, the management and treatment of trauma require a rapid and definitive diagnosis. Dislocations often occur on a single extremity and usually occur on one side. However, multiple dislocation frequencies are rare, and contralateral dislocations are even rarer. Although shoulder and elbow dislocations are common, knee dislocations occur rarely. A 26-year-old female patient was admitted to the emergency department by her family. Glasgow coma scale was found to be 15 on physical examination. The patient was oriented, conscious, and cooperative. The body mass index of the overweight patient was 36.7 kg / m². The respiratory sound was normal and both hemithoraces participated in breathing equally. The abdominal examination did not show any rebound or defenses. The limb examination revealed deformity in the left elbow and right knee. There was ecchymosis in the left elbow of the patient, who did not have a history of chronic disease at the time of the anamnesis. His pulse was palpable and steady in both hands. No cold or pallor was observed at the distal end of the dislocations. Neurological and other system examinations revealed normal findings. Radiographic images revealed posterior dislocation of the left elbow and anteromedial dislocation of the right knee. Contralateral elbow and knee dislocations are rarely seen together. In this report, we present the first such case in the literature. A knee dislocation may occur after a high-energy event such as a traffic accident or a low-energy event such as a fall. As seen in this case, while focusing on dislocations on one side of overweight patients who come to the emergency department after a fall, we should be more careful not to miss dislocations due to skin folds in other extremities.

Keywords: elbow, dislocation, joint

Electrophysiological Evaluation of Fibromyalgia Patients in Terms of Carpal Tunnel Syndrome and Investigation of Correlation between Electrophysiological Studies and Sonography

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Abstract:

The aim of the study was to determine the frequency of carpal tunnel syndrome (CTS) by electrophysiologic study and to evaluate the relationship between median nerve cross-sectional area (CSA) on ultrasound and electrophysiological findings in fibromyalgia (FM) patients. Thirty-six fibromyalgia patients aged 18-70 years were included in the study. 72 wrists were evaluated. Cervical radiculopathy, other peripheral neuropathies of the upper extremity, patients with diabetic polyneuropathy, wrist trauma history or wrist surgery, neurological deficits and neuromuscular dysfunction, and pregnant patients were not included. Ultrasonographic exam was performed 7-12 MHz (Toshiba Aplio 500) linear probe. CSA was measured from the level of distal carpal tunnel. Boston Carpal Tunnel Syndrome Questionnaire (BCTSQ) and Fibromyalgia Impact Questionnaire (FIQ) were administered to all patients. Electrophysiological study was performed on all patients. The patients were divided into two groups as FM with CTS and FM without CTS by electrophysiological studies. CTS was detected in 18.1% of all FM patients electrophysiologically. The mean age of FM + CTS group was 45.31, while it was 40.76 in the FM - CTS group ($p>0.05$). Among the other demographic data of the patients, no significant difference was observed between two groups ($p>0.05$). 46.15% of patients ($n = 6$) had mild CTS, 38.46% ($n = 5$) had moderate CTS, 15.39% ($n = 2$) had severe CTS in FM + CTS group. The mean BCTSQ and FIQ scores, mean median nerve CSA measured from the distal carpal tunnel were found to be significantly higher in the FM + CTS patient group ($p<0.001$). A positive correlation was found between cross-sectional area of median nerve and CTS severity in electrophysiological studies. In conclusion, since CTS symptoms can be masked symptoms of FM, CTS complaints may be overlooked. Our study emphasizes the importance of screening for CTS among FM patients.

Keywords: carpal tunnel syndrome, fibromyalgia, median nerve sonography

Slow Gait Speed is Associated with Frailty, Activities of Daily Living and Nutritional Status in In-Patient Pulmonology Patients

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Abstract:

4-meter gait (4MGS) is an increasingly used functional performance test in community-dwelling older adults and consistently predicts greater risk of health outcomes (Kon SS, 2013). 4MGS needs a short course and its useful for frail patients and applicable in most healthcare settings (Kon SS, 2014). We aimed to evaluate relationship between 4MGS with nutritional status, frailty and activities of daily living in hospitalized patients at a tertiary care pulmonary diseases ward. We included patients admitted to a tertiary care pulmonary diseases ward between 1 November 2019- 31 January 2020. We measured nutrition status by MNA questionnaire, activities of daily living by Barthel questionnaire and frailty by FRAIL scale. 4MGS was measured by attending physician with a stopwatch while the patient was walking at the usual speed in a 4-meter course. Patients with 4MGS <1m/sec were grouped as patients with slow gait speed. 80 patients (F/M: 21/59) with a mean age of 58 ± 19 years old were enrolled. 26 (%32.5) patients were hospitalized with pneumonia, 13 (%16.3) patients with COPD, 13 (%16.3) patients with pleural effusion and 4 (%5,4) patients with interstitial lung disease. 4-meter gait speed was 0,74±0,24 m/sec; MNA total score 15,3±5,8 points; Barthel ADL index 95 [IQR 25-75:75-100] points; FRAIL scale 3 [IQR 25-75:1-4] and hand-grip strength was 18 [IQR 25-75:15.7-25.9] for the study population. 4MGS showed weak to moderate correlation with FRAIL scale ($r = -0,286$, $p = 0,044$), and moderate correlation with MNA total score ($r = 0,398$, $p = 0,007$), and hand-grip strength ($r = 0,445$, $p = 0,005$). Patients with 4MGS <1m/sec were grouped as patients with slow gait speed. Patients with slow gait speed had significantly worse MNA scores and FRAIL indexes and less hand-grip strength. Multivariable regression analysis showed a diagnosis with pneumonia and MNA total score as independent factors associated with slow gait speed regardless of age and BMI. In conclusion, 4MGS is correlated with frailty, activities of daily living and nutritional status in hospitalized patients in a pulmonary diseases clinic. While similar in age and comorbidities, patients with slow gait speed are more malnourished and frail.

Keywords: 4 meter gait speed, frailty, nutrition



Multicolor Scanning Laser Imaging in the Diagnosis of Papilledema in Children

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Abstract

To investigate the use of Multi Color Scanning Laser Imaging (MC-OCT) in the diagnosis of papilledema in children. In this study, 135 children who underwent MC-OCT between January 2017 and December 2020 for any reason were retrospectively examined without knowing their clinical features. The disk spectral domain optical coherence tomography (SD-OCT), disk retinal nerve fiber layer thickness (RNFL) measurement and pediatric neurology data of patients with suspected papilledema according to MC-OCT were recorded. One hundred thirty-five patients (average age 13.8 years [range, 4-18 years]; 55 male and 80 female) MC-OCT images observed. Papilledema was confirmed in 18 (13.3%) and pseudopapilledema diagnosed in 7 (0.5%) cases. Of pseudopapilledema cases, there were 3 cases of optic disk drusen, 2 hypermetropic disks, 2 “crowded disks”. In patients with true papilledema, on the combined MC-OCT image, a green shift in the form of an elevated green ring was seen consistently. This ring was also hyperreflective on the blue and green images. These changes were not present in the pseudopapilledema cases. Average disk RNFL thickness in the papilledema group was 166.5 μm (143–195 μm) compared to 122.3 μm (110–155 μm) in the pseudopapilledema cases. severe. In those with papilledema, lumbar punctures were performed on 11, with an average opening pressure of 49.5 mm H₂O (range, 40–55 mm H₂O). MC-OCT is a useful noninvasive imaging method in differentiating patients with true papilledema from pseudopapilledema. It is thought to be a useful method for evaluating optic disc edema, especially in pediatric age groups.

Keywords: papilledema, multi color scanning laser imaging, pseudopapilledema



Oral presentation

Investigation of Etiologic Factors in Patients with Portal Vein Thrombosis

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Abstract:

Portal vein thrombosis is one of the causes of extrahepatic presinusoidal portal hypertension and it is accepted to develop following various clinical situations. Portal vein thrombosis is a rare condition with a prevalence of 0,25-1%. We aimed to reveal the etiologic factors of portal vein thrombosis in the patients with portal vein thrombosis who are followed up at gastroenterology clinic with portal doppler ultrasound. A total of 100 eligible patients with portal vein thrombosis, who were followed up at gastroenterology clinic between 2012-2019, were included in this retrospective study. Of the 100 patients, 59 patients were male and 41 patients were female. Mean age was $49\pm 3,24$ in male patients and $51\pm 4,21$ in female patients. Etiologic factors were evaluated and the distribution of these factors was investigated retrospectively. According to results; cirrhosis was the most common etiologic factor and 27% of the patients had cirrhosis. The rarest etiologic factor was having peritonitis attack in the past and 3% of the participants had peritonitis attack previously. Other etiologic factors were; thrombotic diseases, cirrhosis with hepatoma, Budd-Chiari Syndrome, having biliary surgery, splenectomy, and cryptogenic portal vein thrombosis. The results of this study showed that cirrhosis is the most common cause of the portal vein thrombosis in accordance with the literature. The rate of the cryptogenic portal vein thrombosis is 30-50% in the literature but this rate was 19% in our study. It was remarkable that the ratio of the metastatic tumours as an etiologic factor of the portal vein thrombosis was 19% among the participants. The incidence of other etiological factors was similar to the literature. Although there were numerous causes of the portal vein thrombosis, cirrhosis should be kept in mind primarily. After the exclusion of the cirrhosis, the uncommon causes should be remembered because sometimes local data could be different from the literature.

Keywords: Thrombosis, vein thrombosis, etiologic factors.

Investigation of the Factors Affecting the Response of Treatment in Patients Treated with Oral Direct-Acting Antiviral Agents

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Abstract:

This study aimed to investigate the sustained virological response (SVR) of the patients treated with a new-generation oral direct-acting antiviral agents (DAA), the factors affecting to the treatment response, the treatment compliance and the side effects of the treatment. We enrolled 103 patients with HCV who received DAA from three tertiary hospitals between January 2016 to May 2017. The patients were categorized as three groups: Patients in group-1 received Sofosbuvir plus Ledipasvir with or without ribavirin for 12 weeks, patients in group-2 received Sofosbuvir plus Ledipasvir with or without ribavirin for 24 weeks and patients in group-3 received Ombitasvir-Paritaprevir-Ritonavir plus Dasabuvir for 12 weeks. HCV-RNA levels, HCV genotype, hepatic fibrosis stage, hemogram and biochemical variables were recorded. The patients were followed up every 4 weeks during the treatment, and at the 4th week, 12th week and 24th week after the end of the treatment. Compliance to the treatment and side effects were recorded. SVR4, SVR12 and SVR24 data and factors affecting to the SVR were analysed. Demographic features of the patients have shown in Table-1. 15 patients in group-1, 3 patients in group-2 and 11 patients in group-3 reported side effects (Table-2). The frequency of side effects is significantly higher in group-1 than other groups ($p < 0.001$). Only 1 patient has transferred to the group-1 from group-3 because of nausea and vomiting. All patients had complete compliance to the treatment. SVR4 was achieved in 22 patients(92%) in group-1, 45 patients(100%) in group-2 and 34 patients(100%) in group-3. SVR12 was achieved in 22(95%) patients in group-1, 45(100%) patients in group-2 and 34(100%) patients in group-3. SVR24 has achieved in 22(92%) patients in group-1, 45(100%) patients in group-2 and 34(100%) patients in group-3. There was no significant difference between groups in terms of SVR4, SVR12 and SVR24 ($p > 0.05$). 2 patients couldn't achieve SVR12 in group-1. Both patients were treatment-naive, had cirrhosis and genotype-1b HCV infection. Presence of cirrhosis, treatment experience, genotype, age or gender didn't effect on treatment response. High virologic response rates have been achieved with DAAs, even in cirrhotic and treatment-experienced patients. Treatment compliance rates were quite good.

Keywords: Hepatitis C, oral direct-acting oral antiviral agents, treatment response

The Effects of Platin Choice on Survival in Geriatric Patients with Non-Small Cell Lung Cancer

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Abstract:

We aimed to investigate the effects of platin choice on survival in patients older than 70 years with metastatic non-small cell lung cancer (NSCLC). In total, 79 patients older than 70 years with NSCLC who had metastatic disease at the time of diagnosis, EGRF-wild-type, ALK-wild-type and ROS-1 wild-type receptor were enrolled this study. Patients were divided into two groups as cisplatin-based therapy and carboplatin-based therapy. The majority of 79 patients were male (92,4%), mean age was 73 (70-83). The proportion of male patients was significantly higher in both groups ($p:0.002$). The mean age was 72 (70-83) in the cisplatin-based therapy group and 74 (72-88) in the carboplatin-based therapy group, but there was no statically significant difference between two groups in terms of age ($p:0.679$). The number of patients receiving cisplatin-based therapy ($n:48$) was significantly higher than those receiving carboplatin-based therapy ($n:31$) ($p:0.001$). When the pathological diagnosis of participants was reviewed; 26 of 79 patients (32,9%) had adenocarcinoma, 37 of 79 patients (46,8%) had squamous cell carcinoma and 16 of 79 (20,3%) patients had undetermined NSCLC. There was no statically significant difference between two groups in terms of NSCLC subtypes ($p:0.368$). The most common metastasis site was contralateral lung and 23 of 79 patient had contralateral lung metastasis at the time of diagnosis. Other metastasis sites were brain, liver, bone, pleura, and multiple sides. However, there wasn't a statically significant difference between two groups in terms of the metastasis site at the time of diagnosis ($p:0.833$). Cisplatin+gemcitabine regimen ($n:34$) and carboplatin+paclitaxel regimen ($n:15$) were the most commonly used regimen in their groups. The number of patients receiving cisplatin-based first-line therapy was significantly higher than carboplatin-based first-line therapy ($p:0.001$). 2 of 79 patients were alive in cisplatin-based therapy and no one was alive in carboplatin-based therapy at the end of the follow-up, but there was no statically significant difference between two groups in terms of survival ($p:0.517$). Although geriatric patients with metastatic NSCLC and negative receptor status who received cisplatin-based regimens had better survival than carboplatin-based regimens receivers, this difference wasn't statically significant.

Keywords: Lung cancer, chemotherapy, cisplatin, carboplatine

Neonatal Citrullinemia: Early Diagnosis and Successful Prospective Management

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Abstract:

Citrullinemia is an urea cycle defect that causes metabolic coma, neurologic sequelae and mortality. Diagnosis is based on anamnesis, clinical symptoms, biochemical and genetic molecular testing. It is important to diagnose in early newborn period. A citrullinemia case is reported diagnosed in 48 hours postnatally who had a sibling death and consanguineous parents. A male neonate at 40 hours of age with poor feeding and 7.3% weight loss admitted to our neonatal intensive care unit with a history of a sibling death in the neonatal period because of a hyperammonemic metabolic coma. Apgar scores were 9 and 10 and there was no history of birth asphyxia or any risk factors for sepsis. On examination he had tachypnea and lethargy. Blood gas analysis revealed respiratory alkalosis. Serum plasma ammonia was 160 $\mu\text{mol/L}$ (normal 18-72 $\mu\text{mol/L}$), and serum lactate 30 mg/dl (normal 4.5-19.8 mg/dl). Plasma quantitative amino acid analysis revealed raised levels of citrulline concentration 1080.15 $\mu\text{mol/L}$. Due to elevated plasma ammonia concentration (usually $>150 \mu\text{mol/L}$) and plasma citrulline level (usually $>1000 \mu\text{mol/L}$) the patient was diagnosed with citrullinemia type 1 (CTLN1); argininosuccinate synthetase enzyme deficiency in the urea cycle. We started pharmacologic nitrogen scavenger therapy (sodium benzoate, sodium phenylacetate and arginine) and a therapy to reverse catabolism via intravenous glucose, lipid infusion and protein free enteral nutrition. On the day of 31 we discharged the baby to our Department of metabolic diseases for education of the mother about lifelong dietary management to maintain plasma ammonia concentration lower than 100 $\mu\text{mol/L}$ and near normal plasma glutamine concentration also with oral administration of sodium benzoate, sodium phenylacetate and arginine. Blood analysis for mutations in argininosuccinate synthetase (ASS1) gene had been sent. History of a sibling death may be an early diagnostic sign of the inborn errors of metabolism as in CTLN1. Also early diagnosis is important for successful prospective management to prevent metabolic coma, neurologic sequelae and mortality. Genetic counseling should be advised especially to the consanguineous parents who lost their child to hyperammonemic metabolic coma.

Key words: Citrulline, hyperammonemia, consanguineous, metabolism

A Case of Hypothyroidism in a Dog

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Abstract:

The material of this case was a 2-year-old female Sharpey (Shar pei) dog and weighing 17,7 kg. In the anamnesis taken, it was learned that the animal had hair loss, itching, redness on the skin, uneasiness, and color changes in the hair for a few months, but there was no improvement despite the treatment. The presence of bilateral alopecia in the clinical examination was suspected of hypothyroidism. No fungal findings founded in the examination performed with the Wood's lamp. Blood samples with and without anticoagulant were taken for analysis of hematological and biochemical parameters. Serum T3 (0.881 mmol/L) and T4 (32.98 mmol/L) levels significantly decreased. Hypothyroidism was diagnosed in the animal as a result of clinical and laboratory analysis. Treatment was 50 mg levothyroxine (Levothyroxine) every day and corticosteroids 3 days a week. Also, omega-3, zinc, Vitamin E-selenium supplements recommended. The dog was brought for control after 10 days and the itching was said by the owner to have subsided. 50 mg levothyroxine was given daily with supportive treatment. Twenty days later, the animal was brought back to the clinic for control and it was learned that itching had decreased significantly. Three months later, she was called back for a check-up and it was found that her hair loss had completely stopped and her itching had disappeared completely. In addition, mild increases in serum T4 level were detected in the re-measurement. When the animal was brought back to the clinic for control one year later, it was found that the animal had normal hair cover. As a result, in cases of hypothyroidism, it was observed that the animal returned to its normal life with the use of short-term corticosteroids and long-term daily Levothyroxine together with supportive therapy..

Keywords: dog, hypothyroidism, T4, levothyroxine

Hepatic and Renal Doppler Ultrasonographic Changes and New Generation Treatment Effects in Dogs with Heart Failure

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Abstract:

The aim of this study was to investigate doppler ultrasonographic changes in the cardiohepatic and cardiorenal syndrome in dogs with heart failure and to evaluate the effect of the new generation treatment. In this study, 11 dogs were diagnosed with heart failure according to clinical and echocardiographic findings, were included to the study. Patients were treated for 1 month with pimobendan, enalapril and furosemide. Subsequently, the patients were followed up for 1 month (1st, 2nd, and 4th weeks) with focus on hepatic and renal hemodynamics by doppler ultrasonography. Doppler ultrasonography to determine the hemodynamic changes of the liver and kidney of patients and portal vein flow velocity, hepatic arterial resistive index (RI), hepatic vein systole/diastole ratio was measured. In addition, abdominal aorta flow velocity and diameter and renal arterial pulsatility index (PI) and RI values were determined. No significant differences were noted in the values obtained for the portal vein flow velocity and hepatic arterial RI. A statistically significant difference ($P < 0.0005$) was noted between the values obtained for the hepatic vein systole/diastole ratio compared to the normal reference value ($1,69 \pm 0,28$). Although the values measured for all weeks were significantly lower than the reference range, an increase in reference was detected in the measurements every week. No significant differences were noted in abdominal aorta flow velocity and diameter. Based on the obtained left and right renal arterial PI, was found significantly differences ($P < 0,005$). While the left renal resistive index was higher than the reference range, it decreased statistically significant ($P < 0,005$). In the measurements of during 3 weeks (respectively; $0,71 \pm 0,05$; $0,70 \pm 0,04$; $0,68 \pm 0,04$) and it decreased to the reference range ($0,64 \pm 0,03$) in the 4th week. The right renal resistive index decreased slowly and constantly during the all weeks of treatment. Especially the decrease in the 3rd week resistive index ($0,68 \pm 0,03$) was statistically significant ($P < 0,005$). In conclusion, it has been found that the new generation treatment applied in dogs with heart failure has therapeutic effects on some abnormal hepatic and renal hemodynamic values observed with doppler ultrasonography.

Keywords: cardiohepatic syndrome, cardiorenal syndrome, dogs, doppler ultrasonography, heart failure

This study was supported within the scope of the project numbered PYO.VET.1904.19.019 of Ondokuz Mayıs University Scientific Research and Development Support Program.



First Report of Canine Distemper Virus Infection in a Badger (*Meles meles*) from Turkey

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Abstract:

Canine distemper virus (CDV) belongs to the genus *Morbillivirus* of the family *Paramyxoviridae* and it is responsible for a highly contagious and severe disease, known as distemper, that affects wild and domestic carnivores, non-human primates and marine mammals. The genus *Meles* (Eurasian badger) is one of the most widespread mustelids in the Palaearctic region. The Southwestern part of the Asian continent, including Turkey, is Eastern region of the Mediterranean area in Palaearctic. In September 2020, a badger (*Meles meles*) was found lying laterally, unconscious in the forest was brought to the Veterinary Teaching Hospital by wildlife conservation officers. Clinical manifestations of the badger, who was about one year old and male, included severe purulent eye discharge, hyperkeratosis in paw pads, hardening at the tip of the nose and tonic-clonic convulsions. It was observed that there was no other abnormality in the CBC except for lymphopenia. Pre-diagnosis distemper disease was suspected. Later canine distemper Ab rapid test kit performed and according to test result a high titer of CDV confirms the diagnosis. Unfortunately, the badger died while performing diagnostic tests. It is believed that domestic dogs or coexisting wild carnivores infected with the virus were the most likely source, and a serologic survey is needed to fully understand the host range of this virus in Turkey. Further investigations are reasonably requested in order to assess the role of badgers for the epidemiology and evolution of distemper in Turkey. Prevention with controlling strategies of distemper is quite important to reduce their diffusion in domestic dogs and wild carnivores. Therefore, more effective control mechanisms should be determined and applied in order to prevent infectious diseases in wild animals. In addition, this is the first case report of a CDV infection in a badger (*Meles meles*) from Turkey.

Keywords: badger, distemper, wild animal,



Successful Treatment of Feline Infectious Peritonitis in a Scottish Fold via Mutian® X

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Abstract:

Feline infectious peritonitis (FIP) is usually regarded as an incurable disease and an important cause of mortalities in young cats caused by feline coronavirus (FCoV). FCoV infection is endemic amongst cats worldwide. However, promising developments are also taking place. Therefore, we want to present a successful treatment of an effusive form of a FIP patient. A one-year-old, male, Scottish fold cat was brought to our Veterinary Teaching Hospital with clinical signs of wheezing and respiratory stress in June 2020. Other clinical signs including weakness, dyspnea, reluctance to walk, and inappetence was observed. After physical and neurological examination, blood samples were collected for routine analysis. Thoracal effusion was detected during the radiographic examinations. However, abdominal ultrasonography was normal. A positive Rivalta test according to the thoracocentesis with an 0.45 albumin/globulin ratio led us to suspect of FIP in this case. Moreover, a high titer of FCoV immunoglobulin G was also confirmed the diagnosis. Due to the limited therapeutic options we decided to use Mutian® X which is formulated in capsules containing nicotinamide mononucleotide, Crocin I, S-Adenosylmethionine, Silymarin and Mutian X, which is a novel synthetic adenosine analogue, exhibiting broad-spectrum activity against RNA viruses. Furthermore, a treatment protocol lasting 84 days was chosen. A remarkable clinical remission was observed in the first week of therapy. The cat was clinically normal and being well after the end of treatment, and still has been healthy. Mutian® use has been found very effective in the treatment of FIP and can currently be considered as an alternative in veterinary practice for the treatment of this relentless disease. To the authors' knowledge using Mutian® X in a FIP case have not been reported before in Turkey.

Keywords: cat, fcov, fip, mutian X

Management of an Advanced Lung Metastasis in a Dog due to Mammary Tumor

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Abstract:

Canine mammary tumors (CMT) are the most common neoplasms in the intact female dogs often develop pulmonary metastases. The incidence rates for CMT depend on the geographic origin given that it is a tumor with higher prevalence in countries where ovariohysterectomy is not routinely performed. Although surgery and chemotherapy have been used for CMT treatment, there is no standardized chemotherapy or target therapy. Chain mastectomy in inguinal lymph nodes, and the inguinal lymph node is not always draining the tumor and veterinarians always face up with lung metastasis complications. Therefore, we want to present the efficacy of doxorubicin use with seven cycles as a monotherapy in a dog with advanced lung metastasis due to CMT within this case report. An 8-year-old, 9 kg, female mongrel dog was brought to the Veterinary Teaching Hospital with complaints of mammary mass in November 2018. After chain mastectomy, tubulopapillar carcinoma was identified by the immunohistochemical examinations. However, the patient was remains good until postop 8 months. In August 2019, the dog was brought to the hospital again with a complaint of cough and dyspnea. The clinical hematological and biochemical analyses with thoracic x-rays were also performed. In the thoracic radiography, metastasis suspected, and lung biopsy was performed under general anesthesia. Computed tomography was also performed to the patient and advanced lung metastasis were confirmed due to CMT. Chemotherapy was started immediately, considering the condition of the patient. Before each chemotherapy, a CBC and serum biochemistry profile, thoracic x-rays, cardiac auscultation, electrocardiography, and echocardiography were routinely performed. Any side effects of doxorubicin were observed, and the quality of life of the patient did not deteriorate during this period. After the fifth cycles, a significant reduction was confirmed with computed tomography. A clear remission was seen in this case using doxorubicin as a monotherapy with seven cycles. However, the patient was died after the seventh cycles, and necropsy could not be performed according to the owner's decision. Distant organ metastases should always be kept in mind in CMT and patients should be followed up accordingly.

Keywords: canine mammary tumor, chemotherapy, lung metastasis, dog



The Role of Ultrasonography in 20 Calf with Pneumonia: Diagnostic and Prognostic Value

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Abstract:

This study aims to show the importance of ultrasonography in assessing the severity of pneumonia in calves and they determine the prognostic value of lung lesions. For this purpose, 20 calves that were brought to the animal hospital of Ondokuz Mayıs University with the complaint of respiratory system complaints, included in the study. Thoracic ultrasonography was performed by the same operator as all calves. The area between right 1-10th and left 2-10th intercostal spaces scanned for lung lesions. The area was swabbed with %70 isopropyl alcohol to remove the excess oil, and acoustic gel was applied. The hair was not clipped or shaved from the chest. In calves, 2.5-6.6 MHz convex probe with 5-15 cm depth was used. Thoracic ultrasonography was performed to both side of thorax and findings was noted as comet-tail artifacts (COMT), diffuse comet-tail artifacts, pleural irregularities, effusions, lung consolidations, and hepatized areas of the lung. The most common lesions were determined as COMT (23.3%) and pleural irregularities (25.23%), and also appearance of COMT artefacts and pleural irregularities were found higher in the right side of thorax ($P>0.05$). Diagnosis of thoracic diseases were made on the basis of clinical and ultrasonographic findings and confirmed in nine patients in necropsy. Hepatization of the lung (10.28%) and effusion (6.54%) in the thoracal cavity was found in these calves. In conclusion ultrasonography is useful tool for detecting lung lesions and making decision severity of lesions.

Keywords: calf, thoracic ultrasonography, pneumonia.

Effects on the Lipid Peroxidation and the Antioxidant Defense Systems of the Use of Isoflurane or Sevoflurane in Calves

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Abstract:

In this study, it was aimed to determine the effects of the use of isoflurane or sevoflurane inhalation anaesthesia used for general anaesthesia in humans and animals on lipid peroxidation and antioxidant defense system in calves undergoing surgery. The cases randomly were divided into 2 groups, the isoflurane group (group I), and the sevoflurane group (group II), and each group included 7 animals. Isoflurane was administered at an inspiratory concentration of 4-5% in group I, and sevoflurane was administered at an inspiratory concentration of 5-7% in group II, a mask via during 15 min for the induction of anaesthesia. Endotracheal intubation was performed at 15 min of induction period following the onset of general anaesthesia symptoms in all cases. After the induction period, anaesthesia was continued at an inspiratory concentration of 1.5-3% in the isoflurane group and inspiratory concentration of 2.5-4% in the sevoflurane group. Blood samples were taken before premedication (0th min), just before anaesthesia induction (15th min), just before skin incision (30th min), at the end of anaesthesia and surgery (120th min), and at the 24th hours postoperatively (24th hours). Lipid peroxidation (MDA), superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GSH-Px), and glutathione (GSH) levels were measured in the samples. In group I, lipid peroxidation (MDA) and antioxidant parameters (SOD, CAT, GSH-Px, GSH) did not show a significant change in their concentrations over the study period ($P > 0.05$). In group II, MDA, CAT, GSH-Px, GSH levels were showed no statistically significant changes ($P > 0.05$). SOD activity was determined that increased significantly after sevoflurane compared to pre-anaesthesia ($P < 0.05$), however, the increases in SOD activity detected during sevoflurane were not statistically significant ($P > 0.05$). This increase is thought to be due to the antioxidant effect of sevoflurane. Consequently, the potential effect of sevoflurane on oxidative stress may lead to the preferred use of sevoflurane.

Keywords: isoflurane, sevoflurane, lipid peroxidation, antioxidants, calve.



Investigation of Social Media Addiction with Interpersonal Problem Solving and Personality Traits

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Abstract:

This study aimed to examine the relationship between social media addiction and personality trait and interpersonal problem-solving style. Bilecik Şeyh Edebali University Faculty of Health Sciences students constitute the universe of the study conducted with a cross-sectional method. Sampling selection method was not used in the study, and it was tried to reach the whole universe. The study was conducted with 244 questionnaire data. For the research, Bilecik Şeyh Edebali University Ethics Committee was applied and ethics committee approval was obtained with the decision number 13 of the meeting dated 29/06/2020 and numbered 8. The surveys were distributed and applied on the web between 08.07.2020-09.09.2020 because of the COVID-19 pandemic. Participation in the survey is on a voluntary basis. Before the questionnaire was applied, the voluntary basis in the informed consent form was notified to the participants in writing, and the work continued with the participants who consented to participate in the study. Socio-demographic form, Social Media Addiction Scale, Five Factor Personality Inventory Short Form and Interpersonal Problem-Solving Inventory were used to collect the data of the study. The data obtained from the research were analyzed and interpreted with the SPSS 22.0 program. For analysis, Independent Samples t-test, One-Way ANOVA test and Pearson Correlation test was used. Because of the analysis, it was seen that there was no significant relationship between extraversion and emotional balance, which are among personality traits, and social media addiction ($p > 0.05$). It was determined that the higher the compatibility, responsibility and openness to development personality trait score, the higher the social media addiction score. It was observed that social media addiction scores were higher as the scores of negative approaches to the problem, not taking responsibility and self-insecurity subscale of the Interpersonal Problem-Solving Inventory increased. Social media addiction scores were found to be lower in individuals who were constructive problem solvers and displayed a persistent-persistent approach. This study contributes to the literature by adding a new concept to the factors affecting social media addiction.

Keywords: social media, addiction, personality, interpersonal problem-solving



Farriery, Disappearing Profession Lives in Pictures

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Abstract:

Abstraction is a result that evokes the nature with deformation or stylization in practice, which is natural but not nature itself. In order to understand and perceive this kind of work easily, the audience must have a certain level of vision culture. If it is abstract, it is really the result. According to concrete and abstraction, it is a working style from nature but does not feel the need to evoke nature. This should be approached with a nonfigurative approach. Any figure on the surface that evokes nature will make it non-abstract as well as nonfigurative. According to some art theorists, the abstract is interpreted as a symbol of arrival to reality in eastern culture and a symbol of escape from reality in western culture. Current study has been performed to design a visual memory recording from Mustafa Diğler's brush to the future. In this context, it has been made about 25 pieces of farriery related pictures with the acrylic technique in the size of 32x47 cm. The study is under the project titled as "Reviving of Farriery; Disappearing Profession", "Erasmus+ Vocational Education", Key Action 2: Cooperation for Innovation and Exchange of Good Practices program.

Keywords: farriery, paint



Re-evaluation of Communication Skills Practices of Veterinary Students According to Covid-19 Pandemic Rules

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Abstract:

Covid-19 disease, which emerged in Wuhan in December 2019, has turned into a pandemic in a short time. Due to the pandemic, many areas have affected all over the world. Daily life has been restructured within the framework of pandemic rules. This new lifestyle, which accustoms people to living in pandemic conditions, requires several changes in the axis of the veterinarian-client communication. In this study, it was investigated how the communication skills of the students who were able to show many verbal and non-verbal communication skills before the Covid-19 pandemic could be affected by considering the "*mask / social distancing / hand hygiene*" rule. This research is a retrospective and qualitative study. The approvals were obtained from Ethics Committees of Ankara University (Date:24/9/2019; Number: 16/260) and Ministry of Health (Date:30/01/2021). In the study, the video footage of 60 students who experienced communication between the veterinarian and client by role-playing in the pre-pandemic period in Ankara University Faculty of Veterinary Medicine was examined, and these records re-evaluated considering the pandemic rules. It was observed that if the "*mask / social distancing / hand hygiene*" rule is followed, there may be a loss of quality in the ability to greeting, handshaking, smiling, using gestures, effectively use of body language and tone of voice, articulacy, touching a patient or a client, inviting the client to the examination room, flexible seating etc. in the interviews of the students who play the role of veterinarians with the clients. It can be argued that pandemic rules may prevent students from communicate thoroughly. As a suggestion, a new communication skills checklist (Communication Skills Checklist for Pandemic) was created to evaluate the interviews to be made under pandemic conditions in order to eliminate abovementioned barriers to communicate effectively. As a result, it has been revealed in the study that pandemic rules can negatively affect students' communication skills. In order to communicate better in the pandemic, a new communication strategy has been developed and included in the curriculum.

Keywords: communication skills, communication training, Covid-19 pandemic, social distancing, veterinary student.



Protective Treatment and Poisoning in Pigeons in Konya Province Folklore

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Abstract:

In this study, it was aimed to compile folkloric information about poisoning and their treatment, and protective treatment of external and epidemic diseases of pigeons raised in Konya province, and contribution of the folklore of veterinary medicine in particular, and to the Turkish folklore in general. The material of the study was composed of written and audio folkloric information obtained from 23 resource persons, who were determined to have information about protective treatment and poisoning as a result of interviews with 28 resources dealing with pigeon breeding in Konya province between 11.07.2020-14.08.2020 through the “*Information Collection Form*”. The resources were coded according to the district and interview date (K1,...,K28) and indicated as superscript in the text. Since K2-3, K6-7 and K18 did not provide information on the subject, these were not used in the resources list. The audio material evaluated with content analysis. The folkloric data on the subject were evaluated under the headlines of “*protective treatment in external diseases, protective treatment in epidemic diseases, poisoning and treatment*”. It was determined that in Konya, pigeons were fed with garlic and vinegar was added to their drinking water for protective treatment in external diseases. In order to protect the pigeons from epidemic diseases, in compulsory cases, the feet of the foreign pigeons are disinfected and a quarantine is applied for a month, vaccines are administered twice a year, especially to protect against plague and smallpox. In poisoning, ayran, kephir, yoğurt, egg or honey syrup is drunk with the help of a syringe. As a result, it can be claimed that disinfection in protective treatment in external and epidemic diseases, vaccination and quarantine practices are performed in protective treatment in epidemic diseases, but isolation is never mentioned, the methods used in poisoning from past to present are carried out with similar approaches in Konya Region and when all the data are taken into consideration, the rich folklore knowledge of Konya contributes to the Turkish cultural heritage.

Keywords: folklore, poisoning, Konya, pigeon, treatment.

Effects of Rectal Ozone, on Experimental Neonatal Necrotizing Enterocolitis Model with Real Time Elastography

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Abstract:

Necrotizing enterocolitis (NEC) is a typical clinical crisis of gastrointestinal framework in the neonatal period. It is notable that rectal ozone has cyto-defensive impacts. We aimed to evaluate the effects of rectal ozone on experimental neonatal NEC. 30 Wistar Albino rat pups aged 18 hours were separated into three groups. Group I (control group) was not stressed with any factor. Group II was stressed with hypoxia by breathing of 100 % CO₂ for 5 minutes and with exposure to cold at +4°C for 10 minutes. This protocol was performed twice daily for 4 days. Rectal ozone was used (30 µgr/ml, rectal) in group III at the end of the each hypoxic and cold stress. Terminal ileum for Real Time Elastography were obtained at the end of the 4th day. No radiological abnormality was distinguished in the control group. Elastographic assessment was distinguished in all rats in group II and in 3 rats in group III. A large portion of the radiological assessment was pannecrosis. Terminal ileum was normal in the control group. In group II, Elastographic discoveries were strange individually. In group III, seven rats had ordinary radiological discoveries while grade-1 and grade-2 injury were identified in 2 and 1 rats separately. There were statistically significant difference between group I and group II and between group II and group III. Rectal ozone diminished the seriousness of the intestinal harm causing NEC. We propose that High Pressure Milk might be powerful with their belongings against reasons for NEC.

Key words: Newborn, Necrotizing Enterocolitis, Rectal Ozone, Real Time Elastography



Elastosonography in Spermatic Cord Torsion

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Abstract:

In kids, testicular torsion is among the main careful crises. Separation from other acute scrotal occurrences is troublesome in finding and board of therapy. The point of this experimental study is to assess the viability of US elastosonography, which decides tissue stiffness, as a target strategy in determination and intervention of spermatic cord torsion. 16 male rabbits of a similar weight and age were chosen. They were separated into two gatherings including 8 rabbits each. In Group 1, the right testis was fixed; in Group 2, the same testis experienced 720° curve a clockwise way and stabilized. After 1-2 hours of ischemic period, elastosonography estimations of privilege and left spermatic cords were applied at same time. Nonetheless, the left spermatic cord was estimated again at 24 hours to more readily notice the progressions that privilege ischemia may have on the left spermatic cord. B mode US contemplates and elastosonography procedure were applied with a linear probe. Statistically critical increment was recognized in elastosonography estimations of right spermatic cord at 1-2-24 hours ($p<0.05$). There were no statistically significant changes between the gatherings in elastosonography estimations of left spermatic cord at 1-2 hours. Elastosonography regards were basically extended in the left spermatic cord at 24 hours ($p<0.05$). In testicular torsion, the elastographic estimations of the spermatic cord tissue expanded fundamentally with the expansion in span of ischemia. By the width of practical demonstration advantages and strong evaluation opportunity with B mode shaded pictures, elastosonography is a dependable, predominant strategy in deciding the tissue firmness of one-sided and contralateral spermatic cord structures. It was seen that the elastography strategy may have a part with other indicative procedures in the finding of spermatic cord torsion.

Key words: Spermatic cord torsion; elastography; tissue stiffness.



Impact of Age and Gender on the Diameter Ratios of the Thyroid Glands in Children

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Abstract:

The current study aimed to report the thyroid lobe transverse to anteroposterior diameter ratio (T/AP), thyroid lobe longitudinal to anteroposterior diameter ratio (L/AP), thyroid lobe longitudinal to transverse diameter ratio (L/T), and thyroid isthmus anteroposterior / thyroid lobe anteroposterior (TIAP/TLAP) ratios in children. The impact of age and gender on the diameter ratios of the thyroid glands has been described. The ultrasonographic images of 410 children with normal thyroid glands were retrospectively evaluated. Children were divided into seven groups according to their age. The diameter ratios of the thyroid glands were calculated using the median values of the three dimensions of the thyroid lobe and anteroposterior diameter of the thyroid isthmus. The impact of age and gender on the diameter ratios of the thyroid glands was assessed by stepwise multiple linear regression. The study group included 155 boys and 255 girls (37.8% and 62.2%, respectively). The ages of the participants ranged from 0 to 18 years (mean \pm SD, 10.88 \pm 4.64 years). The T/AP, L/AP, L/T, and TIAP/TLAP ratios were 1.18; 3.30; 2.75; and 0.176 for the right thyroid lobe, respectively; and 1.20; 3.18; 2.73; and 0.183 for the left thyroid lobe, respectively. In a stepwise multiple linear regression age was significantly associated with the L/AP of the right thyroid lobe and L/T of the left thyroid lobe ($p < 0.0001$). Gender was found to be significantly correlated only with the L/T ratio of the right and left thyroid lobe ($p < 0.0001$). This study is the first to present data on the diameter ratios of the thyroid glands in children. The age and gender together had only an impact on the L/T ratio of the left thyroid lobe.

Keywords: Thyroid gland, diameter ratios, ultrasonography, age, gender



The Impact of the New Coronavirus Disease (COVID-19) on University Students: Anxiety, Health Anxiety and Physical Activity

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Abstract:

Epidemics in the past have shown that anxiety, health concerns, and panic behaviors were common at this time. Physical activity has an important role in mental health and cognitive function. Staying at home for long periods of time, such as during the pandemic period, is likely to lead to reduced regular physical activity, excessive time spent on screen-based activities, established sedentary behaviors. The aim of this study is to determine the level of physical activity, health-related anxiety and anxiety levels in university students during the recent pandemic and to determine the relationship between them. The study was carried out with 193 volunteers, students of University of Health Sciences Turkey, Hamidiye Faculty of Health Sciences. International Physical Activity Questionnaire-short form was used to determine the level of physical activity, Beck Anxiety Inventory to determine the anxiety level, Health Anxiety Inventory-Short to determine the health anxiety level. In addition, students' pandemic process accommodation status and hospital visits were also questioned. All data were collected online. 193 volunteers (156 women, 37 men; mean age: 20.88±1.84) participated in this study. They were from 8 departments and highest percentage of participants were from department of physiotherapy and rehabilitation. 47.2% of the participants were found to be inactive. Significant positive correlation was found between health anxiety and general anxiety ($p<0,01$). Although there was a positive correlation between the "sitting time" in a day and health anxiety, it was not significant. Male students were significantly more active than females ($p<0,05$). Although students who know an infected person have a higher level of health anxiety, there was no significant relationship. Both health anxiety and anxiety were found to be significantly higher in students who visited a hospital for any reason ($p<0,05$). There was a significant negative correlation between walking activity level and anxiety level ($p<0,05$). As a result of this study, it was seen that even an easily accessible activity such as walking has a positive effect on anxiety and should be encouraged. Indoor or outdoor with social distance exercise programs should be encouraged, especially for female students, which are more inactive than males.

Keywords: anxiety, coronavirus, pandemic, physical activity



***Urtica dioica* as a Novel Source of Protein**

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Abstract:

Urtica dioica is a widespread plant enriched in proteins, vitamins, phenolic components, macro and microelements, tannins, flavonoids, fatty acids, sterols, carotenoids and chlorophylls. Determination of proteins in the leaves, stem and root of *Urtica dioica* collected from ecological area of Poland was set as an objective of this study. Plant material: *Urtica dioica* was growth up in organic way. The plants were grown in Podlasie, Siemiatycki County, Poland. Development starts on April 18-20. Harvest took place between May 15 and June 15. Plants were assessed for organoleptic properties. The material was dried in a hot air circulation dryer at a temperature of up to 50°C. The material was assessed for moisture content in accordance with the protocol and cut. The samples were stored in a warehouse where the temperature was 12-16°C and humidity of 60%. The proteins content was determined by Kjeldahl method. Significant amount of protein were observed in the leaf, herb and seeds of died *Urtica dioica* compared to fresh and *Urtica dioica* juice. The results of the study shown that *Urtica dioica* is a valuable source of proteins, what give new possibility in phytotherapy and dietetics.

Keywords: *Urtica dioica*, proteins, leaf, herb, seeds



The Effect of Atmospheric Pressure Cold Plasma Application on Wound Healing in Palatal Mucosa in Rats[#]

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Abstract:

Atmospheric pressure cold plasma (APCP) induces tissue regeneration and accelerates wound healing. The aim of this study was to investigate the effects of APCP application on the bleeding time and wound healing of the palatal wounds in rats and to determine the most appropriate APCP application time for oral wound healing. The study was performed with 72 adult male Wistar albino rats. Argon APCP was used in the study. Study groups were determined as Ar-10: 10 seconds APCP application, Ar-30: 30 seconds APCP application and control group: no plasma application. On the 0th day of the study, a 3x3x1 mm sized wound was formed on the midline of the palatal mucosa. Immediately after, APCP was applied 1 cm away from the wound surface in Ar-10 and Ar-30 groups during 10- and 30 seconds respectively and bleeding time was recorded in all groups. APCP application for the test groups was repeated for 14 days. On the 7th, 14th and 21st days of the study, 8 rats from each group were weighed and sacrificed and the wound healing was evaluated with histomorphometric and immunohistochemical analysis. The shortest bleeding time was observed in the Ar-30 group ($p < 0.001$). While the other groups lost weight, the weight gain was observed in the Ar-10 group in all-time points ($p < 0.001$). The complete wound closure was observed in only the Ar-10 group ($p < 0.001$) on the 7th day and better collagenization and fibrosis were observed in the APCP groups compared to the controls on the 14th day ($p < 0.001$). APCP application may shorten the bleeding time, accelerate the healing in the palatal wounds, and reduce nutritional difficulties. APCP application may be used for improving patient comfort after gingival operations. APCP application promises to improve the quality of life of patients who have undergone oral surgery.

Keywords: atmospheric pressure cold plasma, wound healing, periodontal surgery, animal study, histology

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Descriptive Data of Impacted Third Molars Extraction Age in Male and Female Patients

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Abstract

The most commonly impacted tooth in the oral cavity is the third molars. Impacted third molar extraction age may vary in male and female. The aim of this study was to descriptive data of (age and gender) impacted third molars extraction among male and female patients admitted in department of oral and maxillofacial surgery, faculty of dentistry, university of Afyonkarahisar Health Science from January 2012 to December 2020. 3658 patients with 4571 impacted third molars due to bone, 2824 patients with 3241 impacted third molars due to soft tissue retrospectively inspected from Afyonkarahisar Health Science University Dentistry Faculty Oral and Maxillofacial Surgery Department's registry for extraction age pattern according to gender and side of teeth. Impacted third molars due to bone extraction age average in male patients as maxilla and mandibula are around age 39,21-39,65(right and left) and 34,26-33,64 respectively, in female patients it is 33,34-36,66 and 31,99-32,20 respectively. Impacted third molars due to soft tissue extraction age average in male patients as maxilla and mandibula are around age 35,09-34,14 and 33,93-34,04 respectively, in female patients it is 30,81-32,56 and 32,26-31,87 respectively. This descriptive study informs extraction age averages of genders for impacted third molars. For assume a correlation between extraction age and gender requires further researchments.

Keywords: Molars, molar extraction, cavity.



Determination of the Effects of Oral\ Dental Health Practices and Nutrition Habits on Dental Health

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Abstract:

One of the most common non-communicable diseases is oral diseases that affect humans by causing pain, discomfort, and even death. Behavioral and lifestyle factors contribute significantly to the initiation and development of dental caries. This study aims to examine the effects of eating habits and oral / dental health practices on dental health in 12-year-old schoolchildren. The sample of the study consisted of 254 schoolchildren. The data were collected by face-to-face interviews via a questionnaire form. A dentist to assess the oral and dental health of the children performed clinical examinations. DMFT (Decayed, Missing, and Filled Teeth) and dmfs (decayed, missing, and filled surfaces) indices of the children were determined as a result of calculations. SPSS (Statistical Package for the Social Sciences) package program was used to analyze the data. As a result of the study the mean DMFT is 2.0 ± 1.90 , and dmft is 1.0 ± 1.57 . dmft values of boys (1.4 ± 1.83) were found to be higher than of girls (0.7 ± 1.26) ($p < 0.05$). It was found that those who brush their teeth for more than three minutes each time (0.2 ± 0.58) have lower mean dmfs values than those who do not know their brushing duration (1.9 ± 1.20) ($p < 0.05$). Moreover it was found that dmft values of the children consuming molasses and table sugar are higher ($p < 0.05$). Consequently, nutritional habits and oral and dental health practices are factors that affect the dental health of children. Therefore, innovative strategies should take in the potential role of oral health promotion, nutritional counseling and public nutrition education.

Keywords: child, DMFT, nutrition, oral health, teeth



Is a Laboratory Without Formaldehyde Possible? Investigation of Alternative Natural Fixatives Instead of Carcinogenic Formaldehyde

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Abstract:

Formaldehyde is a reactive chemical that reacts spontaneously with various cellular elements. This substance, which is also found in the natural structure of the organism, is used in many places from the industrial field to household materials, from the production of coatings in dentistry to the detection of cadavers in laboratories. Formaldehyde is widely used in laboratories for fixation of tissues. In this study, it was investigated whether date sugar, which is one of the natural sugars, showed fixative properties and the fixative quality of date sugar was compared with sugar cane molasses and formaldehyde. In the anatomical evaluation, all tissues showed equal features with each other. When the texture fixation properties were compared, palm sugar and sugar cane molasses showed similar properties. Different levels of maceration were observed in some tissues (small intestine, large intestine, skin, and testis). Tissues determined by palm sugar in Triple and Hematoxylin Eosin dyeing methods showed similar properties with sugar cane molasses. While staining quality was low in macerated tissues, staining of organ layers, special cells and connective tissue elements in tissues without maceration showed the staining properties in tissues determined with formol. Similarly, in the PAS (Periodic Acid Schiff) staining method, the expected PAS + reaction was observed in the tissues that did not undergo maceration, while the expected + reactions were not observed in macerated tissues due to cellular losses. As a result, the tissues detected with palm sugar showed similar properties with sugar cane molasses. Both fixation solutions showed similar quality staining properties compared to formol in non-maceration tissue. Although the findings obtained suggest that palm sugar can be an alternative fixative, it should be supported by more detailed studies.

Keywords: palm sugar, jaggery, formaldehyde, fixation

#This work was supported by the Aksaray University Scientific Research Project Coordinator (BAP).

Comparison of Hematoxylin & Eosin (H&E) and Periodic Acid Schiff Alcian Blue (PAS-AB) Histochemistry in Esophageal Biopsies in Terms of Intestinal Metaplasia

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Abstract:

Aim: Barret esophagus is considered as a precursor lesion for esophageal adenocarcinomas. Histopathological examination is required for the barret esophagus, where endoscopic examination takes an important place. Intestinal metaplasia is evaluated with hematoxylin & eosin (H&E) and alcian blue (AB) in histopathological examinations. There are 2 different opinions on this issue. One of them is to perform histochemical examination for AB or PAS-AB when intestinal metaplasia is suspected in routine H&E staining, while the other is to perform histochemical examination for routine AB or PAS-AB in all esophageal biopsies with H&E section. This study aims to reveal the roles of H&E and AB staining methods in the assessment of intestinal metaplasia. 200 esophageal endoscopic biopsies were included in the study. Sections of the biopsies were re-evaluated blindly by two pathologists. H&E and Periodic acid schiff alcian blue (PAS-AB) stains were compared in terms of sensitivity, specificity, positive predictivity and negative predictivity. In statistical analysis, a strong correlation was found between H&E and AB in the evaluation of intestinal metaplasia (Kendall, $p = 0.00$; $r = 0, 81$). In H&E evaluation, sensitivity is 79%, specificity 100%, positive predictivity 100%, negative predictivity 82.6%, while sensitivity is 100%, specificity 100%, positive predictivity 100%, negative predictivity 100% in PAS-AB stained sections. The main goal in the histopathological evaluation of intestinal metaplasia is to detect positive cases. Since negative cases mean less significance, higher sensitivity and negative predictivity values should be preferred rather than 100% specificity and positive predictivity values observed in H&E sections. Considering these conditions, it seems rational to use an auxiliary histochemistry containing AB.

Keywords: Intestinal metaplasia, hematoxylen& eosin, H&E, alcian blue, AB



The Case of Giant Cell Osteosarcoma in a Baghdad Pigeon: First Record in Turkey

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Abstract:

This case report was intended to provide information about the characteristics of giant cell osteosarcoma detected in the tibiotarsus by clinical, radiological and histopathological examination in a Baghdad pigeon. Our case was a Baghdad pigeon at the age of 2-3 years, who was brought to our clinic with complaints of lameness in the right foot and swelling in the joint area. As a result of clinical and radiological examinations, the amputation of the relevant limb was decided. The operation was performed by amputation of the femuro tibia joint from about 5 mm proximal under general anesthesia. In the material sent for histopathological examination, macroscopically, proliferations with a diameter of about 3x2 cm in the tibiotarsus area of the right limb, with a strong consistency in elastic places, were determined. The skin surface was ulcerative and necrotic. The cross-sectional face of the mass was gray-white in color, bleeding and necrotic in places. Microscopic examination showed highly reactive bone tissue in areas surrounded by dense vascular stroma. According to the results of the clinical and pathological examination, the case was diagnosed with giant cell osteosarcoma. The aim of this case report was to contribute to the literature on the clinical, radiological and histopathological features of giant cell osteosarcoma in a Baghdad pigeon.

Keywords: giant cell osteosarcoma, pigeon, tumor

Necrotic Glossitis in a Four Years-Old Male Cat

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Abstract:

In this presentation, a case of necrotic glossitis was described in a mass removed from the tongue in a 4-year-old male crossbred cat. One month ago, when the cat was eating a large amount of saliva and sometimes blood was observed from the mouth, a mass formation on the tongue was noticed by the animal owner. Cat's inspection was performed in Kyrgyzstan-Turkey Manas University, Faculty of Veterinary Medicine Clinics. In the inspection, a bulging mass was observed in the caudal region and dorsal surface of the tongue, partially preventing food intake and swallowing. For the operation, Xylazine hydrochloride at a dose of 1 cc/10 and ketamine hydrochloride at a dose of 10 mg/kg was given to anesthesia. The animal's mouth was opened properly. The tongue pulled out. The mass was extirpated against intact tissue with electrocautery. The extracted mass was sent to the Pathology Laboratory. The mass was 1.2 x 1.5 x 2 cm in size and had a firm consistency. Partly erosive-ulcerative areas were observed on the surface of the mass. Yellowish-gray foci with a diameter of 2-3 mm were noticed on the cut surface. In microscopic examinations; erosion and ulcers in epithelial layer, inflammatory cells and increased connective tissue were noted in propria. Pink necrotic foci of different sizes scattered between the tongue muscles, a band of inflammatory cells and an increase in connective tissue around these foci were observed. In the presented case, a diagnosis of necrotic glossitis was made as a result of the changes observed with necrosis in the mass taken with suspicion of tumor. Masses with ulcerated and bleeding appearance are generally interpreted as tumoral formations. However, as observed in this case, it was concluded that necrotic-inflammatory changes should also be taken into account in masses with similar appearance that are evaluated as a tumor. For similar situations, it was deemed appropriate to present the case in order to draw the attention of clinicians to the subject and to contribute to veterinary medicine.

Keywords: necrotic glossitis, cat, pathology, surgery.

A Case of Giant Cell Osteosarcoma in A Scottish Fold Cat

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Abstract:

Giant cell osteosarcomas are rare tumors in humans and domestic animals that are usually limited to the epiphyses of bones or can extend to adjacent soft tissues. These tumors have multinucleated giant cells with osteoclast properties. Additionally, the osteoid structure is observed produced by neoplastic mesenchymal cells. In this study, a case of giant cell osteosarcoma localized on the dorsal region between two scapulae in a six years old castrated male Scottish Fold cat is presented. The mass was macroscopically, 4.6x4.4 cm in dimensions, and very rigid. The cross section of this mass was gray-white. For histopathological evaluation, tissue samples were fixed in a 10% formalin solution. After routinely processed they were embedded in paraffin. Paraffin blocks were cut at 4µm in thickness, and stained with hematoxylin-eosin to be evaluated by light microscopy. Also immunohistochemical staining was performed to support the diagnosis. For this purpose, vimentin, cytokeratin, and actin were used. Microscopically, fusiform spindle-shaped cells and multinucleated giant cells with ovoid type nuclei were observed. Osteoid structure and mitotic figures were detected in several areas. In these areas, distinct atypia was observed in the cells. Also anisocytosis and anisocaryosis were detected in the cells. Neoplastic cells and especially multinucleated giant cells reacted positively with vimentin. However, these cells had no immunoreaction to actin and cytokeratin. Besides, the periphery of blood vessels reacted positively with vimentin and blood vessel smooth muscle cells reacted positively with actin. As a result of the histopathological and immunohistochemical findings observed the mass was determined to be giant cell osteosarcoma.

Keywords: Giant cell osteosarcomas, scottish fold cat, scapulae



Cardiac Toxoplasmosis in a Wallaby

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Abstract:

In this report, we present a case of myocarditis associated with toxoplasmosis in a wallaby. Severe congestion and edema were observed in all lung lobes at the necropsy of the wallaby. Several white foci of approximately 1-2 mm in diameter were observed on the lung pleural surface. A thrombotic mass was seen on the tricuspid valve of the right heart. Petechial-ecchymotic hemorrhages were noted in the root of the aorta. Microscopic examination of lungs revealed congestion in the parenchymal vessels, edema in the lumen of the alveoli and presence of hemosiderinophages. A fibrin thrombus attached to the endocardium, multifocal subendocardial hemorrhages, and myocardial inflammatory cell infiltrates and necrosis were detected. Protozoal cysts compatible with *Toxoplasma gondii* were seen mostly in areas with inflammatory infiltrates. There was also a subadventitial hemorrhage in the aorta. A diagnosis of myocarditis and circulatory failure related to cardiac toxoplasmosis was made in the light of the mentioned findings.

Keywords: Heart, myocarditis, toxoplasmosis, wallaby



Detection of Metallo-Beta-Lactamase (MBL) Produced from *Pseudomonas aeruginosa* from Syrian Hospitals

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Abstract:

Production of β -lactamase enzymes is the most common and important mechanism of resistance in gram-negative bacteria. In another hand, *Pseudomonas aeruginosa* is one of the most clinically and epidemiologically important bacterium, in addition to its ability to develop a different resistance mechanism which shed the light of the importance of studying the prevalence of resistance in this species. The aim of this study was investigating of Metallo- β -lactamase (MBL) in *Pseudomonas aeruginosa* from Syrian hospitals. The study period was from June 2015 to September 2016. The samples were collected from Aleppo (Hospital of Aleppo University and Alrazi Hospital) in sterile way. The identification *Pseudomonas aeruginosa* was accomplished depending on physiological and biochemical characters. Kirby-Bauer method was applied to study *Pseudomonas aeruginosa* sensitivity against 21 antibiotics from different groups. Prevalence of MBLs which produced from *Pseudomonas aeruginosa* was investigated by 3 methods: combined disk test, EDTA-disk synergy test, and Modified Hodge test. Out of 265 samples 85 (32.07%) isolates belong to *Pseudomonas aeruginosa*. The prevalence of MBLs was 25 (29.41%). The prevalence of MBLs according to samples was 45.71% from wounds, 18.42% from burns. Prevalence of MBLs according to gender was 20 isolates (40%) from male and 5 (15.15%) isolates from female. MBLs were in high rate in young age, and the most *Pseudomonas aeruginosa*-MBLs produced from patients who resident in hospital (84%), while the prevalence in non-resident patients was (16%). In conclusion, our study proved the existence of MBLs in Syrian hospitals. Also, our study determined most prevalent samples and groups to *Pseudomonas aeruginosa*-MBLs.

Keywords: *Pseudomonas aeruginosa*, antibiotics, resistance, MBLs.

Oral presentation

Susceptibility to Antibiotics of Staphylococci and Streptococci Isolated from Patients with Chronic Carriage in Upper Respiratory Tract

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Abstract:

The pathology of the respiratory tract occupies a leading place in human infectious diseases and is the most common among the population. Yearly each person suffers from respiratory infections of different aetiologies. Lesions of the upper respiratory tract often caused by opportunistic microorganisms, among them staphylococci and streptococci are predominate. Treatment is complicated by the spreading of antibiotic resistance among bacteria, requiring obligatory determination of the susceptibility of clinical isolates to antibiotics prior to the starting of therapy. The aim of the research was to investigate the susceptibility of antibiotics of streptococci and staphylococci strains isolated from human respiratory tract. Biological material for analysis was obtained from 63 persons with chronic carrier in the upper respiratory tract. Isolation and identification of strains of staphylococci and streptococci were done in accordance with the requirements of the national standards. The study of antibiotic sensitivity was done by the disk-diffusion method using the standard protocol. From persons with chronic carriers 52 strains were isolated: 36 strains (69%) were identified as staphylococci, and 16 strains (31%) – as streptococci. The most frequent were: *Staphylococcus aureus* – 22 (42,3%) cases, and *Streptococcus pyogenes* – 6 (11,5%) cases. *S. aureus* strains were susceptible to norfloxacin (86.4%), gatifloxacin (72.8%), ciprofloxacin (68.2%), ceftriaxone (63.6%), erythromycin (54.5%), levofloxacin (59%), gentamicin (45.5%), vancomycin (40.9%), and to lincomycin, ampicillin and penicillin (from 13.6% to 31.8%). The isolated strains of *S. pyogenes* were sensitive to ciprofloxacin (100%); norfloxacin, gatifloxacin and levofloxacin (83.3%); ceftriaxone and vancomycin (66.7%); lincomycin, erythromycin and gentamicin (50%); ampicillin (33.4%) and penicillin (16.7%). Among coagulase negative staphylococci resistance to beta-lactam antibiotics prevalent (<25% of isolates were susceptible). Fluoroquinolones were the most effective group (>80% of isolates were susceptible). Among the group B streptococci and non-haemolytic streptococci, high sensitivity to fluoroquinolones prevalent (>90% of isolates were susceptible) and less than 33% of isolates were susceptible to gentamicin, erythromycin and lincomycin. None of the strains were susceptible to penicillin and ampicillin. In view of the obtained results, it should be noted that for the designation of schemes of rational antibiotic therapy should avoid the penicillin group and can use the fluoroquinolones of early generations.

Keywords: staphylococci, streptococci, susceptibility to antibiotics, antibiotic therapy.



Detection of Livestock-Associated ST398 Clones in Methicillin-Resistant *Staphylococcus Aureus* Strains Isolated from Human Wound Infections

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Abstract:

Methicillin-resistant *Staphylococcus aureus* (MRSA) strains named as sequence type 398 (ST398) or clonal cluster 398 (CC398) are an important sequence type known to be as livestock-associated. ST398 MRSA strains, which are widely detected in Europe, are also determined in human infections. In our study, we aimed to determine the ratio of ST398 sequence in MRSA strains isolated from wound infections in humans. Our study was performed by using 100 MRSA strains isolated from human wound infections between 2012 and 2013. Identification of the origins was carried out by examining classical microbiological methods, biochemical and hemolysis properties. In order to determine the susceptibility to methicillin and other antibiotics, standard antimicrobial susceptibility tests (antibiogram) were performed on Muller-Hinton agar plates with relevant antibiotic discs and the obtained zone diameters were evaluated according to EUCAST guidelines. After MRSA DNA isolations from samples, the determination of the ST398 origin was carried out by real-time PCR method using specific primers and probes. Following the isolations of MRSA DNA from the samples, the detection of ST398 origin was performed by real-time PCR method using specific primers and probes. We determined that 4 (4%) of the MRSA strains (n=100) in the samples collected in our study were ST398 sequence. When the antibiotic susceptibility profile of these ST398 positive strains was examined, it was found that there was an increase in ciprofloxacin resistance, similar to that developed by quinolones commonly used in livestock. In ST398 positive (n=4) and ST398 negative (n=96) MRSA strains, ciprofloxacin resistance was determined as 75% and 67.7%, respectively. In conclusion, with the data of our study, it was determined that livestock-associated ST398 MRSA strains could be found as an infection agent for humans in our country. In addition, it was determined that the real-time PCR method could be performed faster to identify the origin sources compared to the pulsed field gel electrophoresis and sanger sequencing methods used for sequence typing. The necessity of addressing human and animal health with one health approach has gained importance especially with the COVID-19 outbreak. For this reason, it is necessary to conduct extensive and multi-center studies in order to follow up livestock-associated ST398 MRSA strains in human infections and to understand its effects on antibiotic susceptibility.

Keywords: One Health Approach, MRSA, real-time PCR, *Staphylococcus Aureus*, ST398



Some Statistical Diagnostic Tests That Can be Used to Determine the Validity of COVID-19 Diagnostic Kits

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Abstract:

In this study, it was aimed to examine some "statistical diagnostic tests" that can be used to determine the validity of laboratory diagnostic kits for COVID-19 disease caused by the SARS-CoV-2 virus and to inform researchers. For the diagnosis of COVID-19; besides the PCR test, ELISA kits, rapid diagnostic kits developed for the detection of antibody and viral components are used. It is necessary to use statistical diagnostic tests to know how accurately these diagnostic kits can distinguish clinically ill individuals from healthy individuals. The control of the validity of diagnostic kits is based on the result of a laboratory diagnosis (gold standard) test (eg PCR), which is no doubt that it reflects the truth. By placing "gold standard test" and "new diagnostic test" in a 2x2 table some diagnostic criteria can be calculated. Sensitivity: It is the ratio of those determined according to the new test as "Positive" among those determined as "Positive" according to the standard test. Specificity: It is the ratio of those determined according to the standard test as "Negative" among those determined as "Negative" according to the new. False Negativity: It is the ratio of those determined according to the new test as "Negative" among those determined as "Positive" according to the standard test. False Positivity: It is the ratio of those determined according to the new test as "Positive" among those determined according to the standard test as "Negative". Positive Prediction: Indicates how many of the test results are actually "Positive" according to the "standard test" among those determined as "Positive". Overall Accuracy: It is the ratio of those found as "True Positive" and "True Negative" in the total. "Statistical diagnostic tests" should be used to determine the success in diagnosis of disease. The new test is clinically useful if the Sensitivity and Specificity total is >170 ; If the total is >190 , it can be said that it is a high diagnostic power test. To identify individuals with COVID-19 disease, it would be a correct approach to use laboratory and clinical decisions together with statistical diagnostic tests.

Keywords: COVID-19, diagnostic tests, accuracy, sensitivity, specificity



Virological Investigation of Border Disease Infection in Sheeps with Abortion Problem

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Abstract:

Pestiviruses are important pathogens to economic losses in cattle, sheep, goat and pigs. Border disease virus (BDV) caused by pestiviruses is characterized by low birth weight and congenital disorders in lambs, while infection is subclinical in adult sheep. Transmission of border disease between animals is through direct contact. However, since persistently infected animals are natural sources of the disease, large outbreaks may occur if a persistent infected animal enters the susceptible herd. In this study, it was aimed to investigate the presence of BDV by PCR test used primers specific to the DNA fragment of the 5'NC region by taking blood samples from 75 sheep with abortion problems coming to Selcuk University Faculty of Veterinary Medicine Internal Medicine Clinic. As a result of the test, all animals were found to be negative. As a result, it is thought that the reason for the abortions may be caused by bacterial, parasitic or other viral factors. Consequently, in future studies, it is suggested that instead of leukocyte samples, amniotic fluid and placentome samples will be more successful in sampling and more animals should be examined in terms of pestivirus to reveal its epidemiological presence.

Keywords: abortion, pestivirus, Border disease, pcr

First Detection and Molecular Characterization of a *Pigeon Aviadenovirus A* and *Pigeon Circovirus* Coinfection Leading to Young Pigeon Disease Syndrome (YPDS) in Turkish Pigeons (*Columba Livia Domestica*)

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Abstract:

Pigeon aviadenovirus A and Pigeon circovirus are both viruses that can cause disease in pigeons. This study reports the identification of a natural co-infection of Pigeon aviadenovirus A and Pigeon circovirus in a breeding pigeon flock in central Anatolia, Turkey. The genetic material of both PiAdV-A and PiCV were found in the same flock of young pigeons under six months old with severe clinical signs (crop vomiting, watery diarrhea, anorexia and sudden death) that are typically associated with Young Pigeon Disease Syndrome (YPDS). Primers based on the PiAdV-A fiber-2 gene and PiCV capsid gene, were used for the detection and amplification of the isolates. This was then sequenced and phylogenetic analyses were performed. The sequence analysis carried out showed that one of the isolates belonged to the PiAdV-A species. The isolate matched with a strain called "Pigeon adenovirus 1 complete genome, strain IDA4" in the NCBI-Genbank database. The percent identity at the amino acid level between our sample and IDA4 was 99.03%. The other field isolate PiCV was found to be closely related with strains previously isolated in Poland, Hungary and Taiwan. Both viruses were isolated from pooled internal organs of pigeons using primary chicken embryo kidney cell cultures (CEKC). It was not possible to propagate PiAdV-A virus from the PiAdV-A PCR positive sample in eggs, but PiCV virus was propagated from the PiCV PCR positive sample in the SPF embryonated chicken eggs and caused extensive damage to chicken embryos regardless of the inoculation route. Histopathological examination showed degenerated hepatocytes with basophilic intranuclear viral inclusions. The viruses have similar transmission characteristics and common clinical manifestations, but it is possible that coinfection may exacerbate disease. The prevalence of both viruses in pigeon populations needs further investigation to determine their pathogenic burden. Moreover, further studies should focus on the whole genome sequence and the virulence of the PiAdV and PiCV in diseased pigeons as well as their potential to jump species into economically important fowl. To the best of our knowledge, this study reports the first identification and isolation of PiAdV-A and PiCV in a pigeon flock in Turkey.

Keywords: pigeon aviadenovirus, pigeon circovirus, isolation, phylogenetic analysis.



Is Camelina Meal a Better Alternative to Soybean Meal in Modulating Rumen Fermentation in vitro?

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Abstract:

Camelina meal is a new by-product that is obtained after oil extraction for biodiesel production and might be considered as an alternative protein source to soybean meal in animal nutrition. We conducted an in vitro trial aimed at evaluating the rumen fermentation parameters in camelina meal and soybean meal. The rumen contents were obtained after morning feeding from three cannulated Holstein cows. The cows had ad libitum access to water and were offered commercial concentrates and straw. Camelina meal and soybean meal were incubated with rumen fluid according to procedures of modified “Hohenheim Formation Test” (HFT) for 72 h. Rumen fluid samples collected post incubation and analyzed for pH, ammonia N and SCFA concentration. No significant effect between camelina meal and soybean meal for the pH and ammonia N level at post incubation time was observed ($P>0.05$). In vitro rumen acetate and total volatile fatty acid concentration at 72h of incubation showed significant differences ($P<0.05$) between camelina meal and soybean meal. Soybean meal showed higher concentration compared to camelina meal. There was no significant effect of propionic acid, butyric acid, isobutyric and valeric acid concentration in treatment groups, however isovaleric acid concentration tended to increase ($P=0.078$) in soybean meal. Therefore, the results of this experiment showed that camelina meal is equal in comparison with soybean meal, which can be a proper alternative for protein sources in ruminant diet.

Keywords: alternative proteins, camelina sativa, HFT, short chain fatty acid



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POSTER PRESENTATIONS



Quince Seed Gel / Carboxymethyl Chitosan Based Scaffolds for Tissue Engineering Applications

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Abstract:

Tissue scaffold is one of the main components of tissue engineering that provides a suitable environment for cell growth and allows tissue regeneration. An ideal scaffold should be biocompatible, biodegradable and have porous structure to allow efficient mass transport of nutrients and oxygen. Medicinal plants have been used for centuries as remedies for human diseases because they contain components of therapeutic value. Quince seed has phenolic compounds, organic acids and free amino acids. The antioxidant functions of its phenolic compounds are superior to that of chlorogenic acid and ascorbic acid as standard antioxidants. Recent studies indicated that quince seed mucilage accelerated wound healing. The aim of this study is to produce quince seed mucilage containing carboxymethyl chitosan hydrogels for skin tissue regeneration. For this purpose, quince seed mucilage was mixed with aqueous carboxymethyl chitosan solution and they were crosslinked with poly(ethylene glycol) diglycidyl ether at three different concentrations. Then the samples were freeze dried to obtain 3D porous structure. The morphologies, chemical structures, mechanical properties and swelling capacities of the scaffolds were characterized by SEM, FTIR, texture profile analysis and swelling test, respectively. As a result, the obtained hydrogels could be promising scaffolds for skin tissue engineering applications.

Keywords: quince seed mucilage, therapeutic agents, carboxymethyl chitosan, hydrogel, scaffold



Genetic Resources and Diversity among Sheep Breeds of Asia and Europe

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Abstract:

Sheep has been domesticated southwestern Asia for about 8000-9000 years ago and represented one of earliest livestock species. Molecular genetics provides information among the relationships between breeds and populations and inherited genes present within the breeds. Genetic variation at continent level between the native sheep breeds can provide the understanding of their origin and dispersal with respect to how human played role in the distribution of breeds. Paleontology with the help of molecular genetics provides great information about origin and dispersal of sheep. Autosomal microsatellites used for the understanding of population history as well as the relationship between the Europe and Asia sheep breeds. As sheep is considered one of the earliest livestock species, it has important role in domestication process. Ancestor relationship can be investigated through mtDNA data. Haplotype groups differ in sequences by any extent of *Ovis* species. Haplotype A and B are two of most important haplotype groups. Haplotype A carries Asiatic mouflon (*Ovis Orientalis*) while Haplotype B carries European mouflon (*Ovis musimon*). Actually Haplotype A and B are both found in Asia while Haplotype B only dominates in Europe so sheep decent from one or more Asiatic mouflon. Haplotype C also found in Turkey, Portugal, Caucasus and China while Haplotype D present in Karachai sheep from Caucasian. Haplotype E which is very rare and only found in Turkey.

Keywords: livestock, mtDNA, haplogroups, ancestor, relationship



Camel Milk Lactoferrin; Nutraceutical Supplement against COVID-19 Infections

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Abstract:

The protective proteins and enzymes of camel milk like immunoglobulins, lactoferrin, lysozyme, lactoperoxidase and peptidoglycan recognition protein have anti-microbial and immunological properties against infections. Lactoferrin was isolated from cow and buffalo but the camel milk has the highest concentration in compared to the other livestock. The camel milk lactoferrin was 10 times higher in compared to cow's milk. Lactoferrin as nutraceutical supplement boosts the immune system by activation, proliferation and modulation of the phagocytic action of immune cells. The lactoferrin is against DNA and RNA viruses and binds viral particles, inhibits viral adhesion and virus entry into the target cells. Lactoferrin hindered RSV uptake and infectivity. Lactoferrin has also showed antiviral effects against human parainfluenza virus type 2 infections by preventing virus adsorption to the cells and preventing viral replication. Administration of lactoferrin by 100-1000 mg in humans reduced the incidences of colds. Generally, camel milk lactoferrin may directly interact with viruses or receptors on the cell surface, prevent the virus attachment to the cells, and prevent infection. It is proved that the most therapeutic effects of camel milk are due to lactoferrin and Immunoglobulins. The boosting host immune system by nutritional supplements such as lactoferrin may be effective against SARS-CoV-2 entry into the host cells. Because of the homology in genetic sequence and receptor binding domain between SARS-CoV and SARS-CoV-2, lactoferrin may prevent SARS-CoV-2 invasion same to SARS-CoV, by binding receptors and prevent the viral infections. Although if there is no published studies on using lactoferrin against SARS-CoV-2 entry into host cells but the interaction of lactoferrin with viral receptors happens in the primary phase of virus infections as well as coronaviruses. Camel milk lactoferrin may be a novel method as preventative agent for severe cases of COVID-19. However, it needs more clinical trials to prove its efficacy on prevention and treatment of COVID-19 infections

Keywords: Camel milk Lactoferrin, COVID-19, Anti-viral

Evaluation of Biological Control By *Trichoderma* spp. Against Fusarium Wheat Diseases in Algeria

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Abstract:

In this study, the biocontrol potential of fifteen unidentified isolates of *Trichoderma* (T1 to T15), isolated from different rhizosphere soils and Algerian ecosystems was evaluated against four strains of *Fusarium culmorum*, the main causative agent of Fusarium crown rot (FCR), and Fusarium head blight (FHB). The efficacy of biological control by *Trichoderma* spp., confirmed by *in vitro* tests (direct and indirect confrontation), was evaluated by *in vivo* bioassays. The *in vitro* results showed a significant inhibition of mycelial growth of *F. culmorum* species compared to control. The highest percentages of inhibition were obtained by T9, T12, T14 isolates causing a maximum inhibition percentage of 81.81%, 77.27% and 80.68%, respectively. T14 has been selected for biocontrol in *in-vivo* testing. The tube and pot experiments for FCR against *F. culmorum* showed T14 to decrease the disease severity with % reduction of 50% and 63.63% respectively. In greenhouse experiments, FHB infection was significantly reduced by T14 in all durum wheat cultivars tested with the area under the disease progress curve (AUDPC) standard, where %AUDPC reduction = 49.77%, 43.43%, 48.25% and 74.60% for Simeto, Waha, Bousselem and Setifis genotypes respectively. Yields also increased significantly for almost all cultivars. The antagonistic T14 was characterized based on molecular tools using translation elongation factor1-alpha (TEF1- α) and internal transcribed spacers rDNA (ITS1). The results identified T14 as *T. afroharzianum* with accession numbers attributed by NCBI Genbank as MW171248 and MW159753, respectively. We concluded that *T. afroharzianum*, evaluated for the first time in Algeria as biocontrol agent, is a promising biocontrol approach against FCR and FHB.

Keywords: *Triticum durum*, *Trichoderma*, *Fusarium*, biocontrol.



Smart Care-Wound Healing Hydrogels: Recent Advances

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Abstract:

The wound healing is complex phenomenon, and is seen as major clinical challenge. To break the status of “Black Box”, the wound healing process is now supported by next generation wound healing dressings. The next generation wound dressings have the ability to perform the real time data monitoring, diagnosis of infection at pre-stages and on demand drug release. Among the primary smart care wound dressings Hydrogels had gained top notch category. They have advantages such as potential to mimic the skin microenvironment, and able to settle itself according to amount of moisture required for wound healing. They can be applied as permanent or temporary depending on usage and site on which it is applied and supports the regeneration and healing of injured epidermal layers. Hydrogels may further be classified on basis of type of material used such as Natural or synthetic. They also have capability to reinforce the nanoparticles, as in situ hybrid hydrogels. Moreover, nano-electronic sensors can also be embedded in hydrogel bed to gather information about micro environment of wound round-a-clock. This presentation shall be defining the recent advances in field of smart hydrogels for wound care applications.

Keywords: wound healing, hydrogels, biopolymers, drug delivery



Genetic Variability of Glutenin Subunits in *Aegilops geniculata* Grown in Algeria

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Abstract:

Aegilops geniculata Roth is an annual grass relative to cultivated wheat and is widely distributed in North Algeria. Endosperm storage proteins of wheat and its relatives, namely glutenins and gliadins, play an important role in dough properties and bread making quality. In the present study, the different alleles encoded at the four glutenin loci (*Glu-M1*, *Glu-U1*, *Glu-M3* and *Glu-U3*) were identified from thirty five accessions of the tetraploid wild wheat *A. geniculata* collected in Algeria using Sodium dodecyl Sulfate - Polyacrylamide Gel Electrophoresis (SDS-PAGE). At *Glu-M1* and *Glu-U1* loci, encoding high molecular weight glutenin subunits (HMW-GS) or A-subunits, 15 and 12 alleles were observed respectively, including one new subunit. B-Low molecular weight glutenin subunits zone (B-LMW-GS) displayed a far greater variation, as 28 and 25 alleles were identified at loci *Glu-M3* and *Glu-U3* respectively. Thirty two subunits patterns were revealed at the C subunits- zone and a total of thirty four patterns resulted from the genetic combination of the two zones (B- and C-zone). The wide range of glutenin subunits variation (high molecular weight glutenin subunits and low molecular weight glutenin subunits) in this species has the potential to enhance the genetic variability for improving the quality of wheat.

Keywords: alleles, electrophoresis, goatgrass, glutenins, polymorphism.

Analysis of Total Vitamin D in Meat, Liver and Hump of Camel

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Abstract:

Camel meat is known for its low fat and cholesterol content, and its high amounts of essential amino acids, vitamins, minerals and polyunsaturated fatty acids compared to red meats from other livestock. The objective of the present study was to analyze the content of total vitamin D in camel meat. Eight camels (*Camelus dromedarius*) (6 males and 2 females), aged 6 to 14 years and weighing 260 to 390 kg were used. After halal slaughter without stunning, samples of muscle (*Triceps barchii*), liver and hump were taken, then packed in sterile polyethylene bags, labeled and were then kept in the refrigerator at 4±1°C for 3 hours and 7 days *postmotem*. Tissue extracts were prepared and then stored at -80°C until assays for total vitamin D. The assays were carried out in duplicate at the National Center for Energy, Sciences and Nuclear Techniques of Maâmoura, Morocco, using kits marketed by DIA source (Immuno-essays AS, Nivelles, Belgium). The contents of total vitamin D (ng/g) in meat, liver and hump in camels were 45.95±9.06, 68.90±6.38 and 92.40±11.79 respectively at the 3h storage stage. These values were not significantly different from those measured at stage d7. The total vitamin D contents (ng/g) in the liver and the hump were significantly (P<0.05) higher than those in meat (respectively, 68.90±6.38 vs 45.95±9.06 and 92.40±11.79 vs 45.95±9.06 at the 3h stage, and respectively 55.31±8.11 vs 36.78±7.24 and 82.27±9.86 vs 36,78±7.24 at d7). The results of the study showed that the hump was the richest tissue in total vitamin D, and that the camel could be a significant source of vitamin D for the consumer.

Keywords: camel, vitamin D, muscle, liver, hump.



Salmonella Risk in Poultry Meat

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Abstract:

In animal products, poultry meat has a great importance in terms of high nutritional value and meeting the protein needs. Poultry meat and its products create a very suitable environment for the reproduction of many pathogenic and nonpathogenic microorganisms. Salmonella is defined as one of the most common zoonotic food-borne pathogens that cause gastroenteritis in humans worldwide, causing major public health concerns by causing such as morbidity and mortality problems s causing a disease called salmonellosis. According to 2012 data of the Centers for Disease Control and Prevention, Salmonella estimated is to cause about 1.35 million infections, 26.500 hospitalizations and 420 deaths in the United States every year. Salmonella infections in humans occur mostly in places where canteens, dormitories, cafeterias, hospitals, restaurants, etc. Poultry meats and products are considered as an important source of the infection of Salmonella bacteria to human beings. Salmonella contamination can occur during primary production, cutting, processing or later stages of the supply chain, due to poor hygienic conditions and improper product handling. Various techniques have been developed and applied for many years to control degradation and pathogenic microorganisms. Ensuring the safety of poultry meat with early detection of foodborne pathogens is considered as the main factor in preventing Salmonella contamination. In addition, the animals raised for food production should be healthy, contamination of forage and forage additives with salmonella should be prevented, In heat treatments applied during food production, attention should be paid to control of heat-time parameters, prevention of secondary and cross-contamination is known as effective methods to prevent salmonella infections. In this review, information about the risk of having salmonella in poultry meat and poultry products and public health, infections, control measures and prevalence is given.

Keywords: salmonella, poultry meat, public health, food



Short Chain Fatty Acids and Their Effect on Health

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Abstract:

The aim of this study is to provide information about the production of short chain fatty acids and their importance for health. Short chain fatty acids are formed by fermenting indigestible carbohydrates in the small intestine by bacteria in the colon. They are organic fatty acids containing one to six carbons. Short chain fatty acids, especially butyric, propionic and acetic acid affect many systems and metabolic pathways in the human body. Butyric acid is the main energy source of colon epithelial cells and supports intestinal barrier integrity and motility. Propionic acid has a glycogenic effect and regulates glucose metabolism by increasing gluconeogenesis in the liver. Acetic acid is more effective in peripheral tissues. Another of the metabolic processes in which short chain fatty acids play a role is appetite regulation. They provide suppression of orexigenic neurotransmitter synthesis like ghrelin and increase of anorexigenic neurotransmitter synthesis like leptin. In addition, short-chain fatty acids prevent chronic inflammation in the body by suppressing inflammatory cytokine synthesis and triggering anti-inflammatory cytokine synthesis, suppress tumor formation by triggering apoptosis and prevent insulin resistance by increasing the sensitivity of receptors in tissues to insulin. The observation of all these positive effects is related to the health of the gut microbiota and the consumption of adequate amounts of dietary fiber resistant to digestion. As a result of the study, it was revealed that consuming more prebiotic foods, especially resistant starch, increases the number of beneficial bacteria species in the colon and short chain fatty acids have antiobesogenic, antidiabetic, anticancer and anti-inflammatory effects.

Keywords: dietary fiber, short chain fatty acids, colon health



Folk Medicine Study in Pediatrics: Use of Traditional Knowledge in Primary Care (In Mascara Western Region of Algeria)

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Abstract:

To achieve the most comprehensive catalogue of medicinal plants and to collect general information on the therapeutic uses of childhood diseases identified by the local population in the area, a floristic and ethnobotanical analysis was carried out in the Mascara region. This investigation was carried among 200 persons, surveyed using semi-structured questionnaires to investigate herbalists as the data holder (gender, age and level of education) and wild medicinal plants (local name, uses, and part used). Moreover, on these plants, phytochemical research was also carried out. As a consequence, of the plant species described, *Carum carvi*, *Cuminum cyminum*, *Pimpinella anisum*, *Ferula communis*, *Lawsonia inermis*, *Ruta chalepensis*, *Punica granatum* are the most cited for childhood diseases (11 species). The majority of childhood illness treatments are administered as infusions (49%) and decoctions (34 percent). The doses of the medicinal plants used were not recommended by any of the respondents. The review of the findings, referring to the relationships between the medicinal species and the types of diseases treated, revealed that the majority of these species are mainly used for digestive and respiratory treatment. The identified characteristics of these plants found during the research are associated with the active fractions of flavonoids, tannins, alkaloids, saponosides, anthocyanins, sterols and triterpenes shown in the phytochemical study. The DPPH test showed that plant extracts from the plants tested had antioxidant activity. For the studied area and for the national medicinal flora, the findings obtained constitute a very useful source of knowledge. They may serve as a database for further study in the fields of phytochemistry and pharmacology and for new natural substances research purposes.

Key words: Childhood diseases, Herbal medicine, Traditional medicine.



**Prevention of COVID-19 Transmission in Dental Healthcare Settings:
A review**

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Abstract:

Dentistry is one of the most exposed professions to respiratory diseases e.g. covid-19 and due to its airborne transmission, aerosols created by dental treatment of infected individuals have become a potential chance of transmission. The objective of this review was to assess the existing infection control measures taken in dental health-care settings, minimizing treatment mistakes and improving the measures of infection transmission. The method focused on patient's medical history screening by the dentist before starting the operator, personal safety and hygiene measures, personal protection equipment, surface asepsis, instrument processing, patient treatment and proper disinfection of the working place and the instruments are required against communicable infections. This review article presents various aspects of cross-infection control in dental environment. Provision of dental care is not free from risk. Cross-infection during clinical practice can occur with transmission of infectious agents between patients and health workers in a clinical environment through infected air droplets, blood, saliva and instruments contaminated with secretions. It was found that the commonest known methods of disinfection of dental instruments were by the autoclaving, followed by the using of disinfectant agent, boiling and washing. The very important thing is patients didn't know any information about these methods. In addition, the right management of clinical dental waste is very important. As conclusion, infections could be transmitted in the dental operator through several routes. A good attitude towards infection control in dentistry was prevailed among patients attending dental healthcare settings. Knowledge and the self-reported practice in dentistry need some improvement about cross-infection.

Keywords: infection control, Covid-19 in dentistry, infection transmission, precautions of Covid-19 spread, clinical dental waste.



Characterisation of the Metabolism of Pyocyanin in Vitro and in Vivo

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Abstract: Pyocyanin (PYO) is the typical virulence factor secreted by ubiquitous *Pseudomonas aeruginosa*, posing a critical risk for One Health. It has been shown to have numerous toxic effects especially its contributions to the persistence of *P. aeruginosa* associated infections. However its pollution and metabolism has not yet been fully investigated. Notably, we found the routine dose of chlorine dioxide disinfectant could not eliminate *P. aeruginosa* completely through chlorination experiments. We collected 30 isolates from clinical patients and 31 isolates from drinking water, determined PYO was an extensive contaminant in environment by detecting the expression. The results showed that 75% *P. aeruginosa* (53% clinical isolates and 100% environmental isolates) could secrete PYO with high expression. To better understand the metabolism of pyocyanin, metabolites of PYO in liver microsomes of rat, chicken, swine, human and in rats were identified and elucidated using ultraperformance liquid chromatography–quadrupole/time-of-flight hybrid mass spectrometry (UPLC-Q/TOF-MS). As a result, there were totally 16 metabolites of PYO identified liver microsomes and 8 metabolites in rats, three typical metabolite (demethylation, oxidization, glucuronidation) were detected both in liver microsomes and in rats. The main metabolic pathways of PYO were found to be demethylation, dehydroxylation, methylation, oxidization in liver microsomes. Lastly, our results revealed that demethylation, cysteine conjugation and glucuronidation were the major metabolites for rats. This work provides the PYO metabolite profiles in rats and human, which will help better to understand the pharmacological and toxicological activities of PYO.

Keywords: PYO pollution; expression; metabolism.

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Color and Color Changes in Red Meat

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Abstract:

Red meat is an important food for humans as a source of animal protein. There are points to be considered in the selection and consumption of red meat. These important points inform us about meat thanks to some physical and chemical analyzes. In the physical analysis of meat, the color, pH value, water activity and texture are determined. In chemical analysis of meat, decay is determined. While the analysis gives us information about meat, it also allows us to understand the effect of these factors on the color of the meat. Hemoglobin and myoglobin are important pigments that responsible for the color of red meat. The protein that responsible for the color of the meat is especially myoglobin. When myoglobin is reduced, that is, it turns into a ferro form, it combines with water or oxygen. Molecular oxygen only reacts with the reduced iron of myoglobin. With this reaction, the desired red fresh color is obtained. In the whole uncut meat, myoglobin is in reducing form and reacts only with water. This pigment form is purple in color and is called deoxymyoglobin. There are four major chemical forms of myoglobin, and they are deoxyimyooglobin, oxymyoglobin, methyoglobin, and carboxymyoglobin. Deoxymyoglobin, oxymyoglobin and metmyoglobin give the meat a purple-red or purple-pink color, a bright cherry red color and brown color, respectively. Methymyoglobin is a form of pigment that is undesirable to form on the meat surface. The amount of myoglobin in the muscle, age, muscle type are factors affecting meat color. As a result of the reaction of chemical forms of myoglobin with bacteria, green-brown changes in meat occurs. In this review, information is given about the causes of color and color changes in meat.

Keywords: Red meat, Color, Hemoglobin, Myoglobin



A Review-Importance of Calf Nutrition and Colostrum Management

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Abstract:

In the livestock management and husbandry practices, first 3 months of calves, are considered as the most sensitive and critical as compared to rest of the life of young calf. In this sensitive period the calves undergo different kind of stressors e.g. nutritional, biological and environmental whereas performance of the calves entirely depends on how the caretakers handle, take care and manage this sensitive period. In this critical period, calf nutrition is one of the most important aspect that needs detailed, scientific and though attention because a minute ignorance can make drastic consequences on the health of newly born calves. Colostrum feeding to the newly born calves is an important and very crucial part of calf nutrition because it protects the calves from many diseases by transferring antibodies from dam to its calf. The aspect of calf nutrition important because if the calves are males it will affect the muscle development of growing calves which will lead to improved meat production. On the other hand if the calves are females then it will affect the health status of heifers which ultimately leads to the improved milk production after parturition. All of these aspects need special and relevant expertise in order to formulate the feed for calves. But if specifically the female calves are discussed then the milk production of herd entirely depends on how the female calves or heifer are raised and taken care.

Keywords: calf nutrition, colostrum, jersey heifers, calves, livestock management



Adenomyoma of the Duodenum: Case Report

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Abstract:

Adenomyoma of the duodenum is a rare benign tumor. It is characterized by a mixture of glandular structures with intervening bundles of smooth muscle. Adenomyoma occurs mostly in the stomach, occasionally in the duodenum and biliary tract and extremely rarely in the small intestine. A 54-year-old man admitted to the hospital with a 3-month history of nausea and epigastric pain. Endoscopically, a polypoid lesion was observed in the duodenum. Microscopically, lesion consisted of glandular formations lined by columnar cells and surrounded by smooth muscles. With these findings, we diagnosed the case with adenomyoma. Discussion: Adenomyoma was the first described by Magnus Alsleben, in 1903. The pathogenesis of this tumor is not well defined. It is generally considered to be a form of hamartoma or a pancreatic heterotopia. It has several synonyms such as myoepithelial hamartoma, adenomyomatous hamartoma and foregut choristoma. Symptoms of adenomyoma of the GI tract depend on the location of the lesion and patient's age. In this article, we aimed to present a rare case of adenomyoma in the duodenum with typical histomorphological features.

Keywords: adenomyoma, duodenum, hamartoma, benign



Development of a Method for the Determination of Dyestuffs by Solid Phase Extraction Method

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Abstract:

The increase of environmental problems due to industrial development is a fact. One of the major problems is the existence of dye materials in textile wastewater. Even though the dyes discharged to the receiving environment constitutes only a small portion of water pollution, it is undesirable, especially in developed countries for esthetics and ecology. Also, Dyes may spread toxic and carcinogenic metabolites in anaerobic conditions. Dyes can be treated by physical and chemical methods to prevent pollution in the aquatic environment. In the case of liquid samples, the most commonly used sample pretreatment is analyte extraction using solid phase extraction (SPE) to achieve the required low detection limits. Solid phase extraction (SPE) is a preconcentration or separation technique used in the analysis of complex matrices or low concentration analytes. SPE is based on the transfer of the analyte in the liquid phase to the active areas of the solid phase. SPE is carried out in four stages. In the first step, the solid phase is conditioned with a suitable solvent. With this process, impurities on the solid phase surface are removed. In the second step, the analyte is passed over the solid phase. At this stage, some of the matrix components containing the analyte may be attached. In the third stage, the solid phase is washed with a solvent that has a low elution intensity and allows the matrix components to be removed from the solid phase surface. Finally, the analyte is obtained from the solid phase surface with the help of a solvent that prevents the matrix components from being removed at the same time. In this study, coriander seed was used as a solid phase in the SPE method. Equal concentrations of methylene blue and methyl orange solutions were passed through the conditioned solid phase. After all steps were carried out, the dyestuffs were obtained from the solid phase surface with the help of a suitable solvent. The % recovery value of the obtained solutions was determined using UV spectrometry.

Keywords: solid phase extraction, coriander seed, methylene blue, methyl orange.

Comparison of Protein and Oil Levels of *Salmo trutta macrostigma* Grown in Trout Farms and Grown in Natural Environment

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Abstract:

Aquaculture in the world started with fish farming studies in fresh waters. Turkey also known for our fish farming, fish farming comes primarily conducted in freshwater. Trout is of great importance among the fish species grown in freshwater in our country, as in the world. Trout, which prefers clear, cool and oxygen-rich waters in terms of living environment, is among the first fish remembered by our people, especially for its delicious meat. Trout species are systematically included in the Salmonidae family. Trout farming has shown a rapid increase due to its characteristics suitable for culture conditions and has become an industry today. It is preferred to be produced due to its properties suitable for trout farming. These features; trout's adaptation to environmental conditions very well, especially being resistant to high temperatures proportionally, being easy to feed due to active feed, better feed evaluation, good growth, shorter incubation period at high spring temperature. Therefore, in this study, it was aimed to compare the protein, oil and ash levels of *Salmo trutta macrostigma*, which is very valuable in trout class, both in natural environment and those grown commercially. The fish to be used in the study were obtained from the farm where *Salmo trutta macrostigma* was produced commercially and *Salmo trutta macrostigma*s in the natural environment. Fishes were brought to the laboratory and protein, fat and ash analyzes were made in the muscle tissues. Protein determination of prepared tissues, Kjendahl method It was made using. Soxhlet device for fat determination was used. Determination of ash, ash at 550 °C of prepared feeds It was determined by weighing the residue after being ashed in the oven. In the study; It was determined that the protein level was higher in *Salmo trutta macrostigma* fish in the natural environment, and the oil percentage was higher in *Salmo trutta macrostigma* fish raised in the farm. It has been determined that the ash content is approximately at the same level. As a result, in the study, it was determined that the protein, oil and ash ratios of *Salmo trutta macrostigma*s grown in farm and natural environment differ.

Keywords: *Salmo trutta macrostigma*, Oil, Protein, Ash.

Bone Grafts and Usage of Cuttlebone as a Bone Graft

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Abstract:

Bone grafts are widely used to fill bone defects in the treatment of musculoskeletal injuries / diseases including trauma, bone fractures, delayed union, nonunion of fractures, osteosarcoma, and birth defects, and can be classified as autografts, allografts, xenografts and other biomaterials (e.g. ceramics and polymers). The gold standard for bone graft therapies is the autograft, which has osteoconductive (guiding the reparative growth of the natural bone), osteogenic (living bone cells in the graft material), and osteoinductive (encourage undifferentiated cells to become active osteoblast) features. Cancellous, vascularized cortical, nonvascularized cortical, and bone marrow grafts are the current autogenous bone grafts. Autogenous cortical bone grafts are mostly osteoconductive, but have little or no osteoinductive properties and can be collected from the fibula, ribs and iliac crest. Cortical grafts provide excellent structural support, which are good choice for large segmental defects. Allografts, harvested from one individual and implanted into another individual of the same species, overcome the limitations of donor site morbidity and have osteoconductive properties, they have limited osteoinductive properties and availability. Xenografts can be as an alternative grafts which reduces the immune response. These would appear to be biocompatible and are presently a component of various bone graft preparations, bovine, porcine or equine usable as xenograft. Preventing the problems caused by xenografts and autografts such as donor site morbidity, risk of disease transmission, and immunogenicity, synthetic bone substitutes have been developed. Synthetic bioceramics (bioactive glasses and calcium orthophosphates) are majorly suited for these applications. Among them, hydroxyapatite (HA) is widely used in orthopedic applications because it can be easily obtained by natural sources. Moreover, cost-efficient also makes HA more popular for clinical bone grafting and implantation. Materials including HA such as eggshells, marine algae and coral have been reported. Numerous experimental studies have been conducted on cuttlebone (Cuttlefish bone) which contains high level of HA. Furthermore, porous structure of cuttlebone can allow physical contact with the host tissue and facilitates mineral exchange and vascularisation. This review was aimed to give information about the various types of bone grafts and using cuttlebone as a bone graft.

Keywords: Bone graft; Cuttlefish; Xenograft.



Covid-19 Pandemic and Dietary Patterns

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Abstract:

Having first appeared in the Huanan Seafood Wholesale Market in Wuhan, China, in December 2019, the SARS-COV-2 respiratory virus (Severe Acute Respiratory Syndrome Coronavirus 2) soon began to affect the whole world. When the virus is transmitted, an infected person becomes a carrier for 14 days and, if the infection results in the COVID-19 disease, they will show mild or severe symptoms that vary from person to person (or none at all in the case of asymptomatic carriers). The most common ones are cough, body pain, loss of taste, and smell. The drugs currently used in the treatment reduce the severity of symptoms but do not directly affect the virus. Vaccines of varying efficacy are being developed, and more than 37.9 million people worldwide are currently reported to have been vaccinated. Although treatments for COVID-19 are relatively uncertain, there are ways to maximize protection from the virus which causes it. These include shielding for the vulnerable, avoiding crowded areas, particularly indoors, ventilation of indoor spaces, social and physical distancing, mask-wearing outdoors, and frequent handwashing with soap and water. The high rate of consumption of saturated fats, sugars, and refined carbohydrates (called a Western diet, WD) worldwide, leads to an increased prevalence of obesity and type 2 diabetes. Individuals with chronic diseases are also at an increased risk for COVID-19 pathology and mortality. WD activates the innate immune system and impairs adaptive immunity, leading to chronic inflammation and inhibits host defense against viruses. Furthermore, peripheral inflammation related to COVID-19 may have long-term consequences such as dementia and neurodegenerative disturbances. These chronic diseases can occur through neuroinflammatory mechanisms associated with an unhealthy diet. An adequate and balanced Mediterranean diet rich in antioxidants, vitamins, minerals, and fiber is crucial for immunity. Adequate amounts of vitamins A, B, C, and D, which are involved in the maintenance of the immune system, should be available in the diet and supplemented in the event of deficiencies.

Keywords: Covid-19, pandemic, immunity, dietary nutrients



L-Theanine Reinforcement in Noise Phobia Treatment in a Doberman Pincher

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Abstract:

Behavioural problems are quite common among dogs and it is still considered one of the most common reason of relinquishment and euthanasia. Phobias, anxiety and fears cover a high percentage of these behavioral problems in dogs. Phobia means an exaggerated response that include active avoidance, get away and anxiety behaviors to a consistent stimuli or a set of stimulus. Noise phobia comprise a significant proportion of dog phobia cases and a struggling problem to handle due to gruelling treatment processes. The aim of this report is to point out the profitable results of sertraline and L-theanine which is not generally included in the conventional treatment of noise phobias. A spayed female, 2 years old Doberman pincher was referred to our clinics with a history of severe noise phobia (motorcycle, fireworks, car horns etc.) problem for 18 months. The owner adopted the dog from the mother and were living in a single house with a garden. The phobias started at 6 months age with panting, pacing, trembling, yawning, hiding, yelping, drooling and escaping behaviors. The owners did not recognize any spesific event accompanying the first phobic attack. The dog was the only pet and no small children was present in the family. Also, all circumstances were optimal including socialization, food, exercise etc. The treatment was started with sertraline at 2 mg/kg sid (Lustral / Pfizer©) and dose was increased to 3 mg/kg a week later. Concordantly L-theanine was started 50 mg/day (L-theanine / Life Time). Desensitization therapy was started a couple of weeks following the medical treatment iniation. Alleviation of phobic symptoms and fading of attached behaviors like panting, pacing, trembling, yawning, hiding, yelping, drooling and escaping was achieved in 6 weeks. Noise phobias in dogs may and must be treated in order to establish a life long, optimal owner-dog attachment and L-theanine, combined with an SSRI is a convenient medical treatment protocol, supplying a suitable basis for desensitization therapy.

Key Words: dog, noise phobia, L-theanine, sertraline



How Does a Food Company Meet the EU Approval Requirements, and Takes into Account *Listeria monocytogenes*? A Field Report.

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Abstract:

An introductory description is given of how EU food law regulates that foods want to be placed on the EU market. The aim of the European regulations is to ensure food safety at a high level in the European Union. The main responsibility for the safety is in the hand of the food business operator. Companies must implement food safety programs and procedures based on HACCP principles. The aim of the poster presentation is to explain how to deal with deficiencies. Pictures show how different the design of flexibility can be and where there are limits. The results of audits to fulfill the requirements is discussed. As method it will analyze the problem of the practical feasibility of the hygienic requirements. It shows the conditions under which a technically correct implementation can take place, how processes can be optimized and the corresponding control points identified. One focus of the article should be on the status of compliance with legal requirements. Another point there are also been problems with listeria in products and in production line in companies for years. Listeria were repeatedly detected in the rooms and on the utensils. However, significant organizational, structural and conceptual changes have only partially minimized the germ pressure in the company. The causes are explained and findings are discussed. Opportunities to reduce listeria and other germs in the processing rooms of food processing companies are reported, as practical experience. In result and summary, the challenges and approach to fulfilling the legal requirements for a food company to bring safe food into the market are presented, especially considering listeria as an uncanny, invisible danger for all food manufacturers are reported from the field.

Keywords: EU requirements, *Listeria monocytogenes*, Report



Biotechnological Approaches in Pesticide Remediation - A Review

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Abstract:

Bioremediation is a process of breaking down the nutrients using biological processes under optimal environmental conditions. Current review will focus on the various types of bioremediation, the various technologies surrounding it, and their advantages and disadvantages. Focusing on the application of nutrients alone will not reap expected scientific benefits, but, a combination of applying nutrients and microbial augmentation will be more advantageous. Bioremediation, also known as environmental biotechnology, is a form of biotechnology that seeks to reduce the environmental pollutants, which has become one of the best alternatives that counteracts the use of products and physical-chemical processes directed to the same end. In a real world scenario, hydrocarbons are sensitive to biodegradation, some more easily than others. When a spill occurs in the water, the continuous movement caused by wind and waves produces mixtures of compounds on a microscopic scale. This is where bacteria such as pseudomonas, corynebacteria, mycobacteria, seaweed and yeasts begin to process the degradation of those aliphatic and aromatic components, which can be oxidized by microorganisms. In this review, the author discussed importance of focusing environmental policies towards achieving sustainable development in individual nations. There is also a serious need of managing natural resources rationally and responsibly towards preventing harmful consequences that otherwise affect our environment. The current review also stresses on the very technologies and various steps towards the manipulating processes of bioremediation in order to make it more scientifically and financially available for addressing the contaminated environment.

Keywords: bioremediation, biodegradation, phytoremediation, pesticides, microorganisms



The Prediction of Fatal Growth Restriction in Preeclamptic Patients by Alpha-1-Antitrypsin

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Abstract:

We aimed to verify the role of maternal serum levels of alpha-1-antitrypsin (AAT), an acute-phase inflammatory marker, as a predictive marker for fetal growth restriction (FGR) in preeclamptic women at a gestational age of 32/34 weeks. We correlate serum AAT levels to the essential fetomaternal parameters for an earlier and cost-benefit method for diagnosis. An observational study was conducted at Al-Yarmouk teaching hospital for 12 months. We enrolled 220 pregnant women at 32/34 weeks of singleton pregnancy fulfill our criteria. They were subdivided into a study group (100/220) preeclamptic women based on the American College of Obstetricians and Gynecologists definitions; and normotensive controls (120/220). Study participants were evaluated by laboratory test and ultrasound examination on the same day. Two sets of data were collected, maternal parameters; blood pressure (BP), maternal serum AAT used for comparing the two groups, mean platelet volume (MPV), platelet distribution width (PDW), and serum uric acid levels. Fetal parameters; amniotic fluid index AFI, Fetal weight centile & estimated fetal weight. A significant lower levels of AAT were reported in the preeclamptic group versus healthy controls. A negative correlation was found between serum levels of AAT and all study variables except fetal weight [systolic BP, diastolic BP, MPV, PDW, serum uric acid, fetal weight percentile, and AFI] with a correlation coefficient of; $-0.95, -0.95, -0.85, -0.93, -0.91, -0.94, \text{ and } -0.93$ respectively. ROC Curve evaluated the cut-off value for maternal serum AAT; $(0.013)\text{mg/mL}$ with the highest sensitivity and specificity, $P < 0.05$ for all. We demonstrated a reduced serum level of AAT in preeclamptic women that inversely correlates with most fetomaternal parameters used to assess FGR. These findings indicate that AAT is closely related to the pathophysiology of FGR among preeclamptic patients. It is simple, quick and correlates well with fetal parameters for FGR. Further research is recommended to validate the role of AAT in fetomaternal outcomes for high-risk pregnancies.

Keywords: fetal growth restriction, preeclampsia, alpha -1-antitrypsin, amniotic fluid index, fetal weight centile



Preliminary Data of a Survey on Approach of Animal Owners to Behavior Problems and Treatment Alternatives in Their Dogs in Turkey

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Abstract:

Animal ownership rate in Turkey has been increasing steadily in recent years. It seems like people who adopt animals do not have this degree of knowledge in terms of instinctual needs and behavioral characteristics of the animal. The manifestation of this judgment is the increasing number of animals abandoned to shelters due to significant behavioral problems and even behavioral problems that are reflected in clinics after adoption. Data presented in this poster presentation is based on preliminary data of answers of 427 dog owners in Turkey to the question on behavioral problems they observed in their dogs. The survey was presented over Google forms application, for the master thesis of the corresponding author. The behavioral problems reported were; 32,3% excessive barking, % 17,8 separation anxiety, 16,4% conspecific aggression, 28,3% aggression to cats, 17,6% aggression to foreign people, 4,9% aggression to family members, 7% territorial aggression, 9,6% biting, 8,2% anxiety, 15,5% elimination problems, 19,7% disobedience, 14,8% mating behavior towards humans, 6,1% reaction to contact, 18,7% food aggression, 7,7% aggression toward children, 15,9% phobias, 13,3% excessive emotional sensitivity, transient depressionel moods, 14,3% pica, 3% self destruction (compulsive behaviors) and only 18% of the owners had never observed a behavioral problem. The high incidence of behavioral problems (generally multipl problems in one dog) obtained in this present report are of great importance, also staggering and dissapointing, demonstrating that there is serious lack of awareness about the psychological and instinctive needs of animals, and methods of communication with animals, together with solution to behavioral problems. The data obtained from the entire survey will form an important basis for the modulation of the pet owner's reflexes in the treatment of dogs with communication problems, and behavioral problems of the dog owners, and to develop the right strategies in this field.

Key Words: dog, owner, survey, behavior problems



Production of Important Nutrients from Microalgae Important for Human Health

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Abstract:

Microalgae has been investigated for various nutraceutical products. The major nutraceuticals produced by algae include: omega-3/6 fatty acids which are specially important for improving both brain and heart health. The aim of this study is to optimization of medium composition and environmental conditions to improve biomass and total lipid content of the organism by using response surface methodology. “R” and “SPSS” programs are used to implement this statistical method. Accuracy analysis was made by comparing the results obtained from both programs. Plackett burman design was used recently as the first step in optimizing different bioprocesses to identify the factors with a significant effect on desired responses. Following the selection of the most significant factors, response surface methodology with central composite design is used to determine the optimum values of these factors. Based on contour plots and canonical analysis, a maximum biomass production of $26.86\text{g}\cdot\text{L}^{-1}$ was obtained with $2.29\text{g}\cdot\text{L}^{-1}$ monosodium glutamate (MSG), pH 5.8 cultivation conditions. Maximum lipid production of 35% was obtained with $0.49\text{g}\cdot\text{L}^{-1}$ MSG at $17.6\text{ }^{\circ}\text{C}$ temperature conditions. It was concluded that medium components specially nitrogen sources and incubation temperature significantly effect the DHA production of *Schizochytrium* sp. Optimum parameter were obtained by changing the nitrogen content and the incubation temperature of the microalgae culture.

Keywords: human health, nutraceuticals, omega-3, microalgae, statistical analysis



Fermented Foods & Dietary Supplements

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Abstract:

Fermentation is the process in which a substance is divided in simpler components until they reach their basic form. The process can stimulate vitamin and mineral absorption, can generate vitamins from B complex (including B₁₂), vitamin K, enzymes, pre/pro/para/post biotics). Prebiotics are complex sugars that help the digestive system by helping good bacteria to create a healthier environment. Prebiotics are found in natural form in cereals, honey, garlic, onion, bananas, celery, artichoke. Probiotics are bacteria that help digesting food. They're found in natural forms in Kefir, yogurt, soft drinks, pickles. Are one of the factors that can keep a healthy digestive system and as a result improve the overall health and longevity. Fermented drinks are the most popular liquids that contain probiotics. For example, beer and wine (with alcohol), cider, hydromel, kombucha tea (without alcohol) contain yeasts which help the metabolization of the sugars from fruits to produce alcohol in its natural form. Fermented drinks should be introduced in our daily diet and this change will bring a wide variety of benefits that include, but are not limited to: strengthening the immune system, helping with weight loss, lowering fatigue, maintaining bone, muscle, joint health (due to high vitamins, minerals, enzymes and probiotic contents). Our range 3xBiotic contain: herbs, bee products, milk, medicinal mushrooms, fermented in SCOBY cultures which maintain the vitality and provide a well balanced organism. We'll exemplify Col-Kefir[®] (bovine colostrum fermented with enhanced kefir granules, conditioned in powder form by atomization, formulated by Laboratorios Medica as a tri-biotic product) and Amrita[®] (polifloral pollen fermented in symbiotic bacteria and yeasts cultures which can be found in all the Kombucell 3xBiotics products that are made by Pro-Natura). The aerobic and anaerobic fermentation in SCOBY cultures break down colostrums, pollen particles, making a wide variety of proteins, oligopeptides and all essential amino acids, over one hundred enzymes, flavonoids, polyphenols, phytosterols, auxins and nucleic acids, SCFA, organic silicium, vitamins, minerals. Due this fermentation, the products contains a variety of nutrients with veterinary and human therapeutical effects, while at the same time being a great pre/pro/post biotic complex for dermatocosmetics, food supplements.

Keywords: natural fermentation, Col-Kefir[®], Amrita[®]



Bovine Ephemeral Fever in Turkey

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Abstract:

Bovine Ephemeral Fever (BEF), an economically important viral disease, was first identified in South Africa in 1906. The causative agent of the disease, also known as 3-day disease, is bovine fever ephemerovirus (BEFV) in Ephemerovirus genus in Rhabdoviridae family. BEFV was isolated from bovine blood in the 1960s and mosquitoes in the 1970s. BEF infection in cattle usually results in high fever, decreased milk production, miscarriage, lameness or paralysis, and in some cases death. To date, BEF has been reported in more than 40 countries, mainly in Africa and Asia, causing massive economic losses. The mortality of the disease varies between 1-30%, and the morbidity rate varies between 5.6-59%. It has been reported that animals that survive the disease become immune for life and rarely get re-infected. The first findings on the presence of BEFV infection in Turkey were reported in 1986. The disease, which was reported to have occurred in the country at intervals of 4-5 years (1999, 2003, 2008, 2012), was seen in Adana, Osmaniye, Gaziantep, Hatay, Adıyaman and Şanlıurfa provinces of Turkey in summer and autumn in 2008. In the same period, BEF clinical cases were seen in the province of Aydın. More than 20,000 cattle were affected across Turkey in the BEF outbreak that began in Adana province in 2012. After an 8-year break, the BEF was seen again in the southeastern region of Turkey in the summer of 2020. As a result; it is thought that BEF causes significant economic losses, especially in the south of Turkey, so it is useful to pay more attention to the fight against vectors and to minimize the effects of climate change in order to prevent the spread of the disease.

Keywords: bovine ephemeral fever, cattle, Turkey

Teeth May Kill: Severe Human Directed Aggression in Three Dogs

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Abstract:

Aggression is a frequent behavioral disorder in dogs that endangers both dogs and humans and also this affects public health. In aggression cases, the veterinarian's responsibility is significantly aggravated regarding the owners and other people/public health and safety, so the treatment strategy must be carefully planned, primarily targeting to eliminate the danger risk as soon as possible. In this presentation, we included three owned dogs with severe aggression toward owners and also foreigners. The first case was a 2.5-years old, sterilized male terrier with a history of abandonment at the first year of his life and was adopted by the present owners. Aggression started just after adoption with increasing severity. At the time of examination, attacks were at level 5 according to Dunbar's scale and he already had two police records. The second case was a 2-years old, sterilized male poodle, with a history of improper socialization, territorial aggression, anxiety, and severe aggression to both family members, especially toward the 7 years old daughter of the family and foreigners. Attacks were at level 3 according to Dunbar's scale and family members were quite frightened and discouraged due to so many bite wound experiences. The last case was a 2-years old mix breed spayed female dog, adopted from the street at about 3 months age. She presented severe aggression from 6 months age, toward foreigners and cats and she was at level 3 according to Dunbar's scale. For all three cases, detailed physical and laboratory examinations were performed, revealing the absence of any somatic disorders. Although there are many types of aggression, a suitable treatment was prescribed for the aggression against the human being in our cases. Medical treatment was started with risperidone (Risperdal 1mg/ Johnson and Johnson®) at a dose of 1mg/1m2. Aggression in all cases was alleviated in a couple of weeks and behavior modifications including desensitization and counter-conditioning were started. Both treatments were continued for 6 months and clinical success was achieved. As a result, aggression must be treated with proper medications, avoiding any medical treatment with the potential of stimulating attacks, like selective serotonin reuptake inhibitors.

Keywords: dog, aggression, bite, behavior problems, public health.



Effects of Brown Adipose Tissue on Human Metabolism and Weight Loss

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Abstract:

Obesity has become an important public health threat that is not contagious but spreads the fastest and affects all physiological functions of the body. There are assumptions that 38% of adults will be overweight and 20% will be obese by 2030. To date, strategies aimed at controlling body weight have mainly focused on reducing calorie intake and preventing food absorption. Control of body weight depends on a tightly regulated balance between energy intake and energy expenditure. For this reason, approaches aimed at increasing energy efficiency represent an alternative strategy to promote weight loss. Brown adipose tissue, one of these strategies, is found in infancy and is thought to disappear with maturation in adult humans, and has an important place in energy expenditure. The relative rediscovery of active brown adipose tissue in adults has sparked interest in this tissue as a new and viable target to stimulate energy expenditure and control body weight by promoting energy distribution. The capacity of brown adipose tissue to affect energy efficiency depends on its unique ability to dissipate energy as heat and the expression of the differential protein 1 (UCP1) found in brown adipocytes. Due to its high amount of active UCP1, it is considered by some researchers to be the only organ that can burn fat. This phenomenon occurs during non-shivering thermogenesis characterized by heat generation during cold exposure or as a minor contribution to diet induced thermogenesis. Dietary thermogenesis can be defined as the metabolic response to food intake, with a large part of the energy cost depending on the digestion and metabolism of the nutrients taken. Considering that it reduces weight gain in animals, improves glucose tolerance and insulin sensitivity, reduces the risk of type 2 diabetes, reduces free fatty acid levels in serum, high triglycerides and hypercholesterolemia, brown adipose tissue activity is considered very beneficial for mammalian metabolism.

Keywords: brown adipose tissue, obesity, diabetes, energy, body weight

The Investigation Protective Effect of *Tarantula Cubensis* Extract on Liver and Brain in Rats Induced Gentamicin Toxicity

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Abstract:

Gentamicin (GM) is an antibiotic in the aminoglycoside group that acts on gram negative bacteria. *Tarantula cubensis* extract (TCE) widely used a homeopathic product that is used in veterinary medicine. The aim of this study was to investigate the possible protective effects of TCE on gentamicin induced toxicity in rats. A total of 40 male Sprague Dawley rats were randomly divided into four equal groups. Groups; Control (0.5 ml isotonic saline, ip for 8 days), GM (100 mg/kg ip for 8 days), TCE (200 µl/kg/day, sc for 14 days), GM (100 mg/kg ip for 8 days) + TCE (200 µl/kg/day sc for 14 days). 24 hours after the last injection of each group, blood, liver and brain tissue samples were taken. Biochemical parameters (ALT, AST, ALP, GGT, total bilirubin, total protein and albumin) were analyzed using diagnostic kits. In order to evaluate oxidative stress and antioxidant status in tissues MDA, SOD and TAS were assessed. Apoptotic markers (Bcl-2 and Bax) were evaluated by immunohistochemically and histopathological changes in tissues were recorded. The results of this study showed that GM administration was increased in serum AST, ALT, ALP, GGT and total bilirubin with significant reduction albumin and total protein levels. In addition brain and liver tissues MDA were increased, SOD and TAS were decreased in GM group. Immunohistochemical evaluation showed induction of apoptosis (down regulation of Bcl-2 and up regulation of Bax) in liver and brain in GM group. Light microscopical examination of the liver and brain tissues of GM treated animals demonstrated several histopathological changes. TCE administration restored some histopathological changes and decreased lipid peroxidation, apoptosis and increased antioxidant defense, caused reduction in serum some biochemical parameters (AST, ALT, ALP, GGT and total bilirubin) and increased albumin, total protein in contrast to GM group. In conclusion TCE ameliorates oxidative damage, decreasing apoptosis and lipid peroxidation, improving antioxidant system. High dose of GM induce adverse effects on liver and brain tissue of rats. Administration of TCE with GM ameliorates these adverse effects by reducing lipid peroxidation, apoptosis and improving antioxidant defense system.

Keywords: Apoptosis, gentamicin, oxidative stress, rat, *tarantula cubensis* extract

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Postpartum Psychogenic Dermatoses in a Chow Chow

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Abstract:

Psychogenic dermatoses in dogs are self-inflicted ruining of skin integrity, due to nonsomatic etiology. Acral lick dermatitis, psychogenic alopecia, flank sucking, foot licking, foot biting, tail sucking and self mutilation are some categories of psychogenic dermatoses in dogs, which is a repetitive and compulsive behavior. The present case is a 4 years old, female Chow Chow dog. The dog was owned at 10 weeks age, had the same owner, was very socialized and did not present any behavioral or somatic problems previously. She gave her second litter 4 months ago, alas puppies were separated very early at about 4 weeks old. Following the separation of the last puppy, the dog started to excessively lick and itch her nipples, presumably due to milk retention. At the same time she started to present anxiety symptoms including digging, loss of appetite, barking, aggressivity toward foreigners and asocial behavior. Exaggerated licking and itching, together with loss of appetite resulted in general alopecia, fur structural deterioration and hyperpigmentation in mammary region. A 5 cm diameter alopecic lesion with complete hair loss appeared at the left flank due to itching and licking. Complete blood count, biochemical analyses, urinalysis and skin microscopic examination were performed and any somatic etiology were ruled out. Treatment protocol was started with 4 mg/kg sertraline (Lustral® 50 mg/Pfizer), 1 mg/kg cetirizine (Zrytec®/Ucb Pharma) and topical antibiotic, epithelizing pomades, St. John's Worth oil and Elisabethian collar. Behavioral medications are planned after 20 days of SSRI medication. Psychogenic dermatoses are frequent cases in feline medicine, but are rather occasional in dogs. Repetitive behaviors may easily turn to compulsive disorders due to learning and owner reinforcement. Generally under anxiety conditions, a behavior starts and continues even after the absence of the stimulus. Also, increased owner attention motivates the persistence of the behavior. Very early separation of the litter from the dam, is a potent anxiogenic stressor. Owner consciousness about dog behavioral and instinctive requirements is crucial for pet health. Avoiding reinforcement of the problematic behavior and eliminating anxiety are the critical points for clinical improvement.

Keywords dog, psychogenic dermatose, anxiety, behavior problems, maternal



Implications of Gene Sequence Polymorphic Variations in rs 12976445 C/T and rs10404453 A/G of Micro RNA-125a in Recurrent Pregnancy Losses in Kashmiri Population (high incidence zone)

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Abstract

Recurrent pregnancy loss (RPL) displays a clinically challenging problem affecting upto 2% of women in the reproductive age group. Normal pregnancy is controlled by several types of genes and the regulation of genes expression is tightly controlled by miRNAs. The aim of the present study was to explore association of miRNA-125a polymorphic sequence variation in RPL cases and full term healthy controls. A total of 150 women who experienced 2 or more RPL and 180 healthy controls with 2 or more full term pregnancies and 50 POC samples were recruited from the same geographical region and evaluated for SNPs in miRNA 125a by Polymerase Chain Reaction-Restriction Fragment Length Polymorphism method (PCR-RFLP), HRM analysis and Sequencing. The frequency of variant genotype CC was found more often in cases (35.4%) than controls (20.5%), with an O.R = 2.1 (C.I: 1.07-4.2) which showed a significant association with $p < 0.05$ and the recessive model (CC vs CT+ TT) were associated with risk of RPL. However, SNP rs10404453A/G, showed only single genotype GG (monomorphic) depicting insignificant association with p value > 0.05 . In this study, the polymorphism rs 12976445 C/T revealed that homozygous CC genotype was associated with the risk of RPL. Our data indicate that the C allele and CC genotype in polymorphic sequence variation has a plausible role in our RPL cases and are likely correlated with RPL.

Keywords: recurrent pregnancy loss, mirna, polymerase chain reaction-restriction fragment length polymorphism.

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Checklist



Aflatoxins; Health and Economic Impacts and Control Measures: Turkey Perspective

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Abstract:

Aflatoxins are mycotoxins that are widely found in food products such as cereals, oil seeds, spices, meat, milk and milk products and also animal feeds. Food for humans and animals could be contaminated with aflatoxins during the product processing, storage and sale. Aflatoxins are discovered in the early 1960s and became of major risk on Turkish traditional food product exportation. Since those times hundreds of research study has been conducted by the government and universities. But aflatoxins are still the most important reason for the rejection of export parties of fig, hazelnut, pistachio. The effect of aflatoxins on public health in Turkey is still unknown because of the lack of scientific surveys. Similarly, loss of livestock by aflatoxins is not determined by surveys. Because of ineffective measurement and test strategies, we couldn't be successful in preventing aflatoxin occurrence in agricultural products and food items. The key factor is the "strategy of sampling and analyzes procedure". We have to solve two dilemmas; reliable sampling needs grinding huge amount of product (30-40 kg for nuts and 100-200 kg for fig) but it is the cost is not acceptable for the producer for exporter and secondly, for more frequent tests of production officially accepted analysis methods are expensive, cheap tests are not sufficiently true and reproducible. In this submission, different sampling, sample preparation, and analytical method are discussed for their performances. Different control protocols are simulated for fig and processor (fig exporters in this circumstances) risks are estimated. Optimization of control protocol vs processor risks of different batch sizes of fig is also performed as an example.

Keywords: aflatoxin, control measures, analysis, sampling



Efficiency of Probiotic Supplementation in a Case of Dog Fear Anxiety

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Abstract:

Anxiety in dogs comprises the major part of canine behavioral disorders and is very frustrating for human- dog relationships. There are plenty of categories in canine anxiety, but about half of the cases present fear anxiety. Medical treatment, behavioral modifications and of course finding out the stressors play key role in the resolution of the problem. An important limitation of veterinary practitioners is the preconception of pet owners against pharmacological anxiolytic drugs. Botanical preparations and probiotics are new approaches in human medicine, and also studies got started in veterinary medicine. The present case is a 5 year old spayed female Wheaten terrier mix. She was owned at 5 weeks age. Onset of fear anxiety symptoms was at about 18 months of age and severity increased in a couple of months. The owners were very familiar to dog behavioral issues and household was optimal for the dog. Also no threats regarding territory, life sources or exercise limitations were present. Etiology of the anxiety disorder was presumably due to lack of proper socialization period. The dog was on selective serotonin reuptake inhibitors for the last three years and the symptoms were alleviated to an important extent. The owners were worried and reluctant to use pharmacological anxiolytics for long time, but all three trials of quitting medication resulted with returning to original symptoms, so they felt very desperate. We decided to try probiotics and prescribed daily 10 cc oral kefir containing Lactic acid bacteria (Altınkılıç Laktozsuz Kefir/ Altınkılıç A.S.) together with the SSRI they were already using. SSRI was quitted twenty days after the start of kefir and they continued with kefir. The dogs behavior was completely normal and even more contented, so the owners decided to continue kefir for life long. Gut-brain axis and the effect of colon bacteria on mood and behavior is demonstrated well with many studies. Psychobiotics are the focus of mood researches currently, and will be a new aspect in veterinary behavioral therapy.

Key Words: dog, fear anxiety, probiotic, behavior problems, kefir



Advantages of Edible Film and Coating in Seafood

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Abstract:

In the world, the seafood industry is a production area that offers a wide variety of fish, crustaceans and molluscs. Seafood is a great source of unsaturated fatty acid, huge quality, easily digested protein and many essential minerals and vitamins. However, seafood has a low amount of connective tissue so it creates an environment suitable for growth of microorganisms with its pH and water activity value. Seafood is one of the less durable and easily spoiled foods because it is rich in polyunsaturated fatty acids and easily oxidized. Thus, seafood is rapidly affected by physical, chemical and biological factors and their storage period is limited. There are three factors that lead to this quick quality loss: enzyme invasion, bacterial proliferation, fat oxidation. Therefore, it should be ensured that it is delivered to the consumer in the best quality by extending the storage period and appropriate method. Primary preservation methods applied in seafood; cooling and freezing, salting, drying, smoking, canning, marinating, irradiation and packaging technologies. In recent years, edible film coating which is a type of packaging technology has not been used too much in the industrial fields yet, but there are many researches on the technology. Edible films and coatings are derived from mainly polysaccharides, proteins and lipids that can be formed from natural materials to protect foods and enlarge their storage period. Each material has advantages when used for films. The method gives physical production to preserve food products from mechanical deterioration, microbiological and chemical activities. It has been shown that the application of edible film and coatings in seafood industries to raising the product quality and shelf-life results in a good turn on human health and wellbeing. As a result, the development in the quality of seafood products is succeeded through enrichment of sensorial attributes, slowing microbial growth and lipid oxidation. In addition, research on the use of edible film coating in fish products will continue for the purposes and its use in the industry will increase day by day.

Keywords: seafood, edible film and coating, packaging technology, spoilage

Sudden Onset of Aggression in Three Household Cats

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Abstract:

Aggression is the main behavioral reason in relinquishment and abandonment of cats and frequently encountered. In general, aggression arouses from the stressors in the environment. The behavior is a frightening and frustrating condition, due to the hazardous potential and unpredictable timing of the events. Three cats with sudden onset of severe aggression were referred to our clinics at different times. The first cat was a 3 years old spayed mixed breed female, adopted from street at about 6 weeks age. She was adopted very well to the family, with excellent elimination habits. One night she suddenly attacked the father, and following days the attacks targeted the entire household. Detailed history revealed that the cat was provoked by a sudden seat leg drop rumble and presented fear aggression. The second cat was a 20 months old spayed mixed breed female, adopted from street at about 3 months age. She did not present any behavioral problems before the owner had guests stayed for a month. Episodes of serious attacks started after the departure of the guests, presenting territorial aggression. The third cat was a 4 years old sterilized male cat, again adopted from the street at about 2 months age. He was very compatible until they move to an apartment floor neighboring to a family with a dog. They saw each other at the balconies, and both were reactive. Reactive behavior redirected to the owners, and they felt very frustrated. Physical examinations, serum, blood, and urine analysis were performed ruling out and somatic disorders. Detailed interviews were done in order to find out the exact stressors and the dynamics in household. Sertraline was started at 3 mg/kg sid (Lustral / Pfizer©) with a cat pheromone (Feliway®). The owners were informed about the behavioral modification including desensitization therapy and counter conditioning. Aggression seems a really frustrating problem in cats, but generally is treated successfully with proper medical treatment and behavioral interventions. Awareness of feline behavioral dynamics and issues are crucial for behavioral health.

Key Words: dog, fear anxiety, probiotic, behavior problems, kefir



Aggression due to Endocrine Etiology in Two Dogs

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Abstract:

Estrogen and testosterone, which have a significant effect on energy metabolism, seriously affect the behavior of animals. Aggressive behavior, frequent urination, affinity to objects, and the desire to mate, which occurs when a male dog is seen, are common behaviors during the period of resentment. Non-physiological behavioral problems also occur widely in animals. Aggression accounts for the vast majority of dog behavior problems. Human aggression accounts for 54% -67% of these cases. It is believed that gonadectomy or hormonal applications may have an effect on these behavioral problems. There are studies that report positive on the behavioral effects of gonadectomy in dogs, as well as studies that report negative. Our hospital from 3 and 4 years old, female, respectively, Golden retriever, Doberman Pincher in two dogs of the breed and physiological behavior after behavior modification and use of medroxyprogesterone acetate for the purpose of patient exhibited abnormal behaviors such as aggression owners indicated that increases in attack. All three clinics he went to were given the option of neutering themselves. The sick owners did not want their dogs to undergo an ovariohysterectomy operation. This human behavior of patients after hormonal administration has been characterized as endocrine aggression. Patients were informed about behavioral modification and atypical antipsychotic Risperdal oral Solution 1 mg/1 mL, 100 mL sid (1 mg/m²) was used in patients. A month later, it was reported that patients led a quiet life and that attacks on the patient owner had disappeared.

Key Words: aggression, behavior problems, dog, endocrine



Anterior Mitral Valve Orifice in a Dog

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Abstract:

An 8 year old Golden Retriever dog exhibiting epileptic seizures with hypothyroidism revealed bradycardia on the ECG. 2-D, M-Mode, PW, CW and Color doppler examinations were performed. Left-ventricular hypokinetic and mitral and tricuspidal valve movements were observed with limited M-Mode imaging. Anterior mitral orifice of 2 mm width was detected on septal mitral valve by PW doppler and color doppler. With this orifice, the presence of regurgitant jet, which covers LA at a rate of 1/3 and was 2 m / sec, together with mitral regurgitation (0.5 m / sec.), was demonstrated. PISA calculations; VFR (mL / s), ERO (mm²) and RVol (mL / pulse) values were calculated as if there were mitral regurgitation and data were obtained for mild-moderate mitral regurgitation. Therefore, no operative treatment of the orifice was recommended. Mitral valve orifice is a rare pathology and this is the first report in canine veterinary practice with degenerative mitral valve disorder. We aimed to underline the possibility of mitral orifice development in degenerative mitral valve disorders, known to present with vegetations and varying degrees of prolapsus, conventionally.

Keywords: Dog Echocardiography, Anterior mitral valve orifice, Degenerative mitral valve disorder, Mitral Regurgitation

Surface Imprinted Upconversion Nanoparticles for Selective Albumin Recognition

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Abstract:

Molecular imprinting of proteins is the one of the intriguing approaches for the creation of artificial biorecognition sites. In this context, we proposed a new approach to synthesize silica-based upconversion nanoparticles via surface imprinting of bovine serum albumin (BSA) that was chosen as a model biomolecule. Herein, we aimed to assert an alternative solution for complex leakages by directly incorporating them into polymeric network and selectivity, efficiency and biorecognition by surface imprinting approach. In this way, lanthanides complexes were utilized as a signal producer as well as surface imprinted cavities played a role in selective biorecognition process. Moreover, we confirmed that the recognition process was taken place on the surface of the nanoparticles by applying sandwich-recognition experiments by using antibody-immobilized magnetic nanoparticles. All materials synthesized were characterized by different instrumental techniques including Fourier transform infrared spectroscopy, scanning electron microscopy, fluorimetric / UV-Vis spectrophotometry, zeta-size / potential measurements whereas the biorecognition conditions were optimized by varying the environmental condition including pH, concentration, interaction time, and temperature. At the final step, selectivity of imprinted nanoparticles were determined against the competitors biomolecules including ovalbumin, hemoglobin, and gamma-globulin while using non-imprinted version of nanoparticles as a basic material. The maximum imprinting factor (IF) was determined as 13,89 for BSA to molecularly imprinted nanoparticles. Besides, the imprinted polymers achieved an excellent selectivity towards BSA with a separation factor above 4.69 when using hemoglobin, gamma-globulin and ovalbumin as control proteins. The imprinted upconversion nanoparticles represented a large binding affinity toward the template protein and upconversion features of nanoparticles formed the basis to transform two or more low-energy infrared (IR) photons into high-energy visible photons in a sequential absorption process. This technology with selective cavities and upconversion features will be simple and suitable for the separation and recognition of biomolecules.

Keywords: Magnetic nanoparticles, Molecular imprinting, Silica nanoparticles, Surface imprinting, Upconversion nanoparticles



Mental Health Literacy: A Review

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Abstract:

Mental Health Literacy (MHL) is a concept that defines knowledge and beliefs about diagnosis, prevention and treatment of mental illnesses. MHL, which has become popular since 1997, consists of four interrelated components. These components are expressed as achieving and maintaining positive mental health, having knowledge about the formation mechanisms of mental disorders and types of treatment, reducing the stigma, of mental disorders and improving the mental health self-managements skills of the person by developing help-seeking behavior in the presence of mental disorders. Initiatives towards the strategies mentioned above should be developed for adolescents, the elderly who are considered to be at risk for mental illnesses and individuals with mental disorders. This study aims to review the MHL concept in line with literature knowledge. This study is a review on Mental Health Literacy. While the low level of knowledge about mental illness increases the stigma for mental disorders, it causes delays in the recognition, treatment and rehabilitation of the diseases and negatively affects the functionality level of the patients. It is very important to increase the level of MHL to prevent stigmatizing thoughts and behaviors in society. It is known that most of the symptoms of metal disorders occur during adolescence. However, help-seeking behaviors of adolescents for mental disorders have lower health literacy scores compared to other populations. Insufficient MHL level in the elderly may adversely affect the interpretation of health-related information, and this may prevent them from using mental health services. Increasing the level of Mental Health Literacy in groups at risk for mental illnesses has important results in developing positive mental health, protecting mental health, recognizing the symptoms of the disease, gaining knowledge about treatment options and rehabilitation of chronic mental diseases.

Keywords: Mental Health Literacy, stigma, adolescent, elderly



Cytotoxicity Testing: An Insight Look into ISO 10993-5

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Abstract:

Cytotoxicity test is one of the biological evaluation and screening test applied in in vitro cell cultures to observe cell growth, proliferation and morphological effects. Cytotoxicity testing is a fast, standardized, precise and inexpensive way to determine the toxicity of medical devices, pharmaceuticals and pesticides, which are in various physical forms including liquid, solid, powder, adhesive and non-adhesive gels. Synthetic and natural polymers in different forms, nanoparticles and plant extracts, metals are frequently evaluated using cytotoxicity tests. Thus, selecting the appropriate cytotoxicity test is critically important. The sensitivity of the tests is due to the fact that the test cells are isolated in cultures and the lack of protective mechanisms that assist cells in the body. The cellular toxicity tests required for all types of medical devices cover the ISO 10993-5 Standard "Biological evaluation of medical devices - part 5: In vitro cytotoxicity tests (ISO 10993-5)". This standard provides a series of test methods designed to evaluate the adverse biological effects of substances extractable from medical devices. Cytotoxicity tests, according to ISO 10993-5 standard, is performed either directly on the test materials or on their extracts. Experiments on extracts include neutral red uptake, colony formation, MTT and XTT tests. The extracts can be applied to cells indirectly as in agar diffusion and filter diffusion tests. As polar and nonpolar extraction vehicles extract different leachables and extractables, a proper extraction solution should preferred to extract both polar and nonpolar leachables and extractables. Cytotoxicity test methods are useful for screening materials that can be used in medical devices because they help separate reagents from non-reactive materials and effectively provide predictive evidence of material biocompatibility. Thus, the ISO 10993-1 standard "Biological evaluation of medical devices" still considers cytotoxicity tests so important part of the biocompatibility tests. However, test selection, extract condition and evaluation of the results are as important.

Keywords: Biocompatibility, cytotoxicity, medical devices, extraction, cell culture

First Report of Gastrointestinal Parasites in Feces of Feral Cats from Gharbia Governorate, Egypt

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Abstract:

Feral cats roam everywhere and are definitive hosts for many parasites which can cause serious disease in humans and animals worldwide. In Egypt, reports on the gastrointestinal parasites infecting cats are few and no reports are available from Gharbia governorate. Beside, reports on the coccidian protozoans are conflicting and very high prevalence of *Toxoplasma gondii* oocysts (up to 50 %) was stated in some earlier reports. In the present study, feces of 89 feral cats randomly collected from rural areas in Gharbia governorate, Egypt were tested for different gastrointestinal parasites using the standard sedimentation and modified Wisconsin sucrose flotation techniques. Eggs/oocysts of at least one parasite were detected in 48 (53.9%) fecal samples. Single (43.6%), dual (45.8%) and triple (10.4%) patterns of infection were noticed. Eggs of the zoonotic nematode *Toxocara cati* were detected in 27 (30.3%) samples; this high prevalence underlines the potential role played by feral cats in human toxocariasis which is highly prevalent among Egyptian patients. Other helminths eggs including *Toxoscaris leonina* (23.6%), *Ancylostoma tubaeforme* (7.9%), *Strongyloides* species (1.1%) and *Taenia taeniformis* (6.7%) were found. Oocysts of different coccidian protozoans were detected. Two *Cystoisospora* spp. were identified; *Cystoisospora rivolta* (6.7%) and *Cystoisospora felis* (3.4%). The former is pathogenic for newborn kittens and is described for the first time in cats from Egypt. Sporocysts of *Sarcocystis* spp. were noticed in 9 (10.1%) samples, which correlates with the high prevalence of sarcocysts in tissues of different animals from Egypt. Few *T. gondii*-like oocysts were detected in a single sample. Oocysts were 11-12.5 μm in size and their identity was not confirmed most likely due to their very low number. Earlier serological surveys documented very high prevalence (up to 95%) of *T. gondii* antibodies in sera of cats from Egypt, and the seropositive cats seldom to re-shed *T. gondii* oocysts; this explains the very low prevalence of *T. gondii*-like oocysts in the present study and emphasize the overestimation of *T. gondii* oocysts in some earlier reports from Egypt.

Keywords: Feral Cats, Egypt; *Toxocara cati*; *Cystoisospora rivolta*; *Toxoplasma gondii*.



Cold Plasma Application in Food Storage

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Abstract:

In terms of safety and quality of food, its biological and chemical activities need to be controlled. This control is mainly provided by traditional heat treatments (such as drying, pasteurization, sterilization). Heat treatments used to extend the shelf life of foods by stopping the activity of microorganisms or destroying microorganisms lead to loss of nutritional value of food and significant changes in sensory properties such as taste, smell. For this reason, today food manufacturers are looking for new technologies to extend the shelf life of food, preserve its nutritional value and prevent loss of its sensory properties. Plasma technology has taken an important place in this system and process, since it does not require heat treatment. Plasma technology is divided into cold and hot plasma. The type applied in foods is cold plasma. Cold plasma is defined as a process that occurs as a result of the application of electric current or electromagnetic radiation of certain gases under vacuum and at room temperature. The cold plasma technique has been successfully used in the decontamination of many vegetative Gram-negative and Gram-positive bacteria, yeasts, molds, and endospores. It has been found to be effective in decontamination of water and fruit vegetables (such as apples, strawberries, potatoes, carrots) and it is stated that many foods are suitable for cold plasma systems. The main reason it is advantageous is that it provides an environment for rapid decontamination under ambient temperature and pressure conditions at lower costs by maintaining food quality criteria. Research shows that if this process is performed at room temperature, the loss in nutritional value is lower. Although studies have shown that the plasma technique is successfully used in the activities of microorganisms, the presence of details that the plasma structure must be mixed and illuminated indicates that research on this issue should continue.

Keywords: food preservation, plasma, cold plasma, non-thermal treatment.



Evaluation of Antihemolytic Activity of Nettle Leaves (*Urtica pilulifera* and *Urtica urens*) in the Region of Tiaret (Algeria)

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Abstract:

Nettle is a medicinal plant commonly widespread, it has been used since Antiquity for its many therapeutic properties. The objective of this work was to evaluate the anti-hemolytic activity *in vitro* of nettle leaves of two species: *Urtica pilulifera* (Torriche-Tiaret) and *Urtica urens* (Rechaïga-Tiaret) by the test of inhibition of hemolysis induced by H₂O₂. The phytochemical results obtained showed that nettle leaves of both extracts contain considerable amounts of phenolic compounds (total polyphenols, flavonoids, condensed tannins and hydrolyzable tannins). The phytochemical screening showed the presence of alkaloids, flavonoids, proteins, tannins and terpenoids in both extracts of our species. The antioxidant activity measured by the DPPH method gave a value of inhibition (82.76 and 78.04 mg/ml) and IC₅₀ (183 and 809 µg / ml) in methanolic extract of *U. pilulifera* and aqueous extract of *U. urens* respectively. The anti-hemolytic activity expressed by percentages of inhibition of hemolysis was 16.85% and 19.38% in methanolic and aqueous extract respectively. In addition, IC₅₀ were 21.46 mg / ml in methanolic extract and 22.11 mg / ml in aqueous extract. These findings confirm that our extracts have a remarkable antihemolytic activity mainly *U. pilulifera*.

Key words: Nettle, leaves, phytochemistry, anti hemolytic activity, *Urtica*.

Hippoboscid Infestation (*Ornithomya avicularia*, Hippoboscidae) on Long-eared owl (*Asio otus*) from Turkey

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Abstract:

Ornithomya (O.) avicularia, belonging to Hippoboscidae family, are obligatory blood-sucking flies that feed on birds. Due to their dorso-ventrally flattened appearance, they are called lice flies or tick flies. In the studies conducted so far, it has been determined that species belonging to the Hippoboscidae family have caused infestation in at least 18 birds and 5 mammals orders. Due to their blood-sucking properties, they serve as vectors for protozoal (*Trypanosoma* spp and *Haemoproteus* spp), bacterial (*Bartonella melophagi*, *Anaplasma* spp and *Rickettsia* spp) and nematode (*Dipetalonema dracunculoides*) pathogens. Additionally, they may cause some changes in the life cycle, evolutionary process, growth, reproduction, offspring yield and survival of the host species, as in the general ectoparasites (such as louse, flea, tick and mite). In Turkey, *Hippobosca (H.) capensis*, *H. equina*, *H. maculata*, *Lipoptena cervi* and *Melophagus ovinus* in mammals; *Lynchia maura* (synonym: *P. canariensis*), *Pseudolynchia canariensis* and *Ornithomya avicularia* species in birds have been reported to date. *Haemoproteus columbae* has also been reported in *Pseudolynchia canariensis*, which causes infestation in pigeons (*Columba livia*). Long-eared owl (*Asio otus*) which died naturally, was brought to the laboratory of the Department of Parasitology, Faculty of Veterinary Medicine, Ondokuz Mayıs University, Turkey. The detailed microscopic examination revealed the presence of *O. avicularia* (Diptera: Hippoboscidae) in dead owl. This is the first study which reported the presence of *O. avicularia* in Long-eared owl in Turkey.

Keywords: *Ornithomya avicularia*, Hippoboscidae, *Asio otus*, Turkey



Ginger and Its Effects on Human Health

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Abstract:

Rhizome plants have been used in various traditional medicine systems since ancient times to treat colds, fever, sore throat, infectious diseases, arthritis, rheumatism, sprains, muscle aches, aches, cramps, hypertension, dementia, migraine, nerve diseases, gingivitis. Ginger (*Zingiber officinale*); a spice that has been widely used in alternative medicine for many years. The first information about ginger is based on ancient Chinese, ancient Greek and Roman sources. In ancient times, ginger was considered the main cure for nausea but not only is it limited to the treatment of nausea, ginger has been used especially in diseases of the gastrointestinal system. In modern times with studies conducted, it has been revealed that ginger has different benefits and continues to emerge. Although it primarily affects the digestive system, ginger has positive effects on the regulation of blood sugar and blood lipids, inflammatory diseases, neurodegenerative diseases, and obesity. The effects of ginger, which has antioxidant and antimicrobial properties, on cancer are still being investigated. The medicinal benefits of ginger come from its active ingredients. These effects of ginger, which offer a wide range of health from nausea to diabetes, from hyperlipidemia to cancer, are attributed to its active ingredients, gingerols and shogaols. Especially in the last decade, many studies have been done on the beneficial biological activities and bioactive components of ginger and new information have been obtained. In particular, the pharmacological effects and mechanisms of 6-gingerol active ingredient are corroborated by both in vivo and in vitro studies. Ginger, which is also effective in viral infections, has antiviral properties and is among the most consumed spices in the world. The absence of any side effects and drug-nutrient interaction also makes ginger safe. In this study, the effects of ginger on human health were examined.

Keywords: ginger, alternative medicine, medicinal plants, *zingiber officinale*



***Eimeria* sp. in Squirrel (*Sciurus anomalus*)**

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Abstract:

Coccidiosis is a disease caused by obligate intracellular Apicomplexan protozoans that settle in the digestive system of all vertebrates and some invertebrates. Symptoms frequently arise from the invasion of parasites into the intestinal mucosa and lead to an enteric disease. *Sciurus anomalus*, which is died as a result of a traffic accident, was referred to the laboratory of Ondokuz Mayıs University Faculty of Veterinary Medicine, Department of Parasitology and subjected to a systematic parasitological examination. Stool sample taken from the large intestine part of the digestive tract was examined by Fülleborn flotation method and *Eimeria* oocysts were detected. The stool sample, which is *Eimeria* positive, was incubated in 2.5 % potassium dichromate solution ($K_2Cr_2O_7$) at room temperature for 3-4 days. Measurements and morphological characterizations of micropyle, micropyle cap, polar granule, oocyst residue, shape, color, size, wall thinning, stieda body, substieda body, sporocyst residue, shape index, oocyst and sporocyst dimensions were examined using a light microscope. In this study, three different morphometric group oocyst types were determined. In these, they were divided into three morphometric groups as group 1, group 2 and group 3. The first morphometric group's sporulated oocysts are ellipsoidal, 21.042 by 13.277 with a length: width ratio (L/W) of 1.61. Sporocysts are 9.745 by 5.364 with a L/W of 1.81. The second morphometric group's sporulated oocysts are cylindrical, 23.907 by 15.943 with a length: width ratio (L/W) of 1.49. Sporocysts are 12.803 by 6.300 with a L/W of 1.81. The third morphometric group's sporulated oocysts are ellipsoidal, 29.387 by 15.282 with a length: width ratio (L/W) of 1.9. Sporocysts are 12.552 by 6.256 and with a (L/W) of 2.0. In this study, fecal sample from *Sciurus anomalus* in Samsun region were examined for coccidia and three different morphometric group oocyst types were defined as *Eimeria* sp.

Keywords: Coccidiosis, *Eimeria*, *Sciurus anomalus*.

**Study of the Combined Effect of the Essential Oil of *Thymus satureioides*,
Water Activity and Temperature on Fungal Growth and Production of
Ochratoxin A by the Strain *Aspergillus alliaceus***

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Abstract:

The objective of this work is to study the influence of the interaction of the essential oil of *Thymus satureioides* at different concentration, temperature and water activity on fungal growth and ochratoxin A (OTA) production by the isolate of *Aspergillus alliaceus* (food and health safety laboratory). The inhibitory effect of the essential oil showed dose-dependent activity on the fungus tested. Inhibition rates increase with water activity and temperature. The highest inhibition rate was observed for the 100 µl / l concentration, reaching for example 75.44% at 0.93aw and at 25 ° C. Complete inhibition of fungal growth was observed at an applied dose such as of 500 µl / l at 25 and 30 ° C, at 0.93aw and 0.99aw. Our results also showed that the reduction of fungal growth in the presence of essential oil (EO) is very significantly dependent on the applied dose. Analysis of extracts of culture medium of the *Aspergillus* strain at 25 and 30 ° C at 0.99aw by HPLC-FLD showed that the concentrations of Ochratoxin A in the culture medium for the tests controls were different from those in the presence of essential oil in the majority of cases. Complete inhibition of ochratoxin A biosynthesis was observed for example at the 100 µl / l dose of essential oil from *Thymus satureioides* at 30 ° C, but total inhibition of production was observed only at the concentration 200µl / l for the temperature 25 ° C and the same activity in water.

Keywords: Secondary metabolites; Ochratoxin A; Water activity; *Thymus satureioides* *Aspergillus alliaceus* strain

Histochemical and Polarized Microscopic Study of Collagen and Elastic Fibres in 10 Cases of Annular Granuloma

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Abstract:

In our study of 10 cases of annular granuloma, that were skin lesional biopsies, we evaluated the density of elastic fibres and the birefringence of collagen fibres in the lesional area, comparatively with normal areas. Annular granuloma is an inflammatory dermatosis in which both, elastic and collagen fibers suffer alterations, that can be well documented histochemically, with conventional and special stains. The diagnostic criteria can be enhanced by using polarized microscopy which is cheap and rapid. The biopsies were embedded in melted paraffin wax, sectioned on microtome on 5 microne slices, stained with automate Diapath lines devices. The stains used were Haematoxylin and Eosin (Diapath staining kit) and Van Gieson for elastic tissue (Merck). Microscopic examination was made with Leica Microscope DM750, enriched with Leica polarized kit and capture camera Leica ICC50 HD. The software of acquisition and processing was LAS 4.6. The Elastic van Gieson stain showed areas with absence of elastic fibres, areas with rare elastic fibres and areas with normal density of elastic fibres. Polarized microscopy was used for all the slides, those Haematoxylin-Eosin stained and Van Gieson for elastic tissue stained, and the results of the examination were quantified as birefringence absent, medium, normal, intense. Polarized microscopy discriminated 3 types of birefringence in the necrobiotic area of the lesions that were quantified comparatively with normal dermal collagen. In all 10 cases we observed the absence/paucity of elastic fibres in the necrobiotic area, fact that is correlated with the life of the lesions. The birefringence of collagen in the lesions was of 3 types – absent central/weak peripheral, weak central/medium peripheral, alternating weak/absent. The absence of collagen birefringence was associated with necrobiosis and was also correlated with the stage of the disease. In 2 cases (20%) we noticed interface dermatitis as associated lesion, in which the paucity/absence of elastic fibres was also noted, with no anterior medication declared by the patients, and this is a finding that was not reported in other studies. Both methods, histochemical and polarized light microscopy are cheap and fast methods, and can aid in the diagnosis of annular granuloma.

Keywords: collagen, elastic fiber, granuloma annulare, polarized microscopy



Vitamin D Deficiency and Psychiatric Diseases

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Abstract:

The cholesterol in the skin begins to produce vitamin D when exposed to the sun. This mechanism works by providing energy from UVB rays in the sun. Individuals to get enough vitamin D; should benefit from the hours when the sun is most efficient on the body without using sunscreen. It is not enough to just open our face and hands. The places where the skin is the thinnest, that is, the hands and ankles, and even the inner sides of the arm, should be open. If possible, it will be correct to open the armpits and sunbathe. The acceptance of vitamin D deficiency as a global epidemic causes the studies to intensify. Vitamin D deficiency is found in the etiology of many diseases. This article will explain its relationship with psychiatric diseases. While investigating what might be the basis of psychiatric diseases, we observe that vitamin D deficiency affects many of them directly or indirectly. From the moment the fetus begins to form, vitamin D becomes important. Therefore, birth months and seasons in the mother's womb are very important for psychiatric diseases. The decrease in the physical functions of the elderly causes the insufficient intake of vitamin D, and the decrease in their physiological functions causes them not to turn into a form to be stored. In children; The symptoms of rickets seen as a result of vitamin D deficiency may differ. Delay in teething, bone pain and growth retardation are examples of these symptoms. Low serum 25 (OH) D levels during pregnancy have been shown to be an increased risk for postpartum depression. When the vitamin D taken with foods is not enough, the sunshine should be used properly and adequately or supplements should be taken.

Keywords: vitamin d, sunlight, psychiatric illnesses, pregnant, elderly

Analysis of ORM1 Levels in Tissue and Urine Samples of Patients with Bladder Cancer: Literature Review and Preliminary Experiment Results #

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Abstract:

Orosomuroid-1 (ORM1), also known as Alpha 1-Acid Glycoprotein (AGP) is an acute-phase protein weighing 41-43 kDa and is synthesized from the liver. Changes in ORM1 level have been reported in many diseases. Our first aim in this study was to evaluate the importance of ORM1 in urological malignancies, based on the literature. Articles in PubMed between 1955 and 2021 were reviewed with the help of MeSH terms. There were 7 studies on prostate cancer, 5 on bladder cancer, and 2 on renal cancer, and no studies on testicular or penile cancer. As a result, it was understood that ORM1 has three important effects on urological malignancies. (a) Serum and urine ORM1 levels and glycoforms can be used as a valuable biomarker. (b) ORM1 is a drug-binding/carrier protein with polymorphic variants that can alter the pharmacokinetics of anticancer drugs such as docetaxel. (c) ORM1 has significant anti-inflammatory, immunomodulatory and pro-angiogenic properties. Secondly, we analyzed the ORM1 levels in tumor tissues, normal tissues adjacent to the tumor (NAT), and urine samples of 16 patients with bladder cancer (13 male, 3 female). Information such as age (81 ± 8), height (165 ± 10 cm), weight (78 ± 13 kg), BMI (29 ± 6), tumor size (25 ± 18 mm), and pathological stages (6 pTa and 8 pT1 or other) of the patients were also recorded. For analyzes, tissue samples were homogenized and total protein extracted. Protein concentrations were measured colorimetrically by the Bradford method, and protein quality was assessed by SDS-PAGE. Tissue and urine ORM1 levels were analyzed by ELISA. As a result of this preliminary experimental study, there was no statistically significant difference between tumor tissues and NAT's ORM1 levels ($P= 0.5915$). Urinary ORM1 levels of patients with pTa stage were slightly decreased compared to urine samples of pT1 or other stage patients, but this decrease was not statistically significant ($P= 0.4206$). Urinary ORM1 levels were found to be weakly positively correlated ($r= 0.4657$, $P= 0.1270$) with the bodyweights of the patients. Performing creatinine correction in urine samples and repeating the study with a larger cohort will be informative.

Keywords: orosomuroid-1, alpha 1-acid glycoprotein, urological malignancies, bladder cancer, urine, biomarker

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***In-utero* Neurotoxicity of Nanoparticles on the Nervous System of the Embryo.**

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Abstract:

Nanoparticles (NP) are particles with at least one dimension less than 100 nm. Common naturally occurring NPs are alumina, iron oxide, gold, sulfur manganese oxide etc. released from volcanoes, combustion etc. On the other hand, manufactured or engineered nanoparticles include silver, gold, zinc, metal oxides like MnO₂, AL₂O₃, TiO₂ NP etc. Engineered NP also include nonmetals like carbon nanotubes and quantum dots, polymers like chitosan, alginate, lipids like stearic acid. Some of commonly used NP include zinc oxide, titanium dioxide nanoparticles, silica, silver and gold NPs. Extensive use of engineered NP poses risk to human health. The health hazards are cause of concern in pregnant women and their unborn children. Therefore, it is important to study the toxic effect of NP on developing fetus. Factors which control the transfer of substances between maternal and fetal circulation include placental membrane surface area and thickness, blood flow, hydrostatic pressure in the intervillous chamber etc. Nanoparticles with diameters 1-100 nm transverse the placental barrier and can be detected in the brain of the offspring. In the present review current literature was searched for the toxic effect of NP on neural development in fetus. From the studies we conclude that the nanoparticles can cross the placenta and enter the fetus to cause neurotoxicity to the developing nervous system of the embryo. Transcellular and paracellular diffusion, receptor-mediated transcytosis, adsorptive-mediated transcytosis are some of the ways by which nanoparticles gain entry into the nervous system. Some of the effects on the fetal nervous system include disrupted structure of the fetal brain, altered expression of genes associated with brain development, alterations in the levels of neurotransmitters, DNA damage in the fetal hippocampus. Other effects include decreased in angiogenesis in placental tissue and activated apoptotic pathways, necrosis of the brain tissue etc. Disturbances in central nervous system homeostasis, oxidative damage, impairment of antioxidant status and hippocampus dysfunction were also observed. Therefore, the use of nanoparticle containing products during pregnancy require caution.

Keywords: fetus, neurotoxicity, nanoparticles, *in vivo*, placenta.



The Addition of Glycerol and Trehalose on Cryopreserved Goat Sperm

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Abstract:

The cryopreservation of goat sperm provides long-term storage. However, cryopreservation causes oxidative stress due to cold shock, osmotic changes and ice crystal formation in the cell membrane. In addition to these, it leads to reduce motility, disorder sperm morphology, decrease in mitochondrial membrane potential, and intracellular esterase activity, destroy plasma membrane and acrosome integrity, thus decreasing fertility. Because, the plasma membrane of sperm cells contains high proportion of polyunsaturated fatty acid (PUFAs), the cholesterol/phospholipid ratio is low and the antioxidant potential of goat sperm is insufficient to protect the damage of oxidative stress. The low amounts of glycerol (under 5%) and trehalose have been added in recent years to reduce sperm damage caused by freezing and thawing. Glycerol is one of the most important cryoprotectants used in freezing and thawing processes however, it may have undesirable osmotic and toxic effects. Also, glycerol has a contraceptive structure that reduces directly sperm fertility. The glycerol level of semen extender could be decreased by adding trehalose (consist of two D-glucose molecules), which is a member disaccharide family. Trehalose provides energy to sperm and has a protective effect on cell damage, osmotic imbalance, cell dehydration and stabilization of membrane phospholipids during freezing and thawing processes. In the summary, the quality and fertility rate of cryopreserved goat sperm could be improved by adding low glycerol and trehalose to semen extender and this proposal could serve as the basis for new formulations.

Keywords: Cryopreservation, sperm, goat, glycerol and trehalose.



A Review- Heat Stress and Their Effect on Dairy Cows Nutrition

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Abstract:

This review includes factors influencing heat stress in lactating dairy cows and the way it affects milk production. High feed consumption results in raised metabolic heat increment. High metabolic warmth increment requires powerful thermoregulatory mechanisms to maintain body temperature in a thermoneutral area and in physiological homeostasis. Heat stress is complicated process because the responses to heat stress have an effect on not best the energy stability, but also water, sodium, potassium and chlorine metabolism. Plasma progesterone degrees may be elevated or reduced depending on whether or not the heat pressure is acute or chronic. There are numerous assets of heat that have an effect on cows and make a contribution to heat stress. The first and in all likelihood most critical is the heat accumulated via direct radiation from the solar. In addition, dark coat animals collect greater radiation warmth than light or white coat livestock. Water, sodium, potassium and chlorine are vital constituents of sweat, and sweating is a chief, if not the most important, thermoregulatory mechanism used to burn up extra body heat. Dry matter consumption is decreased through 10 – 15% during heat stress. Early lactation and higher yielding cows are affected extra fast and significantly as compared to later lactation cows. Strategies to reduce heat stress must be evolved to enable cows to express their full genetic ability.

Keywords: lactating dairy cows, body temperature, milk production, heat stress



Impact of Quercetin on Lymphocyte DNA Status of Hens

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Abstract:

This study was conducted to examine the influence of four levels of flavonoid quercetin in deoxyribonucleic acid (DNA) status of hen's lymphocyte with using of comet assay. For this purpose, one-hundred and twenty hens (forty weeks aged) were reared for 20 weeks and divided into four experimental treatments as follow: T1 (control), T2, T3 and T4: basal diet supplemented with 0, 400, 800, 1200 mg quercetin / kg diet, respectively. Formulated diet and water were presented as free at all rearing period. Blood samples were obtained with EDTA tubes at the experiment end; lymphocytes were washed and isolated for comet assay which indicates to severity of DNA breaks. Comet assay parameters findings revealed a high significant difference with respect of comet length, comet height, comet intensity and comet area for addition treatments especially T3 and T4 that supplemented with 800 and 1200 mg quercetin / kg diet as compared with T1 and T2 that supplemented with 0 and 400 mg quercetin/kg diet respectively, furthermore the Medium and High fragmentation percentages of DNA had been decreased significantly in addition groups comparing with control group, too. From current results, we conclude that our study provide an evidence that quercetin may be beneficial as protective factor and maintaining the cellular genetic material against possible oxidative stresses at certain levels without adverse effects.

Keywords: DNA, quercetin, comet, hen.



The Role of Probiotic Bacteria in the Viral Infection- How to Link Probiotic to Covid19

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Abstract:

Probiotic and their application has a long history. Increased research in recent years regarding probiotics and their beneficial products has led to the emergence of public awareness among researchers, government organizations, pharmaceutical and food companies about their application importance in different life field including: health and immune enhancing, improve food production, pharmaceutical application. Ext. Many previous studies have dealt with the importance of probiotics and their history in different area, as well as the development of their applications. In the present review, we will focus on different points regarding the progress application of the probiotic in the different viral infection, particularly in the respiratory tract infection, mechanisms of action through viral infection, and their future application as alternative therapeutic for covid19, which could be eliminated by the use of different types of direct uses of Probiotics or by the use of foods containing Probiotics. As the epidemic regarding to the of Covid19 and with the absence both of therapeutic and vaccine, all of research focus on the alternative means and the use of probiotic bacteria was one of the important one. From the references included in this review we can conduct the possibility of application of probiotic bacteria in all of their term, as an alternative therapeutic for Covid19, but the subject needs more effort to publish the awareness among the people in the world.

Keywords: Covid19, Probiotic bacteria, Viral infection, Immunity



Effects of Mediterranean Diet on Microbiota

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Abstract:

This study aims to examine the effect of the Mediterranean diet on the microbiota. Published randomized controlled trials between 2015 to 2020 including the words "microbiota" and "Mediterranean diet" were reviewed in PUBMED. Finally, the results of 8 randomized controlled trials were reviewed. The Mediterranean diet may affect metabolites from choline pathways and decrease the risk for cardiovascular diseases. It may also increase the Rikenellaceae family and degrade the risk for metabolic syndrome, particularly in women. Instead of the short term Mediterranean diet, following it for a long time showed more better results. Long term Mediterranean diet may increase Roseburia and Faecalibacterium prausnitzii and reduce the risk for type 2 diabetes. Short term Mediterranean diet was also not related to short-chain fatty acid production. Mediterranean diet may reduce lipopolysaccharide-binding protein which is linked to proinflammatory markers. Thus, it may protect the intestinal barrier. Some drops in the Mediterranean diet score may increase the risk for ulcerative colitis mainly in a person with lower vegetable intake. In conclusion, results from that study showed that the Mediterranean diet may reduce the risk for cardiovascular diseases, metabolic syndrome, ulcerative colitis and type 2 diabetes in the long term. Mediterranean diet may also protect the intestinal barrier via changes in bacterial distribution in the microbiota.

Keywords: Mediterranean diet, microbiota, mediterranean diet score

The Effect of Hypertonic Mannitol on Spermatogenesis in Dogs Following Using Intratesticular Injection

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Abstract:

Chemical neutering is a castration method using injection a chemical sterilant in testes, epididymis and/or vas deferens. In this study, the effects of intratesticular injection of hypertonic mannitol on sperm characteristics and gene expression of Bax in male dogs was investigated. fifteen adult male dogs were divided randomly in 3 groups (5 dogs in each group). Group 1: Control (without injection), group 2: intra-testicular injection of normal saline and group 3: intra-testicular injection of mannitol 20%. Under general anesthesia using intraperitoneally injection of ketamine and xylazine, surgical castration was performed in groups after 54 days. After surgical castration, sperm samples were collected from the tail of epididymis to evaluate sperm characteristics including sperm count, viability, motility, morphological abnormalities, DNA damage and gene expression of Bax in testes. The group of mannitol showed a significant increase ($P < 0.05$) in DNA integrity and morphological abnormalities, as well as significant decrease ($P < 0.05$) in sperm count, total motility, progressive motility, characteristics of motility, viability, and plasma membrane integrity compared to control group. Furthermore, the group of mannitol significantly increase ($P < 0.05$) in gene expression of Bax compared to the control group. It could be concluded that, intra-testicular injection of mannitol can effectively induce infertility in male dogs and this agent would be considered for chemical castration in small animals.

Keywords: Sperm, Mannitol, Chemical Sterilization, dog.

The authors would like to sincerely thank the members of the Faculty of Veterinary Medicine and Urmia University Research Council for the approval and support of this research.



In vitro Assessment of Effects of Urine on Quality of Ram Semen

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Abstract:

Contamination of ram semen with urine, caused by urination during ejaculation or semen flow into the urinary bladder, is a common problem of sperm collected by electroejaculation for cryopreservation. The present study determined a level of urine contamination to preserve ram semen following the use of various extenders. Semen samples obtained from 3 rams were incubated with tris base and citrate base's extenders and different urine concentrations (10, 20, 30, and 40 μ l) at 37°C. Total Motility, progressive motility, viability, sperm membrane integrity and DNA integrity were evaluated. Progressive motility and total motility were higher with the 10 μ l urine with tris -based extender, compared to the control citrate-based extender with urine. Motility characteristics, viability, and hypo-osmotic swelling test (HOST) percentages were significantly improved in tris- based extender with urine compared to other groups. Urine concentration of 10 μ l after Tris-based extender significantly increased sperm quality parameters compared to other groups. In conclusion the administration of tris-base extender is able to protect the ram semen against urine induced decreased quality semen.

Keywords: Urine, ram semen, tris base extender, citrate base extender.

The authors would like to sincerely thank the members of the Faculty of Veterinary Medicine and Urmia University Research Council for the approval and support of this research.

Effect of Adding Ellagic Acid in Semen Extender on Post-Thaw Sperm Quality of River Buffaloes

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Abstract:

The aim of this study was to determine the effects of adding ellagic acid during cryopreservation on post-thaw sperm parameters of buffalo semen. Semen samples were collected via artificial vagina from three buffaloes and the prepared pooled semen samples diluted in a Tris-based extender, then divided into 5 groups, including control (no antioxidant), control sham (Solvent), ellagic acid (0.25, 0.5 and 1mM). The samples were frozen in liquid nitrogen (-196°C) for storage. Frozen straws thawed at 37°C for 30 seconds in a water bath and sperm quality evaluated. The results showed that ellagic acid additive at the rate of 1 mM gives a better protection of sperms during the process of freeze thawing than that in control. In addition, these results showed that addition of 1 mM ellagic acid to the semen extender significantly increased the post-thawed sperm motility, progressive motility, VCL, VAP compared to the control. However, in frozen-thawed semen, extenders containing 0.5 and 1 mM ellagic acid improved sperm viability, sperm plasma membrane integrity and total antioxidant capacity and resulted in lower sperm DNA damage. In conclusion, the addition of 1 mM ellagic acid improved the post-thawing quality of buffalo semen.

Keywords: ellagic acid, buffalo, semen and cryopreservation.

The authors would like to sincerely thank the members of the Faculty of Veterinary Medicine and Urmia University Research Council for the approval and support of this research.



Comparative Study of Three Methods of Extraction of the Essential Oils of *Rosmarinus officinalis*

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Abstract:

Morocco produces an annual yield of more than 60 tons of rosemary essential oil for export. These essential oils have antimicrobial properties, antioxidant and anti-inflammatory activities. They have been used in aromatherapy for various properties and in the pharmaceutical, therapeutic, cosmetic and food industries. This comparative study of the composition of the products obtained, from the extraction by clenvenger hydrodistillation (HDC) and hydrodistillation assist by microwave (HDM) of *Rosmarinus officinalis* picked from different regions of Morocco (Sais, Skoura, Figuig, Imouzzar), shows a big quantitative and qualitative difference. The quantitative study revealed that the essential oils obtained from *Rosmarinus officinalis* from the Figuig region very high, and higher than that of other regions (Imouzzar, Skoura, Sais). Qualitatively, the different oils obtained have similar chemical compositions except that they differ in the level of relative percentage of the compositions.

Keywords: *Rosmarinus officinalis*, Essential oil, HD by microwave, GC-MS.

Effects of High Pressure Milk on Experimental Neonatal Necrotizing Enterocolitis Model with B-Flow USG

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Abstract:

Necrotizing enterocolitis (NEC) is a common clinical emergency of gastrointestinal system in the neonatal period. It is well known that High Pressure Milk has cyto-protective effects. We aimed to evaluate the effects of High Pressure Milk on experimental neonatal NEC with B-flow USG. Materials and methods: 30 Wisteria Albino rat pups aged 18 hours were separated into three groups. Group I (control group) was not stressed with any factor. For the Group II and group III were performed the same protocol, stressed with hypoxia by breathing of 100 % CO₂ for 5 minutes and with exposure to cold at +4°C for 10 minutes. This protocol was performed twice daily for 4 days. High Pressure Milk was used (3 ml, oral) in group III at the end of the each hypoxic and cold stress. Terminal ileum for radiological evaluation were obtained at the end of the 4th day. No radiological abnormality was detected in the control group. Imaging abnormality was detected in all rats in group II and in 5 rats in group III. Most of the radiological evaluation were pannecrosis, pneumotozisintestinalis. Terminal ileum were normal in the control group. In group II, radiological findings were abnormal respectively. In group III, seven rats had normal radiological findings while injury was detected in 2 rats respectively. There were statistically significant difference between group I and group II and between group II and group III. High Pressure Milk reduced the severity of the intestinal damage which occurred secondary to hypoxia and hypothermia causing NEC. We suggest that High Pressure Milk may be effective with their effects against causes of NEC.

Keywords: Newborn, necrotizing enterocolitis, High Pressure Milk, B-flow USG



Identification of Secretory and Cell Surface-Associated Proteins of *Leishmania donovani* For Epitope Prediction and Vaccine Design

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Abstract:

Leishmaniasis, a vector-borne disease threatens approximately 350 million people living in endemic areas, with 1.3 million new cases estimated annually and counts among the top neglected tropical diseases. The most severe and life-threatening form of leishmaniasis is Visceral Leishmaniasis (VL), caused by the *Leishmania donovani*. VL affects the poorest people living across the globe and has a high fatality rate in the absence of treatment. Chemotherapy despite being effective factors like high costs, toxicity, and long-term and complicated regimens compromise most chemotherapeutic regimens. There is a need for new therapies which are safer and more effective and eventually lead to elimination of the disease. As most infected individuals who recover from the infection become resistant to subsequent infection, there is strong possibility of developing safe and effective vaccine as no licenced vaccine exists at present. Complete proteome of *L. donovani* is used to identify potential parasite peptides which may evoke immune response in the human host and may likely be used as vaccine candidates. Proteins associated with the cell surface or secretory in nature are likely to possess potentially antigenic peptides. In this study we have utilized *in silico* approaches for identification of cell surface-associated and secretory proteins viz. GPI-anchored proteins, Trans Membrane Helix (TMH) containing proteins and secretory proteins of *L. donovani* using bioinformatics tools. We have also predicted T-cell epitopes in these identified proteins using IEDB-AR. One GPI anchored protein, three TMH containing proteins and twelve secretory proteins having MHC class I and class II epitopes as well as both linear and discontinuous B-cell epitopes were identified. These novel proteins can be explored as potential serodiagnostic targets which may evoke both cellular and humoral immune response in *L. donovani* infected patients.

Conclusion: Our work suggests that the identification of unique immunogenic epitopes provides considerable scope for design of new vaccines which may provide protective immunity against leishmaniasis and potentially help eliminate the disease.

Keywords: *Leishmania donovani*, GPI-anchored protein, TM helix proteins, epitope; vaccine



Public Health Effects of *Listeria monocytogenes*

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Abstract:

The presence of *Listeria* spp. in foods is important regarding public health risk due to their high prevalence. In recent years, outbreaks of listeriosis have been reported caused by consumption of food products contaminated with *L. monocytogenes* which is a significant food-borne pathogen in humans and animals and may induce serious illness. People with weakened immune systems, the elderly, and children are at risk for listeriosis. Especially, pregnant women are under the risk of listeriosis. *L. monocytogenes* has been reported to cause stillbirths in these individuals. Infection can be successfully treated with antibiotics; however, human infections have a mortality rate of up to 20-40%. As a result of the studies carried out, *L. monocytogenes* was one of the most important bacteria among Listeriaceae family. Societies need to be trained to follow FDA guidelines in practices such as heat treatment practices to prevent *L.monocytogenes* and good washing of raw vegetables and fruits. Zero tolerance policy for this pathogen is applied in production because it is widely available in nature, resistant to various stress factors compared to other pathogens, easily contaminated and can continue its development at refrigerator temperature. *L. monocytogenes* should be heat treated to prevent contamination, open, unpackaged products should not be consumed and critical points/ limits determined in HACCP (food safety systems) should be taken into consideration.

Keywords: raw milk, *Listeria monocytogenes*, public health, listeriosis

Comparison of RT-qPCR Kits Used in the Diagnosis of SARS-CoV-2

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Abstract:

Coronavirus disease (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Reverse Transcription Quantitative Polymerase Chain Reaction (RT-qPCR) is widely used for detecting, tracking and studying this virus all over the world as a fast and reliable method. This study aimed to compare the detection performance rate of eight different diagnostic kits (A1, A2, A3, B1, B2, C1, C2 and D) used in the detection of SARS-CoV-2 with the RT-qPCR method. Nasopharyngeal swab samples of 80 patients were included in our study which was detected positive in the routine diagnosis process. All the kits are used according to the recommendations of the manufacturers. In our study, the positive detection rate was calculated 100% for kits A1, A2, C1, and D; 98.75% for kit B2; 97.5% for kit A3; and 95% for kits B1 and C2. The average of quantification cycle (C_q) values of kit H for FAM channel (that emits a signal when bound to amplified viral gene fragments) was significantly low ($p=0,001$), although there was no distinct difference for the other kits. In this study, it was concluded that RT-qPCR kits that have higher positive detection performance and/or lower C_q values could be recommended as a diagnostic or screening test for the detection of SARS-CoV-2 infection during the COVID-19 pandemic.

Keywords: COVID-19, C_q value, diagnostic kits, RT-qPCR, SARS-CoV-2



Protective Effects of Ellagic Acid on Canine Semen Quality During Storage at 5 °C

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Abstract:

Chilled semen widely used instead of frozen semen due to less complicated regulations. This study evaluates the influences of supplementing the canine semen in a tris-based extender with varying concentrations of ellagic acid on parameters of sperm that were analyzed for 72 hours at 5°C. Manual masturbation was used to obtain a total of 32 samples from three adult mixed breed canines. The pooled semen was divided to 5 aliquots and they were cooled to 4°C. They were classified as control (without antioxidants), control sham (DMSO 5%) and ellagic acid groups (0.25, 0.5 and 1 mM) at a final concentration of approximately 200×10^6 sperms/ml. Different characteristics including motility of the spermatozoa (with CASA), viability, DNA and plasma membrane integrity were evaluated. Progressive motility and total motility were higher with the 1 mM ellagic acid, compared to the control group following 72 hours of storage in the liquid storage. Motility characteristics, viability, DNA integrity and intact plasma membrane percentages were significantly improved in 1 mM ellagic acid concentration compared to the control group. In conclusion, our study showed that the addition of 1 mM ellagic acid to the canine semen extenders more improved canine semen parameters after 72 hours of storage in the liquid storage.

Keywords: canine semen, ellagic acid.

The authors would like to sincerely thank the members of the Faculty of Veterinary Medicine and Urmia University Research Council for the approval and support of this research.

Multidrug Resistance of *Pseudomonas aeruginosa* Isolates in East Algeria

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Abstract:

Treatment of infectious diseases becomes more challenging with each passing year. This is especially true for infections caused by the opportunistic pathogen *Pseudomonas aeruginosa*, very common opportunistic pathogen in hospitals, responsible for nosocomial infections, with its ability to rapidly develop resistance to multiple classes of antibiotics including Beta-lactams, Aminoglycosides and Fluoroquinolones. Our objectives by this study is to determine the profile of nosocomial multidrug resistance (MDR) *P. aeruginosa* infections among patients hospitalized at university hospital, east Algeria. So a clinical isolates of *Pseudomonas aeruginosa* were obtained from both in and out-patients from the university hospital of east Algeria in the period from September 2018 to February 2019 using standard procedure. Presumptive identification of the isolates was carried out using standard biochemical tests according to the Clinical and Laboratory Standards Institute (CLSI) guidelines. The antibiotics used in the study includes: Ticarcilin, Ticarcillin/Clavulanate, Piperacillin / Tazobactam, Ceftazidim, Cefepim, Aztreonam, Imipenem, Sulfamethoxazole / Trimetoprim, Pefloxacin, Fosfomicin, Gentamycin and Colistin. As a findings, we revealed that most of *P. aeruginosa* isolates were recovered from pus (41%) followed by urine (24%) and blood culture (12%). Of the patients, 58% were male. The median age of patients was 42.39 and 30% of patients come from different intensive care units. The resistance rates for *P. aeruginosa* to ticarcillin, imipenem, ceftazidime, ticarcillin/clavulanate, Piperacillin/Tazobactam, Aztreonam, and Cefepim were 34%, 33%, 30%, 28%, 27%, 19% and 12%, respectively. Highest resistance was observed in sulfamethoxazole/Trimetoprim (86%) and pefloxacin (62%). The rates of resistance to fosfomicin and gentamycin were 37% and 28% respectively. Colistin showed excellent in vitro activity, all of the *P. aeruginosa* isolates were sensitive to Colistin except for one strain which appears to be intermediate to the latter. 35% of *P. aeruginosa* were MDR and 14% were extended-spectrum Beta-lactamase (ESBL)-producing bacteria. To conclude *Pseudomonas aeruginosa* infections increase with longer duration of stay in hospital. Emergence of multi-drug and extended-drug resistant *Pseudomonas aeruginosa* is alarming, presents a significant clinical challenge and can substantially complicate the approach to selection of optimal antibiotic therapy.

Keywords: *Pseudomonas aeruginosa*, resistance, nosocomial infections, MDR

Effects of Docosahexaenoic acid (DHA) on Quality of Ram Semen During Liquid Storage at Refrigerator

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Abstract:

Chilled semen is widely used instead of frozen semen due to less complicated regulations. This study evaluates the influences of supplementing the ram semen in a tris-based extender with varying concentrations of Docosahexaenoic acid (DHA) on different features such as characteristics of sperm that were analyzed for 72 hours at 5° C. The pooled semen was divided into six aliquots and they were cooled to 5° C. They were classified as control (without antioxidants), control sham (DMSO 5%) and DHA groups (0, 3, 5, 10 and 15 ng/ml). Different characteristics including motility of the spermatozoa (with CASA), viability, DNA and plasma membrane integrity were evaluated at 0, 24, 48 and 72h. The group containing 3 ng/ml DHA showed a significant increase ($P < 0.05$) in the percentage of total motility, progressive motility, characteristics of motility, viability and intact plasma membrane, as well as a significant decreased ($P < 0.05$) in DNA damage in 72 hours compared to control group. In conclusion, enrichment of ram semen with DHA may be beneficial effects on the semen quality during cold storage.

Keywords: Docosahexaenoic acid, sperm parameters, semen, ram.

The authors would like to sincerely thank the members of the Faculty of Veterinary Medicine and Urmia University Research Council for the approval and support of this research.

Investigation of the Protective Effect of Quercetin-3-O-Rutinoside in Ionized Radiation Induced Uterus Toxicity in Ovulation Induced Rats

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Abstract:

In this study, it was aimed to investigate the protective effect of quercetin-3-O-rutinoside in uterus toxicity generated by ionizing radiation in rats with ovulation induction. Archival uteri from a previous study with three control (Sham, Radiation (R), R + Dimethylsulfoxide (DMSO)) and 2 experiment (R + Quercetin-3-O-Rutinoside 100 mg (Q100 mg) and R + Quercetin-3-O-Rutinoside 200 mg (Q200 mg)) groups were evaluated. Hematoxylin-Eosin (H&E) stained uterus sections were evaluated for shedding in epithelium, hemorrhage and leukocyte infiltration. Masson trichrome staining was used for evaluation of fibrosis, and periodic acid schiff (PAS) method was used to evaluate basement membrane undulation. In the positive control (R) group shedding in the epithelium, hemorrhage and leukocyte infiltration was statistically significant ($p < 0.005$). In the R + DMSO group hemorrhage and leukocyte infiltration was prominent ($p < 0.005$). In the R + Q100 mg group a significant decrease in epithelial shedding was observed ($p < 0.005$). In the R + Q200 mg group a significant decrease in the epithelium shedding, hemorrhage and leukocyte infiltration was observed ($p < 0.005$). In the R and R + DMSO groups an increase was observed in the amount of collagen ($p < 0.005$). In the R + Q100 mg and R + Q200 mg groups a significant decrease was observed in the amount of collagen ($p < 0.005$). Basement membrane undulation was observed in R and R + DMSO groups. In our study, it has been concluded that Quercetin-3-O-Rutinoside has a protective effect depending on the dose in the uterine tissue damage caused by ionizing radiation.

Keywords: ionizing radiation, uterus toxicity, ovulation induction, quercetin-3-O-rutinoside

Effects of the Alkaloid Extract of *Peganum Harmala* on the Mobility and Oxidative Status of Ovine Semen

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Abstract:

Motility is an essential property of fertile sperm to pass through the female reproductive system, reach the site of fertilization and penetrate the zona pellucida of the oocyte. Oxidative stress is one of the main factors contributing to poor sperm quality and low in vitro fertilization rates. The additions of molecules with antibacterial and antioxidant properties are necessary in veterinary artificial insemination. They improve sperm motility and, potentially, sperm fertilization capacity. Alkaloids are the most abundant active agents in the extracts of several medicinal plants, where more and more studies are being carried out on their biological activities, especially antioxidant effects by neutralizing free radicals and inhibiting lipid peroxidation. In view of the properties of alkaloids, the aim of this work was to study the effect of the alkaloid fraction of *Peganum harmala* on the characteristics of ovine semen in vitro. For this reason, ram sperm were incubated with different concentrations of the alkaloid extract of *Peganum harmala* (10, 5 and 1 µg/mL) for 24 hours, in the presence of a negative control, motility and oxidative status were evaluated. The results indicate that the incubation of spermatozoa with the alkaloid extract of *Peganum harmala* positively affects the quality of ovine semen, improving the motility parameters and reducing lipid peroxidation compared to control.

Keywords: alkaloids, sperm, motility, MDA level.

Study on Sarcocystis Infection and Detection of Its Species in Slaughtered Cattle and Sheep in Saqez Sloutherhouse, Iran

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Abstract:

Sarcocystis infection is one of the most common zoonotic protozoon diseases caused by different *Sarcocystis* spp. Due to the importance of this infection in public health, the infection rate of *Sarcocystis* infection and its species in slaughtered sheep and cattle of abattoir of Saqez, was investigated. Total of 280 slaughtered sheep and cattle were selected randomly, and their esophagus, diaphragm, heart, tongue, masseter, and intercostal muscles were separated. To find cysts, the samples were examined by two methods: direct observation for macroscopic cysts and finding microscopic cysts by digestion and impression smear (DOB smear) methods. Of the 140 inspected cows, 37 (26.42%) and 27 (19.28%) carcasses were contaminated with bradyzoite of parasite, respectively, by impression smear and peptic digestion method. In 140 slaughtered sheep samples, there was 11 (7.85%) macroscopic cyst in samples but microscopic cysts were positive in 32(22.58) and 23(16.42) of sheep respectively, by impression smear and peptic digestion method. The results showed infections in males were more than females in both sheep and cattle ($P < 0.05$). There was a significant difference in various ages of studied cattle and sheep ($P < 0.05$). This study showed the heavy sarcocystis infection in meat of cattle and sheep of this region, so, Due to importance of this parasite in public health, it is suggested to avoid eating raw and undercooked meat and conduct preventive measures such as closer inspection of carcasses and local or total removal of slaughtered in abattoir.

Keywords: Cattle, Macroscopic cysts, Microscopic cysts, Sarcocystis, Sheep

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Evaluation of Nutritional Habits and Food Addictions of Students Studying at Gümüşhane University Faculty of Health Sciences

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Abstract:

The aim of this study is to examine the food addiction of students studying at Gümüşhane University Faculty of Health Sciences. The sample of the study, which is a cross-sectional type of situation determination study, consisted of 357 volunteer students in the 20-25 age group. Research data were collected online with the help of a questionnaire form. In the first two parts of the questionnaire form, students' general information and eating habits, in the last two parts, the Yale Food Addiction Scale (YFAS) and anthropometric measurements (body weight, height) were included. The research data were evaluated with the SPSS package program. 72.0% of the participants are female, 26.6% study in the Department of Nutrition and Dietetics. The average age of the participants in the study was 21.42 ± 1.51 years, and the average Body Mass Index was found to be 22.06 ± 3.19 kg/m² for female and 23.27 ± 4.53 kg/m² for male. It was determined that 75.6% of the students consumed breakfast, 33.1% lunch, and 88.0% dinner meal every day. Food addiction was determined in 47.6% of the participants. 77.6% of the students with food addiction were female and 22.4% were male ($p < 0.05$). The mean YFAS scale score was found to be 2.87 ± 1.78 (women 3.02 ± 1.83 ; men 2.45 ± 1.57). There was no statistically significant difference between the distribution of food addiction according to the education department ($p > 0.05$) and BMI groups ($p > 0.05$). YFAS scale scores were positively correlated with body weight ($r = 0.823$; $p < 0.001$) and BMI values ($r = 0.118$; $p < 0.05$), and negatively correlated with age ($r = -0.002$; $p > 0.05$). Chocolate/wafer products (40.9%) took the first place among the foods that cause excessive eating and/or problems due to excessive eating. Factors such as the difference in social and physical conditions in university students, eating food as a social escape, can increase the consumption of ready-made food, food addiction and obesity risk. It is necessary to gain awareness of university students about healthy eating.

Keywords: body mass index, food addiction, obesity, university students

The Effects of Myostatin on Glucose and Lipid Metabolism

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Abstract:

Peptides with autocrine, paracrine or endocrine effects from skeletal muscles are called myokines. Due to myokines secreted by skeletal muscles; It plays important roles in whole body homeostasis by providing mutual communication with other organs and tissues such as adipose tissue, liver, pancreas, cardiovascular system, brain, bone and skin. Myostatin is an autocrine / paracrine myokine acting as an inhibitor of skeletal muscle growth. It is an antagonist with follistatin released from the liver during acute exercise. Myostatin induces muscle atrophy by inhibiting myoblast proliferation, ubiquitin-proteasomal activity, and down-regulation of the Insulin-Like Growth Factor-Akt (IGF-Akt) pathway. It was first detected in mice that myostatin genes affect growth in skeletal muscle. Myostatin decreases muscle mass, affects blood glucose balance, causing metabolic problems such as insulin resistance, Type II diabetes and obesity, increasing morbidity and mortality, and prolonging the healing process. In Type II diabetes, myostatin inhibition to alter muscle mass results in increased whole body energy expenditure, decreased peripheral fat mass and potentially low blood glucose. Although myostatin is mainly found in skeletal muscle, it is also found in adipose tissue, albeit at a low level. It has been shown that myostatin has adverse effects on preadipocyte differentiation and proliferation, and inhibits preadipocyte differentiation in 3T3-L1 cells by altering the regulation of CCAAT / enhancer binding protein α (C / EBP α) and peroxisome proliferator activating receptor γ (PPAR γ) and 3T3-L1 preadipocyte differentiation. As a result, it has been shown that myostatin secreted from muscle tissue has negative effects on glucose and lipid metabolism. However, although inhibition of myostatin has positive effects on glucose and lipid metabolism, its effects on other metabolic pathways in the body are not yet clear. Comprehensive studies are needed on the metabolic effects of myostatin.

Keywords: myostatin, glucose, lipid, metabolism



History, Classification, Diagnosis, Treatment and Experimental Models of Epilepsy

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Abstract:

The oldest known source of epilepsy was found in Mesopotamia as a result of archaeological excavations. The word bennu found in the laws of Hammurabi is associated with a jinn (demon), the assistant of the moon god sin. In ancient Mesopotamian civilizations, epilepsy was believed to be a condition associated with supernatural and mystical powers. Accordingly, they used magic, amulets, sacred stones (jade), dogs, lions, wolves and tortoises and wiping their blood and head according to their treatment. Epilepsy is a genetic or acquired chronic neurological disease characterized by recurrent seizures. It is estimated that patients with epilepsy are 0.8% of the population. The disease occurs in 30% of patients due to an underlying injury. Epilepsy is defined as a condition that occurs as a result of the deterioration of the balance in the direction of increasing excitation and/or decreasing inhibition in the brain. The occurrence of repetitive spontaneous seizures with the hyperexcitability of changes in the normal neuronal network is called epileptogenesis. Epilepsy is classified into two groups as temporal lobe epilepsies and extratemporal epilepsies. The history of the patient is taken in the diagnosis of epilepsy. In addition, electroencephalography, magnetic resonance imaging, computed tomography, blood tests are used in the diagnosis. The treatment of epilepsy is done in two ways, including medication and surgical treatment. Epilepsy is a chronic disease that requires lifelong treatment with antiepileptic drugs, often and for years. There are two main types of epilepsy surgery methods. The first and preferred is removal of the epileptic focus. The other is the surgical method that aims to reduce the spread, frequency and severity of seizures by cutting the seizure propagation paths. For ethical reasons, experiments in humans cannot be carried out in clarifying the pathophysiology of diseases and developing new treatment options. Experimental models have been put forward for this. These experimental models are known and applied as Kindling Model, Pentilentetrazole Seizure Model, Status Epilepticus Model, Maximal Electroshock Seizure Model, Absans Epilepsy and Seizure Model, Cortical Dysplasia In Utero Radiation Model.

Keywords: antiepileptic drug, epilepsy, epileptogenesis, temporal lobe epilepsy



Mechanisms of *Bacillus* Probiotics

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Abstract: The increasing concern of the infections caused by multi-drug resistant (MDR) bacterial pathogens and the failure to identify new antibiotics make it urgent to find alternative strategies. Probiotics, as a historically proposed solution to the treatment of gastrointestinal disorders, have been widely applied in animal feeds, human dietary supplements and registered medicines. In particular, *Bacillus* is a common bacterial species distributed ubiquitously in nature. Several *Bacillus* species are frequently used as probiotics, due to their ability to produce spores that have a strong resistance to heat, gastric environments and other harsh conditions. *Bacillus* spp. is not a natural inhabitant of gut, yet it does have a strong ability of space competition. Studies have shown that *Bacillus* has high affinities to the intestinal epithelium. Meanwhile, the spore-forming volume of bacteria is much larger than the volume of propagules generally. Besides, *Bacillus* has an extraordinary ability in competing for limited nutrients with pathogens. Sugars, organic acids and other organic compounds can all be the carbon and energy sources to *Bacillus*. Another substance crucial to the growth and reproduction of most pathogens is oxygen. Compared to pathogenic bacteria, *Bacillus*, as an aerobic or facultative anaerobic bacterium, is outstanding in gaining oxygen. Moreover, some *Bacillus* probiotics have the capacity to defend pathogens by secreting antibacterial substances. Lastly, metabolites produced by *Bacillus*, including signal molecules, organic acids, nutrients and enzymes, are competent to favorably alter the immunity and digestion of hosts. In conclusion, equipped with multifaceted probiotic mechanisms, *Bacillus* displays an enormous potential to treat the infections caused by MDR pathogenic bacteria.

Keywords: *Bacillus*, probiotic, mechanism

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Hepatitis C Virus Genotypes Distribution in East Algeria

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Abstract

In order to assess the burden of hepatitis C (HCV) in Constantine, the capital of eastern Algeria and the most affected region in our country, it seemed necessary to us to quantify the evolution of new patients at the University Hospital of Constantine. , in space and time, to determine their viral genotypes and their distribution according to certain parameters such as region, year of diagnosis, age, sex and risk factor. A total of 913 HCV positive patients were included in this study, coming from nine wilayas (provinces) of eastern Algeria from 2011 to 2017. Regarding the epidemiological profile, the heterogeneity of the spatio-temporal distribution of the patients was statistically significant (p-value = 0.0002596). The distinctive features of this region were the older age of our patients (54.43% \geq 55 years), no significant difference was observed between the mean ages of our patients depending on the region (p-value = 0.8291) and across the years (p-value = 0.6491). Regarding the average relationship of age and sex, there is no significant difference. The female predominance (sex ratio F / M = 1.47, p-value = 0.0000002037) and the almost exclusive presence of genotype 1 in 89.15% of cases with predominance of subtype 1b (73.93%) were observed . The most common mode of transmission in our patients was blood transfusion in 29.57% cases and there was a significant difference in the distribution of risk factors according to the wilayas (p-value = 7.682×10^{-12}) and age (p-value = 2.2×10^{-16}). In contrast, there was no significant difference between the two sexes with respect to the risk factor. There was a significant difference in the distribution of genotypes according to region (p-value = 0.007372), contamination factor (p-value $< 2.2 \times 10^{-16}$) and age. High genetic diversity of HCV was found in Algeria, with genotypes 1 as the most prevalent genotype circulating in the country. The study can be helpful to plan for future prevention and management of HCV infection in Algeria.

Keywords: hepatitis c virus; epidemiology; genotype; risk factor; infection.



Composition, Food Applications and Health Benefits of Carob (*Ceratonia siliqua L.*)

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Abstract:

Carob (*Ceratonia siliqua L.*) is a fruit of the Leguminosae (Fabaceae-Legumes) family, with high nutritional value and economic importance. In the world it is mostly grown in Turkey, Spain, Italy, Morocco, Portugal and Greece where the Mediterranean climate is common; in our country, it is mostly grown in Muğla, Adana, Mersin and Antalya. The mature fruit is 10-25 cm long and approximately 10% consists of seeds. Carob contains on dry matter basis 52-62% sugar; 34-35% of total sugar is sucrose, 10.1-12.2% fructose and 7.8-9.6% glucose. In addition, in 100 grams there is 25.83 g dietary fiber, 4.18 g protein, 0.69 g fat. Due to the high amount of water-insoluble dietary fiber it contains, it is in class of foods with a low glycemic index. It contains minerals such as potassium, calcium, magnesium, phosphorus, sodium, selenium, iron and copper. Carob leaves are rich in polyphenols and flavonoids. In addition to being preferred as a natural additive (E410) in food industry, its fruits are also used as feed for various purposes. Carob contains 24 kinds of phenolic compounds and the most phenolic substance it contains is gallic acid. It is widely used in our country as fruit, carob molasses and carob flour. Its seeds are used in gamut production; flour is obtained by separating seeds and grinding them. In addition to these, carob is preferred for obtaining D-pinitol, which is a bioactive component. Carob has preventive and curative effects on diseases that are common in the world such as obesity, cardiovascular and gastrointestinal diseases and diabetes. Carob has anti-inflammatory effects on gastrointestinal system; anti-atherosclerotic, antioxidant effects on cardiovascular diseases; and regulates glucose homeostasis and it has positive effects on diabetes. It is stated that it has antidepressant and anticancer effects due to its polyphenols and antioxidant activities. In addition to positive effects of carob on health, availability of both seed and fruit shows that it is an economically valuable food. The consumption and production of carob fruit and its products should be supported, and researches about carob fruit should be detailed and reproduced.

Keywords: carob (*ceratonia siliqua l.*), d-pinitol, health, nutrition

LEAP2: A New Regulator in Energy Metabolism

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Abstract:

Many regulator factors contribute to the control of energy balance and appetite. Ghrelin is an orexigenic peptide which is secreted mainly from the stomach and signals to the brain to stimulate food intake. Ghrelin is a significant peptide in appetite regulation. Ghrelin has been identified as the endogenous ligand of the growth hormone secretagogue receptor (GHSR) that stimulates pituitary growth hormone release. Via GHSR, ghrelin stimulates growth hormone (GH) secretion to protect from hypoglycemia caused by starvation. Liver-expressed antimicrobial peptide 2 (LEAP2) has been identified as an endogenous inhibitor of ghrelin-induced GH secretion. Initially, LEAP2 was represented as a liver-specific peptide with antimicrobial actions that is secreted into circulation. Then, it was shown that expression of LEAP-2 was also in the duodenum, jejunum, kidney, stomach. LEAP2 secretion is suppressed by fasting. LEAP2 plays a vital role in the innate immune system of the host by disrupting the physical integrity of the bacterial membrane to kill specific bacteria directly, and it can also mediate its antibacterial activity via hydrolyzing bacterial genomic DNA. Besides, LEAP-2 has been described as the first endogenous peptide capable of antagonizing the effects of ghrelin on nutrition, GH secretion, and the continuation of essential glucose levels during chronic energy restriction. In vivo, an inverse relationship was found between circulating ghrelin and LEAP-2 levels in reaction to nutritional status changes. After fasting, serum ghrelin increased when serum LEAP-2 decreased. In refeeding situation, serum ghrelin decreased while serum LEAP-2 increased. Ghrelin supports increased body weight, food intake, adiposity, hyperglycemia, GH secretion. LEAP-2 reduces the biological actions of ghrelin. LEAP-2 downregulation increases actions evoked by ghrelin. LEAP2 levels in humans showed a statistically significant correlation with body mass index. Also, LEAP2 levels correlated with the percentage of body fat, plasma glucose, HOMA-IR, and triglycerides. In conclusion, LEAP2 is thought to be a factor that can play a role in energy metabolism. However, more studies are required to determine the effects of LEAP2 in humans.

Keywords: LEAP2, ghrelin, growth hormone, energy metabolism.



Phytochemical Screening of Wild and Domesticated Species of Medicinal Plant *Origanum Compactum*

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Abstract

The present study consists in strengthening different methods of plant multiplication knowledge domestication of some of the most exploited plant species. At the end of an ethnobotanical survey carried out in 2016 in the region of taza in order to know the most exploited plants and the traditional uses our research work has focused on the multiplication of plant species. After harvesting the seeds we made tests of germination and transplantation in the fields of the plant species and followed them until the flowering stage we collected domesticated and wild species to make a phytochemical study of two plants of *Origanum compactum*. After harvesting the aerial parts of the two species are cleaned and left to dry for phytochemical screening of different extracts of two wild and domesticated plants of the species *Origanum compactum*. Thus the qualitative analysis was carried out on aqueous and hydroalcoholic extracts of two plants subject of this work. Colorimetric and precipitation reactions using different reagents. The results obtained us to reveal important families of polyphenols and alkaloids.

Keywords: extract, *Origanum compactum*, wild, domesticated, medicinal plants phytochemical screening



**Sperm Quality in Response to Age in Local Rabbits Reared
in Semi-Arid Environment (Tiaret, Algeria)**

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Abstract:

The aim of this study was to evaluate the age effect on quantity and quality of rabbit semen raised in semi-arid environment of Tiaret region. The study was conducted at the experimental farm of Ibn Khaldoun university of Tiaret. A total of 20 rabbit bucks of the local Algerian population (5-11 months of age) weighting between 3010g and 4540g were collected randomly and exposed to an extensive rhythm. The average value of libido was $25,17 \pm 20,94$ seconds (sec.). The ejaculate volume was $1,48 \pm 0,33$ ml and the pH $7,67 \pm 0,36$ for bucks of 11 months of age. The analyses of semen show no significant for mass and individual motility ($6,84 \pm 1,70$ and $2,96 \pm 1,04$ respectively). The rate of vitality was $61,18 \pm 18$. However, the age of bucks significantly affected the concentration and abnormal spermatozoa ($p < 0,05$). In this study, most of semen parameters were influenced by the age and rabbit bucks of the Algerian local population seems desirable for reproduction in compare with other strains.

Keywords: rabbit, fertility, age, semen, spermogram.



Viral Diseases Transmission via Semen and Their Control Strategies in Cattle

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Abstract:

Artificial insemination is to provide genetic improvement and breeding in cattle. Transmission of viral diseases through semen in artificial insemination practices poses a risk that should be avoided. Therefore, semen used for artificial insemination must be free from infectious agents. The aim of this poster is to review the scientific evidences regarding viral diseases that could potentially be transmitted via semen and their control strategies. There is a lot of scientific evidence about pathogens that are potentially infectious through semen and threaten animal health. Viral diseases such as Bovine herpesvirus 1 (BoHV-1), Bovine viral diarrhoea virus (BVDV), Bovine leukemia virus (BLV), Lumpy skin disease virus (LSDV), bluetongue virus (BTV), Foot-and-mouth disease virus (FMDV), rinderpest, Malignant catharral fever, Akabane virus and Schmallenberg virus (SBV) have been compiled. In this poster the concise information pertaining to etiology, incubation periods, characteristic symptoms, descriptions of diseases mentioned as having potential viral venereal transmission and classification according to their potential risk of transmission via semen has been presented. The infections that cause the transmission of diseases through semen should be carefully investigated and the necessary restriction and disease control protocols can be determined. Measures should be taken quickly against diseases transmitted by semen. Animals newly joining the herd should be subjected to quarantine at the first stage. During the quarantine, the necessary clinical tests should be applied to the animals and screening should be made for infectious diseases. Infectious vaccination programs should be implemented urgently and regularly. Also two approaches can be applied to test the safety of semen: the first is an examination of semen for the presence of infectious agents. The second method is to test pathogens or antibodies for diseases before and after semen collection against infectious agents in cattle. As a result, if we know the ways diseases of transmission with semen and control strategies, breeding studies will accelerate and healthy animals will be brought into breeding.

Keywords: cattle, semen, transmission, viral disease



The Genetic Association of VEGF in Kashmiri Women with Recurrent Pregnancy Loss

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Abstract

The aim of the study was to investigate an association of polymorphic variations (1154G>A, 634G>C and 583C>T) in vascular endothelial growth factor (VEGF) gene between cases of recurrent pregnancy loss (RPL) and women who have surpassed the full-term pregnancy in the vale of Kashmir. Blood samples for the case vs control study comprised a total of 200 women with RPL and a control group of 240 women (with at least two successful pregnancies without any miscarriages) and also tissue samples from 60 product of conceptions (POC), were taken from the outpatient clinic as well as from the operation theatre of Department of Gynecology and Obstetrics, (SKIMS), J&K (India), respectively. Then genomic DNA was extracted from these samples; whole blood as well as from the POC. The polymorphism genotyping was conducted by digesting PCR products with specific restriction endonucleases.

The polymorphic variants of VEGF gene included in this study conferred a profound amount of risk for RPL in Kashmiri women. Higher minor allele frequency and variant genotype distribution of VEGF 1154G>A ($p<0.05$) and 634 G>C ($p<0.05$) single nucleotide polymorphisms (SNPs), respectively were observed in RPL cases than control women. As for VEGF 583 T>C, increased RPL risk ($p=0.003$) was observed in heterozygous TC genotype among the cases (70.5 %) when compared to controls (58.7%). Moreover, homozygous genotype 'AA' of 1154G>A SNP showed significant difference among POC versus the cases ($p<0.05$). However, no significant association was found for other SNPs of VEGF for POC and cases. The study concluded that the variants VEGF 1154G>A, 634G>C and 583C>T play a vital role for an increased RPL susceptibility and seems to impact the likely outcome of pregnancy in Kashmiri population.

Keywords: polymorphism, recurrent pregnancy loss, vascular endothelial growth factor

Funding: The current study was funded by Department of Biotechnology, India (NO. BT/PR11769/MED/97/229/2014).



Biological Hazards of *Bacillus* spp. in Foods

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Abstract:

Bacillus endospore formers are omnipresent in nature and extensively used as probiotic supplements in the livestock, poultry and aquaculture industries as well as human diet. Notwithstanding the role of a promising solution to prevent gastrointestinal infections, *Bacillus* have growingly been a major concern to public health. For instance, *Bacillus cereus* are recognized as opportunistic pathogens that produce virulence factors such as hemolysin BL (Hbl), non-hemolytic enterotoxin (Nhe) and cereulide. Foodborne outbreaks originated from *B. cereus* have caused substantial economic losses and illnesses characterized by diarrhea, vomiting, and even severe pulmonary hemorrhage. The object of this study was to assess the biological risk of *Bacillus* spp. in food chain. We identified *Bacillus* spp. by microbiological techniques from food products purchased in the local markets of Beijing. Then, CLSI broth microdilution method was applied to determine the minimum inhibitory concentration (MIC). The hemolytic and antimicrobial activity of each strain were also investigated. Results: *Bacillus* strains, comprising *B.cereus*, *B. licheniformis*, *B. subtilis*, *B. pumilus*, ect., were isolated from a majority of the food samples, especially dairy and rice products. The isolates were distinctly susceptible to vancomycin, rifampicin and amoxicillin-clavulanate while most of them showed severe resistance to lincomycin, tiamulin and florfenicol. In addition, a large proportion of these strains can cause hemolysis on blood agar. The antibiotic resistance and virulence genes will be further analyzed to better profile the biological safety of *Bacillus* spp. in foods. Altogether, the property of toxin producing and antimicrobial insusceptibility of *Bacillus* spp. pose a potential threat to our daily diet and more intensive research are needed to the counteract the dissemination of drug resistance.

Keywords: *Bacillus*, food safety, toxin, antibiotic resistance

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Comparative Histoarchitecture of Stomach of Indian Brown Cobra, Rat Snake and Banded Racer

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Abstract:

The investigation was performed on the comparative histoarchitecture of stomach in three species of snakes, namely the Indian brown cobra (*Naja naja*), Rat snake (*Ptyas mucosa*) and Banded racer (*Argyrogena fasciolata*). Aim of the study was to observe the anatomical modifications and the functional significance according to their feeding habit. These snakes were procured after their accidental deaths near college premises (in fresh condition). The specimens were collected after dissections and fixed in 10% Neutral Buffered Formalin for 24 Hrs and later subjected to routine histological examination. The microscopic observations revealed that the stomach of these snakes was composed of four layers, viz. the tunica mucosa, tunica submucosa, tunica muscularis, and tunica serosa. Tunica mucosa was consisted of the lamina epithelialis, lamina propria and lamina muscularis. Lamina epithelialis in all the snakes showing simple columnar epithelium but in cobra, additionally the saccular mucous secreting units were observed. The thickness of lamina muscularis was variable among the species with 1 to 2 cells thick in banded racer, slightly thicker in Rat snake, whereas it was composed of inner circular and outer longitudinal layer in cobra. The tunica submucosa was consisted of dense irregular connective tissue in Banded racer and Rat snake while the arrangement became loose in Cobra. The tunica muscularis was composed of inner circular and outer longitudinal muscular layers which were thicker in Banded racer and Rat snake, compared to that of cobra. The tunica serosa was consisted of a thin layer of connective tissue lined by serous epithelium (mesothelium) in all the snakes. The histochemical observations revealed that the cells of entire lamina epithelialis had mucous granules in their cytoplasm which showed positive reaction for Alcian Blue in Rat snake and cobra, whereas in Banded racer the secretory mucous cells were arranged in separate glandular masses with AB positive contents in lamina propria. The differences in muscular thickness may be indicative of the usage in churning and crushing of food material in banded racer and rat snake whereas being venomous, the cobra had thinner muscular layers.

Keywords: adaptation, feeding habit, histoarchitecture, snakes, stomach.



Nutritional Value and Health Benefits of Donkey Milk

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Abstract:

Human milk is generally an infant's first and exclusive food, and is promoted as the gold standard in neonatal nutrition. Donkey milk, because of its similarity to human milk, has been widely suggested to be an ideal substitute. Comparing the gross composition of donkey and human milk, the most apparent difference is certainly the fat content, which is much lower in donkey milk. Differently, the other main components of donkey milk, such as lactose, caseins, and whey proteins, are very similar to human milk, whereas they remarkably differ from cow milk. This high similarity might generally explain the high tolerance of donkey milk shown by humans. The high lactose content makes this milk sweet and palatable, resulting in it being well accepted by children. The two major caseins of donkey milk are α 1- and β -casein, given that α 2-casein was found only as a minor component, whereas k-casein was rarely detected by means of a specific immunostaining method. Donkey milk has certain physiological functions, such as high tolerability, antimicrobial activities and anticancer activities. Main characteristics and nutritional value, with the related impact on human health and some potential applications of donkey milk in the dairy field, are reviewed in this paper.

Keywords: Donkey milk, food, human health, nutrition

Rooibos (*Aspalathus linearis*) Tea and Some Health Effects

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Abstract:

Functional foods and plant-based supplements are a remarkable area of research. Rooibos tea, also known as red tea, has attracted attention in recent years due to its rich antioxidant composition. Rooibos is a bushy legume species that grow spontaneously every year in South Africa. Although the *Aspalathus* genus includes more than 200 species specific to South Africa, only *Aspalathus linearis* (*A. linearis*) can be consumed. *A. linearis* is used to relieve allergies, asthma and dermatological problems, as well as a relaxing drink in traditional medicine due to its caffeine-free, low tannin and high mineral content. Its leaves and stems are used in the production of rooibos tea, a beverage that has positive health effects. At the same time, *A. linearis* is consumed as a milk substitute in children who are allergic to dairy products. Rooibos tea has an exceptionally high flavonoid content in C glycosides. Rooibos tea are produced two types (unfermented and fermented rooibos tea). The fermentation process is an oxidation process that occurs to produce the characteristic red-brown color and sweet aroma of the infusion. Aspalatine, a dihydrochalcone C-glucoside abundant in rooibos, has been shown to have biological activities including antioxidant, antidiabetic, cardioprotective, antihypertensive and anticlastogenic effects. Recent research shows that these antioxidants found in rooibos tea may protect against cancer, heart disease and stroke. Polyphenols obtained from methanolic rooibos extracts selectively inhibit the proliferation of premalignant cells by apoptosis. Along with these effects, in vivo studies, rooibos has anti-aging, hepatoprotective, nephroprotective, immunomodulatory, antimicrobial, antispasmodic, anti-eczema activities, and it has been shown to prevent DNA damage and inflammation in living things. Besides these potential health effects, case-report studies have been shown to cause liver toxicity. As a result, although it seems promising in the prevention of insulin resistance, its effects on liver damage should be clarified, especially with human studies.

Keywords: rooibos tea, antioxidant, aspalatine

**Prevalence and Identification of FLT3-ITD and D835 Activating Mutations
in Acute Lymphoblastic Leukemia (ALL) in Kashmiri Patients
(North India)**

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Abstract:

The FLT3 gene, a receptor tyrosine kinase encodes a transmembrane protein that plays a fundamental role in normal hematopoiesis. The two types of mutations identified in FLT gene are an internal tandem duplication (FLT3-ITD) in exons 14 and 15, and a missense point mutation in codon 835 in exon 20 (FLT3-D835). These mutations activate a ligand independent constitutive tyrosine-kinase receptor and are mostly found in acute myeloid leukemia and are associated with bad prognosis. We first time from the Indian subcontinent valued the frequency of FLT3 mutations in a cohort of Acute lymphoid leukemia (ALL). FLT3-ITD mutations and FLT3-D835 were investigated in a cohort of 74 confirmed ALL patients at diagnosis, by polymerase chain reaction (PCR) and restriction fragment length PCR (PCR-RFLP) respectively. **Results:** Overall 03 mutations were detected from 74 ALL patients (4.05%) in FLT-ITD but no mutation was found in FLT3-D835. All the three patients with FLT mutations were negative for the known translocation in ALL. Among these patients one died in the first year of treatment (33.4%) while the rest of two FLT3 mutant patients are fairly doing well. **Conclusions:** This report implies that FLT3 gene mutations are present in ALL patients from Kashmir (North India) although not as common as found in AML (20-30%) but do impact the clinical outcome.

Keywords: FLT3 gene, transmembrane protein, missense point, pcr-rflp, ALL.



Vegetarianism and Pregnancy

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Abstract:

The aim of this study is to examine the effects of vegetarian diet on pregnancy period and to provide nutritional recommendations on this issue. Although vegetarianism has various types such as veganism, lacto-vegetarianism, ovo vegetarianism, lacto-ovo vegetarianism and semi-vegetarianism, it is basically defined as not consuming meat. Vegetarianism, which is accepted as a lifestyle and a life philosophy as well as a diet, has been increasing worldwide since its beneficial aspects are discussed. According to some studies on vegan/vegetarian diets, it has been found that these individuals have low blood cholesterol levels, and diseases such as cardiovascular diseases, obesity, diabetes mellitus, arteriosclerosis and hypertension are seen less. Although it is a personal preference, adopting a vegan/vegetarian diet plan brings some risks and benefits to the mother and fetus during pregnancy. Pregnancy is one of the periods when nutrition is most important in human life. During this period, adequate and balanced nutrition has high effects on the health of both the mother and the baby. Among the most common nutritional problems in pregnant vegetarians are vitamin B₁₂, zinc, iron, omega-3 fatty acids and vitamin D deficiencies. This risk is particularly problematic for vegans when a regular diet is not established. For this reason, vegans may need protein sources or protein-enriched foods, macronutrients such as n-3 fatty acids, and supplements of micronutrients such as iodine, calcium, iron, zinc, selenium, vitamin B₁₂, vitamin D and riboflavin.

Keywords: diet, vegan, vegetarianism, pregnancy, supplement



Feline Hyperesthesia Syndrome: Compelling Neuropathology of a Cat

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Abstract:

Veterinary neurologists making progress in diagnosis many feline troubles associated with the central nervous system, still some disorders remain a mystery. Such as the feline hyperesthesia syndrome, a weird disease that can affect cats of all ages, especially mature cats. A 30-month-old, hybrid female cat was brought to Veterinary Teaching Hospital with the complaint of odd behavior and self-scratching. Clinical examination revealed abrasion-like wounds in multiple skin areas as a result of excessive scratching of the face and neck. Behavioral changes like over-grooming, abnormal vocalization, and hyperesthesia appear sudden and lasting about one or two minutes. In clinical examination, we observed a sign of hyperesthesia syndrome is a rippling or rolling of the skin on an affected cat's back. There was no abnormal finding in complete blood count, serum biochemical, and urine analysis. Ectoparasites were ruled out as a result of the dermatological examination. Pyoderma was detected in samples taken from lesioned areas. Warning signs before odd behaviour episodes included dilated pupils, a crouch, tail flicking, and chasin were observed in behavioral examination. Broad-spectrum antibiotic (amoxicillin-clavulanic acid) prescribed to control pyoderma. And also, Lustral ® was prescribed to patient for minimize environmental impact. reatment for the cat that was diagnosed with hyperesthesia syndrome was likely to include a behavioral component aimed toward reducing any anxiety that the animal might be experiencing. For this purpose, environmental enrichment was advised to the patient owner. Feline hyperesthesia syndrome is a disorder with an enigmatic etiology and in this case, successful treatment was achieved with combination of drugs and environmental modification.

Keywords: feline hyperesthesia syndrome, environmental enrichment, neurology



Effects of Apple on Health

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Abstract:

Apple is the second most-consumed fruit in the world after bananas. Apple, one of the fruits that can play a role in reducing the risk of chronic diseases due to the dietary fiber and phytochemicals such as flavonoids, polyphenols, and carotenoids. Also it contains micronutrients such as vitamin C, K, and Mg. The importance of apples can be explained by different factors, such as their availability in the market in various ways throughout the year and also its recognition as a healthy food. In this review paper, it is aimed to examine the effects of apple on health. Studies examining the effect of apples on chronic diseases have shown that participants with the highest amount of apple consumption have a 0.87-fold lower risk of cardiovascular disease mortality compared to those with the lowest amount. It has been reported that higher apple consumption is associated with lower cancer mortality, depending on the dose. A cross-sectional study of 8.335 American adults found that apple consumption was inversely correlated with C-reactive protein levels, a biological marker of chronic inflammation. In a human intervention study, it was observed that consuming dried apples for 12 months reduced C-reactive protein levels by 32.0%. Diet is a powerful modifier of type 2 diabetes risk; a diet especially rich in fruits and vegetables is associated with a reduced risk of diabetes. It is emphasized that apple is specifically an important dietary component that has the potential to reduce the prevalence of type 2 diabetes. In an observational study of 38.018 women, consumption of more than one apple per day was associated with a 28.0% reduction in type 2 diabetes risk compared to those who never consumed apples. In another study, delays in glucose absorption were found after acute consumption of apple juice compared to controls. Observational studies have reported that higher consumption of apples is associated with a lower risk of all-cause mortality, abdominal aortic calcification, coronary mortality, type 2 diabetes, and inflammation. Further studies are needed on this subject. One apple a day can be a simple and economical way to reduce chronic disease cases worldwide.

Keywords: apple; chronic diseases; dietary fibre; phytochemicals



Hospital Infection and Antimicrobial Resistance

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Abstract:

Hospital infections are generally defined as an infection developing in a patient who admitted to the hospital for a reason other than infection. Hospital infections usually develop within 48-72 hours after the patient is hospitalized and within 10 days after discharge. Hospital infections come to our agenda with the developments in medicine and emerge as an important problem that concerns the whole world. Gram-negative bacteria are at the forefront among hospital infectious agents. The main ones are *P.aeruginosa*, *A. baumannii*, *K. pneumoniae* and *E. coli*. This is followed by *S. aureus*. In recent years, there has been an increase in hospital infections caused by Gram-positive factors and as a result of this, chemotherapy applications, intravenous catheters, prophylactic antibiotic application and increase in the use of prostheses are shown. Infections with resistant bacteria prolong hospital stay, increase healthcare costs and, most importantly, lead to a significant increase in both morbidity and mortality. A bacteria may not be affected by an antibacterial agent that was previously sensitive due to changes in its genetic properties. In this case, that bacteria will gain resistance. As a result of the increasing spread of multiple antibiotic resistant microorganisms, serious problems are experienced in the treatment of bacterial infections due to both gram-positive and gram-negative microorganisms, and this increases the need for new antibiotics. As a result, hospital infections are an important problem in our country as well as all over the world. Surveillance studies are essential for controlling these infections. In order to control the control of hospital infections, surveillance studies should be carried out and each center should determine the microorganisms, resistance patterns and distribution of infections that make up its own hospital flora and disseminate the correct antibiotic use.

Keywords: Hospital infections, antibiotic resistance, bacteria

Study Regarding the Minerals Content, Amino Acids and Energetical Value in Three Monofloral Bee Collected Pollen

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Abstract:

Bee collected pollen (BCP) is promoted as a health food with a wide range of nutritional and therapeutic properties. Knowledge about the botanical source of the BCP samples, as well as their chemical composition, it is important to add value to the product. A high concentration of proteins, lipids, essential amino acids, unsaturated and saturated fatty acids, polyphenols, minerals make BCP very important for human diets. The aim of this study was to evaluate the amino acids, mineral content and energetical value of three spring monofloral BCP. The palynological analysis was made according to Muradian, 2005 and Louveaux, 1975. The mineral content was determined by Atomic Absorption Spectroscopy (AAS) and the amino acids by liquid-chromatography with mass spectrometry (LC-MS). The nutrients content of bee pollen varies greatly, depending on the botanical origin. *Crataegus monogyna*, *Brassica spp.* and *Prunus spp.*, three types of spring bee pollen were analysed regarding nutritional and biological value. Twenty-six free amino acids were identified in the BCP samples of which the 8 essential amino acids are all present. Total free amino acids determined in the study samples was 3301.81 mg/100g for the *C. monogyna*, followed by *Prunus spp.* and *Brassica spp.* with values 2615.22 mg/100g and 1460 mg/100g. The most abundant was proline (PRO), 1203 mg/100g, followed by ASN (asparagine) 533.5 mg/100g and HIS (histidine) 122 mg/100g in *C. monogyna* bee pollen sample. The higher mineral content was 9471.14 µg/g for *Prunus spp.* and the lowest was 7953.30 µg/g for *Brassica spp.* BCP. The variability regarding the mineral content in the examined bee pollen samples was distributed as follows: the higher concentration for K, Fe, Mn, Na, Zn belonged to the *Prunus spp.*; Ca, Cu, Mg for *Brassica spp.* and Ni for *C. monogyna*. The nutritional value was 323.18 Kcal/100g for *C. monogyna*, 348.63 Kcal/100g in the *Brassica spp.* BCP sample and 322.38 Kcal/100g for *Prunus spp.* BCP. The nutritional value varies according to the botanical origin and gives to BCP the name of superfood. It is recommended to consume multifloral BCP for a balanced diet full in nutrients.

Keywords: bee pollen, nutrients, amino acids, minerals

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***Xanthium strumarium* as a Novel Source of Cosmetic Ingredients**

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Abstract:

Xanthium strumarium is an annual plant with a wide phytotherapeutic application. It has been suggested that active compounds of *Xanthium strumarium* can be used in the phytotherapy of dermatological diseases. The aim of this research was to determine antibacterial and antifungal activity of *Xanthium strumarium* water extracts. 100%, 50%, 25% water extracts of *Xanthium strumarium* were tested. *Staphylococcus aureus*, *Escherichia coli*, *Pseudomonas aeruginosa* and *Candida albicans* were analyzed. Baird – Parker Agar, MacConkey Agar, Cefrimide Agar and Sabouraud Chloramphenicol Agar were used. One ml of fresh bacterial or fungi culture was pipetted in the center of sterile Petri dishes. 100 µl of each extract was added into sterile paper discs placed on the dishes mentioned above. The plates were incubated at 37°C for 18 h – 48 h. Antimicrobial and antifungal activity was detected by measuring the zone of inhibition after incubation period. Preliminary results revealed that the 100% and 75% water extract of *Xanthium strumarium* are suppressing the growth of *Staphylococcus aureus* and *Pseudomonas aeruginosa*.

The results indicate the possibility of using extract of *Xanthium strumarium* in the care of skin disease cause by bacterial agent.

Keywords: *Xanthium strumarium*, water extracts, antimicrobial activity, antifungal activity



A Natural and Functional Food Additive: Propolis

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Abstract:

Bee products, known and used since the earliest times of history, are regarded as 'functional food' because they can be added to other food products or used alone to increase their nutritional value with their natural and rich nutrient content and high bioactive ingredients. Propolis, one of the bee products; It has come to the fore thanks to its response to the consumer's desire to meet natural antioxidant and antimicrobial consumption instead of synthetic food additives. Propolis is a natural substance that has been widely used since ancient times. Potential biological activity of propolis, whose chemical content varies according to its type and geography, has been found to be associated with flavonoids, terpenoids and phenolic esters. Many of the compounds in propolis have been used as food additives and are generally considered safe substances. The reason is that propolis is a natural preservative with antibacterial, antifungal and antioxidative properties and it can prevent negative changes in the physical and chemical properties of the food to maintain the quality of the food. As a result, more studies are needed on the bioactivity and sensory evaluation of food products containing propolis extract. Although the use of propolis in foods has some disadvantages, considering its advantages, it can be said that these uses will contribute to the formation of functional food.

Keywords: food additives, functional food, propolis

Food Supplements in Migraine Prophylaxis

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Abstract:

Migraine is a chronic neurological disorder characterized by moderate or severe headache attacks and reversible neurological and systemic symptoms. Although the main cause of migraine is unknown; mutation in the MTHFR gene, abnormal vitamin D level, production of inflammatory agents around nerves and cerebrospinal fluid, low serotonin level, mitochondrial dysfunction, increased homocysteine and nitric oxide levels are among the most important causes. In this review, food supplements that are effective in migraine pathophysiology and can reduce migraine attacks were examined. Magnesium deficiency can increase the sensitivity of migraine neuroinflammation, glutamate and nitric oxide activity, serotonin receptor affinity, and endogenous hormone regulation. Magnesium can improve mitochondrial oxidative phosphorylation, 5-HT neurotransmission, and the NO system with neuroinflammation in migraine. Decreased magnesium absorption due to vitamin D deficiency may cause headache since the absorption of magnesium from the intestines is dependent on vitamin D. Coenzyme Q10 is an endogenous enzyme cofactor that supports mitochondrial protein-electron translocation and is produced by all the cells in the body for this purpose and acts as an antioxidant. It has been shown that CoQ10 supplementation reduces the frequency of attacks, headache and nausea in patients with migraine. Riboflavin and niacin can be anti-migraine agents by maintaining adequate mitochondrial energy metabolism. Carnitine is involved in energy production, transport of long-chain fatty acids, production of β -oxidation, and regulates the activity of enzymes involved in defense against oxidative damage. L-carnitine supplementation significantly reduced the severity and frequency of migraine attacks. It is thought that folic acid and pyridoxine supplementation may reduce migraine symptoms by affecting homocysteine levels and the MTHFR gene mutation. Food supplements should be recommended in migraine prophylaxis by affecting conditions such as serotonergic dysfunction, neuronal excitability, oxidative stress, brain mitochondrial function and neuroinflammation. However, more studies are needed for the nutritional supplements and doses to be used.

Keywords: migraine, antioxidant, mitochondrial dysfunction, food supplements



Use of Genome Editing Methods on Livestock Animals

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Abstract:

Along with developing technology, research on important issues such as combating hereditary diseases, new breeding methods, genetic-related metabolic disorders comes to the fore. At the same time, improving animal welfare has become the main goal in today's studies. Various genetic studies, starting with the discovery of the DNA molecule, have gained momentum together with biotechnology and have created modern genetics. The first detailed studies on genes were based on the analysis of the gene sequence. As gene sequences were discovered, emphasis began to be placed on the points in these sequences that were faulty or led to various yield losses. For this purpose, Sanger and Maxim Gilbert methods were used at first; in the process, they were replaced by modern genome studies. The process of adding, subtracting, or relocating nucleotides at a specific location in a part of the DNA on the genome or gene is called genome editing. In 2013, for the first time, studies of cutting and modifying target points on the genome with various enzymes showed positive results. Other methods have also been developed in this study. Regulations with three methods: TALEN, ZFN, and CRISPR allow significant progress in livestock animals by eliminating various genetic defects. In most studies, both local gene regions that affect yields and gene regions that lead to various diseases and defects are used as targets. In contrast to classical genetic studies, no changes occur in gene regions outside the target region when changing, deleting, or adding genes that affect yields. In this way, obtaining more advanced animals in terms of desired characteristics is defined as the main goal of genome editing studies in animals. These regulations are currently being implemented in stem cells due to various ethical concerns. In this study, the benefits and effects of genome editing in livestock were investigated.

Keywords: genome editing methods, livestock, CRISPR, TALEN's, ZFN.



Role of MAP-7 Gene in Ovarian Cancer Cell Sensitivity to Pitavastatin as Anticancer Drug

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Abstract:

Statins are commonly used in to treat hypercholesterolemia. We have previously shown that statins such as pitavastatin may be useful in the treatment of cancer. Statins inhibit small GTPases by blocking the production of isoprenoids required for the membrane localization. However, which GTPases are crucially affected by statins to cause the apoptosis of cancer cells is unclear. However, there is still a lack of reliable markers that disrupt the dynamics of microtubules can decide the sensitivity of cancer cells to targeting agents of microtubules and play a role in tumour cell resistance to these agents. This growing family of microtubule-associated proteins (MAP) includes products from oncogenes. Apoptosis regulators, suggesting that altering the dynamics of microtubules may be one of the critical events in tumour origin and tumour progression. Test the expression genes in ovarian cancer cell lines and compare with the sensitivity of these cells to pitavastatin. To address this, we made use of publically available databases which compare the sensitivity of cancer cell liens to statins with gene expression. We tested MAP-7 gene whose mRNA levels correlated with statin sensitivity and found that the protein levels of MAP-7 correlated with sensitivity to pitavastatin. We found the MAP-7 highly protein expressed in Ovar-8 and Ovsaho ovarian cancer cells, which are particularly sensitive to pitavastatin by both test qPCR and western blots. Following knockdown of MAP-7 by using siRNA, the sensitivity of Ovsaho to pitavastatin decreased more than two folds to cells unexposed to pitavastatin. MAP7 is a microtubule associated protein thought to be involved with in regulating microtubule dynamics, MAP7 is capable of interacting with the COOH-terminal tubulin domain and stabilising microtubules. Pitavastatin block MP & protein prenylation which make linker attachment and translocation between membrane, cell periphery and microtubules therefore we conclude the development of this information and test hypotheses around the mechanism of action of pitavastatin in cancer

Keywords

Keywords: MAP-7, Pitavastatin, Ovarian Cancer

Astaxanthin and Neuroprotective Effect

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Abstract:

Astaxanthin (AX) is a xanthophyll carotenoid found in various microorganisms and marine animals. AX is primarily biosynthesized by microalgae, phytoplankton, yeast and bacteria, then accumulates in zooplankton, crustaceans and fish. AX is a dietary supplement for humans and animals derived from seafood or extracted from *H. pluvialis*. The antioxidant activity of AX was 10 times higher than zeaxanthin, lutein, canthaxanthin, β -carotene and 100 times higher than α -tocopherol. This study aims to investigate the neuroprotective effect of AX. Articles containing the keywords astaxanthin, neurological diseases and neuroprotective were reviewed. According to studies, AX has antioxidant, anti-cancer, cardioprotective, immunomodulatory effects. Also, it prevents against *H. Pylori* infection, peptic ulcer, diabetes, liver diseases and neurological diseases. Oxidative stress is also an important factor in the pathogenesis of neurodegenerative diseases such as Parkinson's, Alzheimer's disease, amyotrophic lateral sclerosis (ALS) and stroke. AX acts by crossing the blood-brain barrier. In the study conducted with experimental animals, AX (50 mg/kg) supplementation for 5 weeks showed significant neuroprotective effects in the ischemic stroke model. Also, the daily dose of 6-8 mg AX reduced blood pressure in healthy individuals. In another study, AX was found to be protective against glutamate-induced cytotoxicity in the Alzheimer's disease model by reducing AX caspase activation and affecting the Akt/GSK-3 β signaling pathway. Also, alpha-synuclein (SNCA) is a gene responsible for the initiation of Parkinson's disease. AX can protect against neuronal damage by suppressing endoplasmic reticulum (ER) stress through the SNCA axis. As a result, the neuroprotective effect of AX is thought to be through multiple mechanisms: including reactive oxygen suppression, prevention of apoptosis, activation of the Nrf2-ARE defense pathway, and promotion of neural regeneration. Further studies are needed to reveal this relationship and to find the effective dose.

Keywords: astaxanthin, neurodegenerative diseases, neuroprotective.

Gynura Procumbens and Its Health Effects

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Abstract:

Gynura procumbens (Lour.) Merr. belongs to family Asteraceae is a fast growing evergreen herb. In Malay, *G. procumbens* is called Sambung nyawa which means “prolongation of life” whereas, it is called Bai Bing Cao which means “100 disorders” in Chinese. It is also known as “longevity spinach”. This is because it has been utilized in traditional medicine for treatment of illnesses and diseases. For instance, it is widely used to kidney discomfort in Indonesia and for the treatment of fever in Vietnam and for inflammation, rheumatism, and to cure viral ailments in Thailand. As a result of the studies about the its health effect found that the beneficial properties of *G. procumbens* have been related to the presence of bioactive compound such as flavonoids in glycosides in this plant. In some studies showed that it have antihypertensive and cardioprotective activity. The blood pressure-lowering effect of *G. procumbens* was associated with its inhibitory effect on angiotensin-converting enzyme activity and extra cellular Ca²⁺ influx. In addition, its hypoglycemic effect has been reported in vivo studies. It has been shown to cause a significant decrease in fasting blood glucose levels and suppression of glucose elevated during glucose tolerance test in diabetic rats. Furthermore, *G. procumbens* appears to be an effective chemotherapeutic agent against a wide range of cancer cell types and it exerts anticancer activities via the modulation of various points of carcinogenesis including cancer initiation, cell proliferation, metastasis, and angiogenesis. Also, it has antibacterial activity against gram-positive and gram-negative bacteria such as *Bacillus cereus* and *Salmonella typhi* and antifungal activity against fungi such as *Candida albicans* and *Aspergillus niger*. Based on the studies, *G. procumbens* appears to be a potent source of natural antioxidants probably due to high phenolic content. In addition, it shows antiinflammatory activity in case of inflammation via it promote high proliferation of B cells in immune system. In conclusion, *G. procumbens* has been demonstrated to have high therapeutic value in the medical treatments literature. Its diverse pharmacological effects and biological properties are mainly attributed to its flavonoid content.

Keywords: gynura procumbens, longevity spinach, sambung nyawa, bai bing cao

The Phytochemical Evaluation of Bioactive Potential of Three Essential Oils from *Cymbopogon citratus*, *Nigella sativa* and *Apium graveolens*

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Abstract:

Exploration *in vitro* of the antioxidant and antibacterial activities of three essential oils: *Cymbopogon citratus*, *Nigella sativa* and *Apium graveolens*. The essential oils were obtained by the hydrodistillation method, the chemical composition was analyzed by GC-MS, the antibacterial activity was evaluated by the disk diffusion method, and the antioxidant activity was Explored *in vitro*. The most active essential oil for the antibacterial activity is the oil of *Cymbopogon citratus* which contains as the main compound as Limonene, and Pinene, this oil presented a total antibacterial activity of *Staphylococcus aureus* with an inhibition diameter of 6 mm and a very significant antibacterial activity against *E. coli* (dimension of the diameter of the zone of inhibition of the order of 2.95 cm). Followed by the essential oil of *Apium graveolens*. This oil consists of Carvacrol as the major compound, while for antioxidant activity *in vitro*, the essential oil of *Nigella sativa* is the most active and rich in antioxidants. Essential oils can be an incredible source of antioxidant and antibacterial bioactive molecules that can replace synthetic drugs as they are readily available and without possible side effects imposed by synthetics if they are used by non-toxic doses.

Keywords: Essential oil, Antioxidant activity, Antibacterial activity, *in vitro*, *Apium graveolens*, *Nigella sativa*, *Cymbopogon citratus*.

Antidepressant-Like Effect of *Hypericum olympicum* Herba Extract

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Abstract:

Various *Hypericum* L. (Hypericaceae) species have been reported to possess numerous pharmacological activities related to their phytochemical contents such as hypericin and hyperforin. These plants are well-known for their pharmacological effects, especially on the central nervous system. Today, *Hypericum perforatum*, the most famous member of this genus, is widely used for the treatment of mild to moderate depression, in many countries. Based on the mentioned activity potential of *Hypericum* species, we planned to investigate possible antidepressant-like effect of methanolic extract prepared from *Hypericum olympicum* herba, in the present study. Balb/c mice (male, 30-35 g) were used for the experiments. Antidepressant-like effect of the extract was evaluated by two different *in vivo* methods; the tail suspension (TST) and the modified forced swimming tests (MFST). Besides, motor coordination of mice was assessed by the Rota-rod tests. Reference drug fluoxetine and 2.5 mg/kg and 5 mg/kg doses (*i.p.*) of the extract significantly reduced the immobility time of mice, in both of the TST and MFST. Besides, they increased the swimming time of animals in MFST, without any change in the climbing durations. These results suggested that *Hypericum olympicum* extract has an antidepressant-like activity, which is probably related to the serotonergic rather than catecholaminergic mechanisms in the central nervous system. For further investigation, mechanistic studies were performed by using *p*-chlorophenylalanine methyl ester (PCPA, an inhibitor of serotonin synthesis) and α -methyl-para-tyrosine methyl ester (AMPT, an inhibitor of catecholamine synthesis). Parallel to MFST results, only PCPA pre-treatments abolished the antidepressant-like effect of the extract, indicating the involvement of serotonergic system in the antidepressant-like effect of the extract. Finally, administration of the extract did not cause a significant alteration in the motor coordination of animals. In summary, obtained findings of this study exhibited the serotonergic system-related antidepressant-like effect of *Hypericum olympicum* herba extract, for the first time. Although this study provide some basic information related to the mode of action, detailed role of the serotonergic system in this antidepressant-like activity should be clarified with further studies.

Keywords: *Hypericum olympicum*, modified forced swimming test, tail suspension test, catecholaminergic, serotonergic

How to Solve Ethical Dilemmas Associated with the Distribution of Scarce Medical Resources in the Covid-19 Pandemic?

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Abstract:

The Covid-19 pandemic has been an unique challenge to treatment and care systems and health professionals around the globe. Critical discussion arose about how to best deliver health care in emergency conditions where healthcare foundation, material, personnel, equipment, resources become scarce. The traditional principles of medical ethics (beneficence, non-maleficence, justice, and autonomy) may not provide sufficient guidance in pandemic conditions. Simultaneous large number of patients with severe symptoms caused by Covid-19 which has high transmissibility overload the infrastructure of health services. The clinicians are confronted by medical and ethical decisions regarding use of insufficient medical resources. Many elective operations and outpatient clinics have highly canceled in hospitals. The Covid-19 has already created ethical questions about the need for prioritization of treatment, availability of personal protective equipment, testing, vaccination, resuscitation decisions and triage. Health professionals suggests some recommendations to overcome the ethical dilemma associated with the distribution of insufficient medical resources in the Covid-19 pandemic. -Maximization of total benefit and life expectancy

-The priority of treatment and vaccination should be given health professionals,

-For patients having same prognoses, equal chance should be given using random distribution,

- Prioritize elderly for preventive vaccination, after healthcare professionals,

- Prioritize the vaccination of younger COVID-19 patients only when this decision contribute in decreasing the spreading out of contamination risk to others,

-Prioritize younger severe COVID-19 patients in benefiting from the ICU beds and ventilators to maximize total benefits

-Practice the same ethical principles to all patients even those non COVID-19.

Unigue ethical dilemmas have arisen with the covid-19 pandemic. Critical care resources should be reviewed and there is always a need to substantially increase the resources dedicated to the health system. Policy makers in healthcare systems should do their best to avoid the scarce of medical resources. Nevertheless, if there is a lack of resources, it should be develop guidelines that have to be applied equitably and regularly across cases in times of pandemic.

Keywords: Covid-19, ethics, ethical dilemma, scarce medical resources.

Pretreatment with *M. alba* Fruits Enriched Diet Ameliorates Streptozotocin Induced Alzheimer's Disease in Mice

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Abstract:

Alzheimer's disease (AD) is a multifactorial neurological disorder in which oxidative stress plays a significant role. There is mounting evidence that intake of polyphenols rich diet could be beneficial for preventing AD. Thus modification of diet may be one option for management of dementia of AD type. The present study was intended to explore neuroprotective effect in Swiss albino mice pretreated with *M. alba* fruit enriched diet evaluated by Streptozotocin (STZ) induced model of AD. *M. alba* fruits enriched diet (5% w/w) was prepared and various physicochemical parameters of standard and test diet was determined. The mice were fed with prepared *M. alba* enriched diet for one month. After one month STZ was injected intracerebroventricularly (*icv*) on day1 and 3 (3mg/kg, bilaterally) in experimental animals and treatment with prepared diet was continued till the end of experiment. Mice were exposed to Morris water maze (MWM) for testing learning abilities and memory. Biochemical estimations such as brain acetylcholinesterase activity, nitrite/nitrate, thiobarbituric acid, reduced glutathione, superoxidase dismutase, myeloperoxidase activity as a marker for neutrophilic infiltration and histopathological studies by using congo red and haematoxylin and eosin staining were performed. Pretreatment with *M. alba* enriched diet (5% w/w) significantly attenuated STZ (*icv*) induced memory deficits, biochemical and histopathological alterations in *icv* STZ infused mice. These results suggest that dietary modification, by incorporation of *M. alba* fruits, can reduce the incidence of AD in experimental animals by ameliorating oxidative damage induced by STZ in a model of cognitive impairment.

Keywords: Alzheimer's disease, *M. alba* fruits, Morris water maze, Oxidative stress, Streptozotocin

An Innovation in Prenatal Diagnosis: Cell-Free Fetal DNA Analysis

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Abstract:

In recent years, prenatal screening has been shifting towards non-invasive methods to determine the fetal risk in genetic disorders. The discovery of fetal DNA in the maternal circulation has opened up new perspectives in non-invasive prenatal diagnosis and led to the development of new screening methods for fetal chromosomal aneuploidies. Noninvasive prenatal testing (NIPT) is also called prenatal cell-free DNA screening. Due to its advantages, cell-free fetal DNA (cff-DNA) testing has recently gained importance in diagnostic tests and screening in clinical practices. Cell-Free Fetal DNA test detects cell-free fetal DNA fragments in maternal plasma. cff-DNA can be detected in the bloodstream of pregnant women in the early period (week 7) and performed from the 9th week of pregnancy. Increased cff-DNA levels can also be used as a determinant in the early diagnosis of some pregnancy-related diseases (such as preeclampsia, h.gravidarum, preterm birth, placenta previa). NIPT studies on maternal plasma are increasingly moving toward replacing other screening tests in the future and decreasing the need for invasive tests. With the introduction of NIPT to detect trisomy 21, the technology has rapidly evolved to analyze other autosomal and sex chromosome aneuploidies and now includes the detection of subchromosomal deletion and duplication events. Women with risk factors for fetal aneuploidy should be recommended cff-DNA analysis as a screening test. Performing NIPT for personal reasons and without any valid indication leads to ethical drawbacks. For an effective performance of NIPT, indications should be clearly defined, informed consent should be obtained, test guidelines should be prepared and ethical problems that would arise from performing the test only for personal reasons should be explained to the pregnant woman. The objective of this review is to give information about the cff-DNA analysis, to explain the developments regarding the analysis and to accent the ethical principles in the application of the test.

Keywords: prenatal diagnosis, noninvasive prenatal testing, cell-free fetal DNA, ethics

Bio-Monitoring and Evaluation of Toxic Risk in Aquatic Environment

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Abstract

An original device has been fluents and validated to monitor water quality with aquatic plants at the exit of wastewater treatment plants Ain Bouchakif. This device or « bio-station » has provided first particularly interesting results: the selected bio-indicator plants (*Limna minor*, *Spirogyre link sp* and *Fontinalis antipyretica*) are able on one hand to grow in the effluents with a significant accumulation of heavy metals, and on the other hand to detect these micro-pollutants even when they are undetectable in effluents. First results show that a « bio-station » equipped with well-suited bio-accumulator plants can be a powerful and cheap complementary device to continuously monitor contamination of wastewater treatment plant effluents before Dahmouni dam. The results obtained during this study, have revealed severe contamination of purified wastewater with heavy metals specially lead, zinc and copper. We have found that the Pb concentrations, Zn and Cu change as a function of the date of levy. It therefore appears that a "bio-station" equipped sentinel plants can be an efficient and economic complementary device to continuously monitoring contamination of treated wastewater from sewage treatment plants before their arrived at the dam.

Keywords: Aquatic plants, accumulation, heavy metals, biomonitoring, Tiaret.

Evaluation of the *in vitro* Antibacterial Activities of Different Types of Moroccan Honeys

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Abstract:

Since their discovery at the beginning of the 20th century, antibiotics have allowed great advances in therapeutics and contributed to the rise of modern medicine. Currently, the introduction and the use of antibiotics in veterinary medicine and animal production raise some concerns among the general public health. It is clear that any use of antibiotics (medical, veterinary or phytosanitary) exerts a selection pressure on the bacteria concerned and thus leads to an escalation of the problem of antimicrobial resistance at a long-term threat. The appearance of new bacterial strains, which cause pathogenic diseases and which are resistant to the most used antibiotics requires probing new natural antibacterial compound. The purpose of this work was to evaluate *in vitro* the antibiotic resistance of samples of honey from Morocco with the disc diffusion method, isolation and preliminary identification of the normal honey flora. The results showed that multifloral honey gave an activity of 12 mm against *Staphylococcus aureus* and 10 mm against *Escherichia coli*, we also noted that the inhibition zone changes according to the honey harvest period. With regard to the normal flora of honey we found that most of the native bacteria are gram-negative bacteria with some positive gram bacteria, this diversity varies according to the type of honey and increases in the case of multifloral honey and wild honey. From the results obtained, it seems that the use of honey is a promising method for the development of new antimicrobial drugs, suggesting the need for further research to study and characterize honey whose activity is influenced by its botanical origin.

Keywords: honey; antibacterial activity; *Escherichia coli* *Staphylococcus aureus*



Genetically Modified Organisms (GMOs) and Biosafety Practices in Turkey

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Abstract:

In this review, we aimed to give information about genetically modified organisms (GMOs), global current situation of GMOs and biosafety procedures applied in Turkey. At the present time, approximately 190.4 million hectares of GM crops are produced by 17 million producers in 27 countries. Among these countries, the United States produces the highest production with 75 million hectares, followed by Brazil 51.3 billion hectares, Argentina 23.9 million hectares, Canada 12.7 million hectares and India 11.6 million hectares. In the remaining 27.1 hectares, production is carried out by other countries. Along with the production of mainly corn, cotton, potato, soybean and canola as GM plants, there are 501 approved GM plant varieties in the world between 1992-2018. In European Union countries, 137 plant varieties produced with GMO technology, including soy, corn, cotton, rapeseed, and sugar beet, have been approved for use as food and feed sources. Among these plants, only 1 corn variety has been approved to cultivation. In Turkey, 36 varieties of plants consisting of 26 corn and 10 soy varieties have been approved for using as animal feed. However, the production of any plant and animal species for both feed and food purposes is prohibited. The Biosafety Law enacted in 2010 and the regulations based on this law regulate activities related to GMOs and their products. With the Presidential Circular No. 2018/3 published in the Official Gazette dated 02.08.2018 and numbered 30497, the duties and powers of the Biosafety Board have been transferred to the Ministry of Agriculture and Forestry. The Ministry has assigned the General Directorate of Agricultural Research and Policies to carry out the secretariat services of the committees and other duties specified in the Biosafety Law and related regulations. For each application related to GMO and its products, a risk committee consisting of 11 people and socio-economic evaluation scientific committees have been established. Committees carry out various risk analyzes, and socio-economic assessments related to these GM products. The Ministry may reject or accept applications in line with the scientific reports of the commissions and the approval decision is published in the Official Gazette. As a result, it is aimed to explain the biosafety processes and examination processes of GM plants both in our country and in the world.

Key words: Biosafety Law, genetically modified organisms, Turkey

Use of Mealworms in Animal Skeleton Preparation

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Abstract:

In the field of anatomy, dissection and maceration methods are frequently used in skeleton preparation. In addition to these methods, the use of various insect species such as Dermestidae, Cornetidae, Kleridae is becoming widespread in museums in skeleton preparation and in forensic entomology. In this study, mealworms, which can be found easily but never tried before, were used because the insects mentioned above are difficult to obtain. In this way, it was aimed to obtain a skeleton using only mealworms. A total of 1100 mealworms weighing approximately 110 grams and three rat cadavers were used in the study. Mealworms were stored in a plastic container. The ambient temperature was fixed at 27 °C and the humidity at 40-70%. Later, the rat cadaver, whose skin and organs were removed, was placed in a plastic container. In the process, until the cadaver was cleaned and turned into a skeleton, an archive was created by taking photographs every 2 days. To observe the cadaver cleaning performance of the mealworms, the initial weight and final weight of the cadaver were measured with precision scales. It was seen that mealworms started to be fed from the first day they were given rat cadavers. The average weight of the cadaver on the first day was 177 ± 12.24 grams. It was observed that in days of 3rd-5th the meat on the rib was eaten and the ribs appeared. The vertebral column became more evident in the 6th-8th days. In the 6th-9th days the ribs were completely cleared and the limb bones were visible. Skull and limbs 9th-12th all the details were evident between days. At the end the 15th day, it was determined that mealworms had completely exposed the rat skeleton. The final weight of the skeletonized cadaver was measured as 18.3 ± 2.08 grams. As a result, It is the first study to reveal the skeletal structure of rat by giving rat cadavers to mealworms, whose main food ingredient is vegetables. Mealworms may be an alternative to other insect species used in skeleton making. However, trials need to be made using larger animal materials.

Keywords: Anatomy, skeleton, mealworms, veterinary

Ultrasound Technology Enriches the Bioactive Components of Fruit Juices

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Abstract:

Nowadays, interest in non-thermal technologies has increased to eliminate the negative effects of thermal pasteurization in fruit juices. Ultrasound technology is a non-thermal technology that aims to increase the quality and efficiency in the food processing industry. This method, which is carried out without losing the originality of the components of the food, without causing damage, has been rapidly replacing other thermal technologies recently. Ultrasound technology is used in the food industry, in the meat and dairy industry, in the processing of fruits, vegetables, cereal products, emulsions, honey and pickles. It is also used in the fields of thawing frozen products, freezing and crystallization, filtration processes, improving the foaming properties of proteins, de-aeration of carbonated beverages, active depolymerization, slicing and cutting of food during production, sterilization and pasteurization processes, extraction processes used for effective separation and rehydration. Two types of powerful ultrasonic devices are used: laboratory-scale ultrasonic bath and ultrasonic probe. The basis of this application; creates "cavitation" defined as the formation, growth and collapse of small bubbles in a solution that is too small to be seen with the eye. The easy applicability of this method reduces the margin of error that may occur during the analysis, and the rapid output of the analysis results is a good alternative, especially for perishable foods has been reported that fruit juices, which are widespread among the food consumption, give positive results in researches in terms of enriching their bioactive components, preserving their taste and freshness, and extending their shelf life. Studies on how ultrasound technology enriches the bioactive components of fruit juices such as ascorbic acid, carotenoids, flavonoids, anthocyanins, lycopene, phenolic compounds have been continued and this method has been applied to fruit juices obtained from various fruits. According to recent research; Positive findings have emerged that bioactive components are enriched in pear juice, purple pear cactus juice, melon juice, orange juice, red grape juice, watermelon juice, black mulberry juice, jam fruit juice, strawberry juice, pineapple juice, blueberry juice. In this study, these findings were examined and the effects of ultrasound technology on bioactive components in fruit juices were reviewed.

Keywords: ultrasound, bioactive compound, juice



The Importance of Hoof Diseases and Drug Applications in Hippotherapy Horses[#]

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Abstract:

For many years, many different medications and treatments have been used to treat equine hoof diseases. There are many scientific studies on direct and indirect damage in terms of both nutritional and viral-bacterial-fungal diseases on the physiological work structure and pathological sensitivity in paying attention to the protective understanding of the nail and foot structure. In sports branches such as horse breeding, straight running, jumping, equestrian endurance, in the field of health with hippotherapy, and in horseback recreation and useful time areas, the most basic element of sustainable continuity is healthy horse and economic efficiency. Drug treatment in the approach of foot diseases, especially nails; It stands out with the elimination of the factor, the formation of protective-preventive effects in diseases, acceleration of development, increase in efficiency, improvement in food quality. Especially with the increase of global competition in the horse sector, ensuring a healthy breeding has become the most vital condition for veterinarians, horse trainers and horse lovers, especially the blacksmiths. Accordingly, it is unlikely that the use of drugs that directly affect the performance of the Horses during and after the hoof care for the farrier will affect the effects on the animals, while the molecular, vascular and structural changes in the toe-nail structure occur before the clinical symptoms appear, and therefore, medical treatment is unlikely to reverse such changes. important indicators for Grooms and Horse trainers and drug applications in treatment approaches for veterinarians are included in this study. This article discusses strategic planning recommendations for reviewing the management of the planning and management of drug practices in the stages of harm reduction in nail diseases, care and intervention, determination of frailty, sensitivity of use of drugs and the development of a roadmap in line with the treatment model.

Keywords: Drug applications, hoof-nail diseases, Hippotherapy, Horse.

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Evaluation of Balance System in Amateur-Level Kickboxers

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Abstract:

Introduction: Kickbox is an eclectic combat sport created by combining punch, kick, knee, and melee practices. In the literature, there is a shred of limited evidence about kickboxing training effects on the balance system. Our study aims to compare the balance parameters with computerized dynamic posturography between amateur kickboxers and control subjects who do not actively participate in the sport. **Methods:** A total of 44 amateur kickboxers between ages 16 and 45 years old (mean age: $23,38 \pm 7,09$ years) and 36 healthy subjects between ages 23 and 26 years old (mean age: $21,33 \pm 1,53$ years who had no previous experience sports training) were recruited. Patients with hearing and balance problems were excluded from the study. Sensor Organization Test (SOT) is used as a subtest of computerized dynamic posturography to evaluate both groups. SOT results were compared between the amateur kickboxers and the control group, the duration of the training in kickboxing was also compared within the amateur kickboxer group. **Results:** A statistically significant result could not be obtained in the SOT test between the amateur kickboxers and the control group ($p > 0.05$). Besides, when we compared the athletes within themselves, there was no statistically significant difference between the duration of the kickboxing training and their balance scores ($p > 0.05$). In addition, there is no significant difference in SOT test between groups. The composite and preference scores were higher in amateur kickboxer group than the control group. **Conclusion:** It is difficult to arrive at any conclusions regarding the relationship between duration of training and balance system due to the short duration of the practice in our amateur kickboxer group. Future studies could fruitfully explore this issue further by elite-level kickboxers with longer duration of practice in the sport.

Keywords: amateur kickboxers, computerized dynamic posturography, balance evaluation



Risk Management of Antimicrobial Resistance in Food of Animal Origin in Turkey

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Abstract:

Effects of Antimicrobial Drug Uses on Animals; It can be classified as beneficial and side / harmful effects. As beneficial effects; treatment to diseases, While it can be reduced, protective / preventive effects in diseases, acceleration of development, increase in efficiency, improvement in food quality stand out, In harmful effects; Damage to tissues and organs, suppression / stimulation of the immune system, formation of resistant strains and the risk of residue in foods come to the fore. The emergence of antimicrobial resistance as a global disaster threat in terms of social resilience is now revealed by research. Especially in different scientific studies in the world, it is revealed that the number of bacterial agents and resistance levels increase in the development of animal food-borne antimicrobial resistance. Threats related to antibiotic resistance increase these vulnerabilities and make disaster risks even more unmanageable. On the other hand, it has been determined that approaches based on the risk management of drugs that aim to improve the capacity and abilities of institutions and individuals are more successful. In this article, reviewing the planning and exercises made in the mitigation, preparedness and response phases of disaster management in terms of antimicrobial resistance risk management, determination of vulnerabilities, strategic planning for the development of the map of the supply-transfer-use sensitivity of drugs and risks in line with antibiotic resistance and the single health policy recommendations are discussed.

Keywords: Antimicrobial resistance risk management, vulnerability, animal food-borne antimicrobial resistance, resistance, risk management, antibiotic resistance

Synergistic Effect of Vitamin E Preloaded in Cyclodextrin and Vitamin C on Bovine Semen after Cryopreservation

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Abstract:

Cryopreservation is an advantageous technique for the conservation and storage of biological material. This biotechnology aims to conservation of wildlife biodiversity, human reproduction and industrial breeding. However, during cryopreservation several functions of the spermatic cell are affected by freeze/thaw process particularly on the plasma membrane by the exacerbation of oxidative stress. In order to fight oxidative stress and limit radical attacks, we propose vitamin C and vitamin E as a powerful antioxidant. These antioxidants known to effectively combat oxidative stress by scavenging the radical oxygen species (ROS). However, the hydrophobicity of vitamin E in the sperm extender reduces its penetration into the lipid bilayer of the sperm membrane, which consequently limits its effect. Cyclodextrin is used to increase vitamin E solubility. Ejaculates from nine mature bulls (two years old) were collected via an artificial vagina. The ejaculates were diluted and divided into aliquots. Aliquots were diluted with fraction A (Tris+fructose+citric acid) supplemented with VitC ; CD-VitE ; CD-VitE+VitC, and the control aliquot was diluted without further supplementation. In this work we used TBARs assay, based on the measurement of malondialdehyde (MDA). Determination of (MDA) can be used as a biomarker of oxidative damage, because is a final product of lipid peroxidation caused by a high level of ROS. The results show a significant increase in the antioxidant status of sperm in all media supplementation by antioxidants and the optimal protection was obtained when vitamin C and vitamin E preloaded in cyclodextrin (CD-VitE+VitC) were simultaneously added in bull sperm extender prior to freezing.

Keywords: cryopreservation, bull sperm, oxidative stress, vitamin e, vitamin c.



Biomarkers and Immune Response in Covid 19 Infection

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Abstract:

In the short period of time until the first detection in China at the end of 2019 and the announcement of a pandemic by the World Health Organization on 11 March 2020, a large number of deaths from covid-19 infection were observed. Symptoms of the disease include diarrhea, taste disturbance, neurological ischemic hemorrhagic stroke, clouding of consciousness, headache, cardiovascular myocarditis, cardiac arrhythmia, hypercoagulopathy and visual disturbances. The Disease Prevention and Control Center states the high risk group as the elderly, those with chronic diseases, pregnant women, young children, and those with multiple organ failure syndrome. The aim of this study is to investigate the rapid and reliable diagnosis of covid 19, in addition to this, to examine the course of the disease in different patient groups and the mechanism of action of the drugs used. Literature search was conducted in the PubMed database with the keywords "covid 19 drug action mechanisms", "covid 19 immune response", "covid 19 and nutrition", "biofilm in covid 19 infections". The findings indicate that the characteristic features of the immune response in severe cases as excessive cytokine release and inflammation, endothelial damage and hypercoagulation. The main complications that develop are stated as pneumonia, severe respiratory failure, multiple organ failure, brain and heart muscle inflammation, secondary bacterial infections and intravascular clots. Bats and pangolins have an effect in the process of using the new type of coronavirus as a human host. The conclusion obtained in this review, the holistic use of biochemical, microbiological and radiological markers is important in the diagnosis and follow-up of the disease. In case of severe infections, antiinflammatory treatments are important in addition to antiviral therapy. However, in these treatments, biochemical parameters of the patients should be followed to prevent secondary infection. Nutrition and vitamin supplements may affect the course of the disease.

Keywords: immune response, cytokine storm, biomarkers in covid 19, covid 19 treatment

Pharmacological Effects of Gallic Acid: A Review of Current Literature

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Abstract:

Natural products, especially medicinal plants, are among the main drug resources of human beings since ancient times. Polyphenols and phenolic substances are the compounds that occur naturally in plants and contain more than one phenol group in their structure. Gallic acid is a phenolic acid, which is widely distributed in many different plants such as blueberry, blackberry, strawberry, plums, grapes, mango, cashew nut, hazelnut, walnut, gallnut, tea leaves, sumac and tanbark. It is known that gallic acid, a 3,4,5-trihydroxybenzoic acid with the formula $C_6H_2(OH)_3COOH$, can be found freely in plants or as a part of hydrolyzed tannins. Gallic acid has attracted attention of many research laboratories so far and numerous studies have been conducted to elucidate the possible pharmacological activities of this phenolic substance. To date antioxidant, anti-aging, anti-inflammatory, anti-allergic and immuno-modulator effects of gallic acid have been demonstrated. In addition, there are studies indicating that this phenolic compound has antibacterial, antifungal, antiviral, anti-helminthic, anti-malarial and anti-leishmania activities against various microorganisms and parasites. In relation to chemotherapy, gallic acid has been shown to possess anti-proliferative, anti-carcinogenic, anti-tumor, anti-cancer, anti-invasive, cytoprotective and chemopreventive effects. Another system in which gallic acid has beneficial effects is the cardiovascular system. Anti-aggregant, anti-fibrinolytic, anti-arteriosclerosis, anti-hypertensive, anti-cholesterolemic, anti-hyperlipidemic, anti-lipoperoxidative, diuretic and cardioprotective effects of this phenolic compound have been reported by several laboratories. Since gallic acid is capable to pass blood-brain barrier, it also induce various pharmacological effects on central nervous system such as antidepressant-like, anxiolytic-like, anti-psychotic, neuroprotective, anti-Parkinsonian, and anti-amyloidogenic effects. Anti-hyperglycaemic, anti-diabetic, anti-obesity, anti-ulcer, wound healing, anti-psoriasis, anti-hepatosteatosis and hepatoprotective effects are among the other activities reported for gallic acid. In this study, it was aimed to review the pharmacological effects of gallic acid in the light of current literature and to evaluate the obtained results in terms of the potential of this phenolic acid as a drug candidate.

Keywords: gallic acid, natural products, phenolic acid, pharmacological effect, activity



Effects of Covid-19 Pandemic on Individuals with Mental Illness

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Abstract:

Coronavirus disease (Covid-19), the infectious disease caused by the recently discovered type of coronavirus, was spread to the whole world in a short time and was declared as a pandemic by the World Health Organization (WHO). As the disease agent is a new type of coronavirus, due to the lack of sufficient information about the prognosis and treatment processes of the disease, it leads to a negative impact on the biopsychosocial aspects of communities, families, and vulnerable individuals. Children-adolescents, pregnant women, the elderly, those with weak immunity, and those with physical and mental illness, who are particularly vulnerable, are at higher risk due to the biopsychosocial consequences of the pandemic. Many problems caused by the epidemic cause individuals with mental illness who receive both outpatient and inpatient difficulties in accessing treatment. According to the World Health Organization and the Ministry of Health in this process, nurses, doctors, psychologists, and medical technicians are among the leading healthcare professionals who take an active role in meeting the care and treatment needs of patients. The psychiatric nurse should cooperate with all other team members working in the field of mental health in order to screen the risky groups in terms of mental illnesses and to determine their mental states and take necessary interventions during the pandemic period. It is very important to carry out frequent screenings and controls for the prevention of pandemics but to include a psychiatric nurse, who is a mental health worker, in the team that performs these screenings and controls in order to protect the mental health of the community.

Keywords: Coronavirus disease 19 (Covid-19); mental illness; psychiatric nursing



The Importance of the Coach in the Hippotherapy Study [#]

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Abstract:

The purpose of this review article is to collaborate on future studies about hippotherapy to horse and riding trainers, health professionals, veterinarians, individuals in need and individuals with disabilities and their relatives and to shed light on academic studies. It has been stated in studies that hippotherapy is beneficial for patients in the world. Therefore, as a result of new private hippotherapy centers in public institutions and in Turkey, studies on hippotherapy have been started. The studies carried out in hippotherapy are increasing and widespread and continuing to contribute to the treatment of the individuals in need and individuals with disabilities with hippotherapy sessions with expert teams. However, in the studies, the sessions of the hippotherapy team with two common creatures have great duties on the equestrian coaches in order to meet the needs of the horse and the individual in need or individual with disability. For this reason, since hippotherapy is a multidisciplinary team work consisting of specialist professionals, it has been researched to contribute to the horse and rider coaches on the field and to the expert team attending the sessions, to the new experts and the families of the individuals in need and disabled individuals. In the current review, the information about the history of hippotherapy and development, information about hippotherapy institutions in Turkey, individuals in need and individuals with disabilities, benefits of hippotherapy, characteristics of the hippotherapy horse, training of the hippotherapy horse are emphasized, and especially emphasis is placed on the use of work in the field of horse and equestrian coaching.

Keywords: equestrian, disabled individual, equestrian coach, hippotherapy, individual in need

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Prevalence of Gastrointestinal Parasites in Working Equines from Dakahlia Governorate, Delta of Egypt

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Abstract:

Equines can be infected with a wide spectrum of parasites causing well-described serious disease complexes and control of these parasites is challenged by increasing anthelmintic resistance. However, a large population of equines was estimated in Egypt, and to date, only few reports discussed the parasitic infections with no data from the largest agricultural district (Nile delta). The objective of the present study is to determine the gastrointestinal parasites in feces of 54 horses and donkeys of different sexes, ages and in different locations at Dakahlia governorate, Egypt. Fresh fecal samples were collected and tested using the standard sedimentation and modified Wisconsin sucrose flotation tests, and eggs/oocysts count was done using McMaster technique. Forty-four (81.5%) were infected, with a slightly higher prevalence in donkeys (33/39, 84.6%) than horses (11/15, 73.3%). Five parasites were identified including eggs of strongyle type (the most prevalent, 79.6%), *Parascaris equorum*, *Strongyloides* sp., *Habronema* sp., and *Eimeria leuckarti* oocysts. Notably, the high prevalence and intensity of strongyle species underlines the role of working equines in transmission of these parasites and environmental contamination. Subsequently, they may complicate the concurrent presence of diverse parasites and the levels of anthelmintic resistance. Earlier reports from Egypt were reviewed for setting up a sustainable parasite control in the country.

Keywords: donkeys, horses, Egypt, strongyle, *E. leuckarti*

Investigating How Topography and Roughness of Titanium Surfaces Affect Bacterial Behaviour

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Abstract:

Titanium is a material used in a wide range of applications, such as neurosurgery, shoulder, elbow, hip and knee replacements, eye implants, and dentistry. It is a preferred material because of its high compatibility, corrosion resistance, and its elastic modulus being close to bone. Nevertheless, severe side effects have been reported including implant induced inflammatory responses in the host body, inhibition of material tissue conductivity which in turn, lead to rejection of the implant. It is well known that the surface of titanium can trigger pro- and anti-inflammatory immune response, promote osteogenesis and affect bacterial behaviour. Considering these facts, although there are several available methods to process and modify the Titanium based materials, it is only rational to use one that does not leave any chemical residue on the surface of the material since the residues may interrupt the interaction between cells and implant surface. Laser processing techniques provide repeatable and more precise results. In this study Titanium surfaces were developed which have different nanotopography and roughness and the relation between surface and bacterial behaviour was investigated. The results suggested the surface topography and microasperity at the surface roughness scale which were created via laser processing, significantly effect bacterial behavior, specifically biofilm formation. Biofilm formation is investigated on the four different surfaces (polished, sand blast, line and mesh patterns) for 24 hours, mesh surfaces diminish biofilm formation of both *S. aureus* and *E. coli* compared to polished surfaces. We hypothesized that creating bone-inspired nanotopographical features on Ti surfaces via laser, osteogenic differentiation and anti-inflammatory responses can be increased and diminish biofilm formation. In this study, we have altered the roughness and the wettability of Gr-2 Ti material. The results indicates the changes on the surface topography alter the bacterial behaviour.

Keywords: biomaterial, titanium, surface topography.



Maintaining Health and Welfare Levels of Therapy Horses

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Abstract:

Animal-assisted interventions are an umbrella definition and have many therapeutic or recreative subfields. These interventions are based on human-animal-environment interaction and are directly related to the concept of "One Health". Hippotherapy is a therapy strategy that uses horses as therapeutic tools and aims to improve the neuromotor, sensory, cognitive and psychosocial functions of the client. Hippotherapy applications are applied by a professional-multidisciplinary team with the help of specially selected and trained therapy horses. Therapy horses are exposed to basic stressors such as sudden sound stimuli from the client, interacting with stressed people, working with various physical therapy equipment and having a large number of people around. Protecting and monitoring the health of the therapy horse ensures that it can cope with these stressors and is not adversely affected by the therapy. Like every therapy animal, therapy horses have fundamental rights such as nutrition, shelter, care, and meeting their social needs, and professional response to these needs of therapy horses is of vital importance in the safety of therapy, achieving the desired therapeutic effect and observing ethical values. In addition, the inclusion of these animals, which are in close contact with humans, in the regular vaccination program in order to protect their health and prevent zoonotic diseases will reduce the risks of interaction with animals. This poster includes measures to monitor, protect and raise the health and well-being of therapy horses.

Keywords: hippotherapy, equine assisted therapy, horse health, one health

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Cardiac Effective *Peganum harmala* Alkaloids

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Abstract:

There have been a few studies conducted regarding the direct effects of *P. harmala* extract and its alkaloids on the heart muscle. In one study it was shown that three *P. harmala* alkaloids (harmine, harmaline, and harmalol) have an ionotropic effect and also decrease heart rate in normal anesthetized dogs. Since neither vagotomy nor atropinization affected the harmala-induced bradycardia it became evident that the decrease in heart rate was not due to a negative chronotropic effect of these substances. In another *in vivo* study, harman dose-dependently produced transient hypotension and long-lasting bradycardia in anesthetized rats. Harmaline inhibits both $^{45}\text{Ca}^{2+}$ uptake and efflux in cardiac sarcolemmal vesicles in a dose-dependent manner. During *P. harmala* poisonings different changes in heart rates were observed: 60 bpm (beats per minute), 100 bpm, 120 bpm, 170 bpm. It can mean that *P. harmala* increases heart rate and creates tachycardia in higher doses. *P. harmala* has also antioxidant effects. Antioxidants help to protect the human body against different processes and also ischemic heart disease. Due to these properties, *P. harmala* is considered important for the drug development against heart disease. For the alkaloid purification, powdered *P. harmala* seeds are extracted 3 times by 95% ethanol. Extracts are evaporated until 10 mL, mixed with 5% HCl, and filtered. The solution is alkalized by 25% ammonia solution (pH=9) and extracted by liquid/liquid extraction with chloroform 4 times. Chloroform fractions were analyzed by TLC. On TLC plates, 4 orange spots with R_f 0.69, 0.31, 0.2 and 0.1 (stationary phase "Sorbfil" (Russia), mobile phase chloroform/methanol, 9/1, v/v; revelator Dragendorff reagent) are observed. Preparative TLC plates were used for the purification ("Machery - Nagel", Germany), mobile phase chloroform/methanol, 8.5/1.5, v/v). UV-, IR-, and NMR-spectroscopy of the compounds were realized. Harmine, harmaline, and vasicine were identified as individual components. Finally, it can be concluded that *P. harmala* alkaloids can be evaluated as substances for the treatment and prevention of heart diseases.

Keywords: *Peganum harmala*, alkaloid, heart, harmine, harmaline.

Investigation of the Effects of Some Environmental Factors on Feed Consumption in Pre-weaning Period of Akkaraman and Central Anatolian Merino Lambs

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Abstract:

In this study; It was aimed that the determine of the effect of genotype, gender, period and temperature-humidity index (THI) values on roughage and concentrated feed consumption in addition to breast milk in Akkaraman and Central Anatolian Merino lambs from 30 days to weaning age (90 days of age). In the experiment, animals were assigned to 4 groups as Group I (Akkaraman female lamb n = 11), Group II (Akkaraman male lamb n = 10), Group III (Merino female lamb n = 11) and Group IV (Merino male lamb n = 10) and group feeding was done. The study continued for 9 periods of 7 days. During the experimental period, the total roughage consumption of the groups was 10.27, 12.21, 13.75 and 14.60 kg, while total concentrated feed consumption was 39.99, 41.27, 34.98 and 31.36 kg, per animal, respectively. In this study, the average feed consumption per unit animal consumed for a period of 7 days in the groups was 5.58, 5.92, 5.41 and 5.11 kg respectively. It was determined that the average feed consumption of Akkaraman lambs was 5.76 kg, and that of Merino lambs was 5.26 kg. THI values were found as min. 34.09 max 71.10 and average 52.57. These values were found to be lower than optimal values for animals. General linear model was used for statistical analysis. According to the results of variance analysis; It was determined that there was no genotype x gender interaction (P = 0.161), the genotype factor was important (P = 0.038), and the gender factor was insignificant (P = 0.915). It was observed that the period (covariant) was an important variable on feed consumption (P = 0.001), while THI values had no effect (P = 0.084). As a result; It was determined that lambs need to consume more feed with increasing age, changes in THI values do not affect feed consumption during this physiological period (between 30 and 90 days) and Akkaraman lambs need more roughage and concentrated feed than Merino lambs. In addition, although THI values were under optimal conditions, it was observed that they had no effect on feed consumption.

Keywords: akkaraman, central anatolian merino, temperature humidity index, feed consumption.

Enterococcal Infections: Epidemiology and Antibiotic Resistance

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Abstract:

The genus *Enterococcus* comprises a ubiquitous group of Gram-positive bacteria that are of great relevance to human health for their role as major causative agents of health care-associated infections. The greatest threat these bacteria represent is their ability to developed multi-resistance to virtually all antimicrobials currently used and to transfer resistance genes to more pathogenic Gram-positive bacteria such as *Staphylococcus aureus*. The aim of this survey is to isolate and identify strains of Enterococci and to study their behavior towards the main active antibiotics, especially for the presence of multidrug-resistant enterococci. This Prospective study carried out in the microbiology laboratory of hospital of Biskra (South East region of Algeria), for period of 12 months (August 2019 - August 2020). Our strains have been isolated from different products (pus, urine, blood...), from hospitalized patients and outpatients. Strains' isolation was performed on several culture media: blood agar, Bile Aesculine Azide (BEA) medium and M17 Agar. The identification of enterococci was performed using the Gram stain, the catalase test, the identification was completed by biochemical tests of the API 20 Strep gallery and Vitek2 (BioMérieux). The antibiotic sensitivity profile was determined by the diffusion technique on Mueller-Hinton agar completed by the study of minimum inhibitory concentrations (MIC) for strains which are resistant or intermediate to vancomycin and teicoplanin, this method was carried out by dilutions on agar medium. 213 strains of enterococci were isolated with a predominance of *E. faecalis* (60%), and predominance in female patients (62%). The age group between 25 and 45 years is the most affected (37%) and our strains are often isolated from urine (68.7%). This survey revealed high and multi resistance rates for ampicillin (20%); penicillin G (88%), erythromycin (79%); and clindamycin (80%). The aminoglycosides and glycopeptides remained active whose none of the isolates were resistant to amikacin , gentamicin or to vancomycin except for kanamycin (48%); the other resistance rates were 47% for pristinamycin. 50% of the strains are resistant to levofloxacin; 74% to tetracycline and 17% to rifampicin. Vancomycin remains the antibiotic of choice, used as a last resort for the treatment of infections caused by multi-resistant Gram-positive bacteria including enterococci.

Keywords: *Enterococcus faecalis* - resistance to vancomycin - multidrug-resistance.



Let's Develop Networks and Create Opportunities for Hippotherapy

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Abstract:

Hippotherapy is a therapy strategy implemented by health professionals in which the horse is involved in the process, aimed at improving the neuromotor, sensory, cognitive and psychosocial functions of the consultant. In this context, our Project which is "Let's Develop Networks and Create Opportunities for Hippotherapy" adopted by the European Union scope of access to health aims to build the hippotherapy network in Turkey. Our project will last for 46 months and our project goals are; to raise awareness of needy individuals and their families, relevant non-governmental organizations and ultimately the society about hippotherapy by carrying out awareness studies, between professional groups and civil society organizations in Turkey about to create a network to support the development and accessibility of hippotherapy, to support the therapeutic effects of hippotherapy with scientific studies and to advocate for acceptance of hippotherapy as a complementary treatment method in the relevant commissions of the Ministry of Health, Hippotherapy professional team members involved in the application, practice guidelines for creating applications in Turkey hippotherapy ensure attain certain standards, to establish national level quality standards of therapy horses and hippotherapy centers. Hippotherapy, by its nature as a multidisciplinary field, has to be implemented by a group of experts in various fields - doctors, horse trainers, veterinarians with powerful collaboration. A professional and multidisciplinary team approach in hippotherapy practice is vital to achieving the goal of treatment. Therapists who are hippotherapy practitioners are health professionals who have received relevant hippotherapy training (physiotherapist, ergotherapist, language and speech therapist, psychologist). The horse trainer is responsible for the training and administration of therapy horses, and the veterinarian is responsible for maintaining the health of therapy horses. With hippotherapy applications, the following developments can be seen in the individual. This development may vary depending on the individual's condition and the goal of hippotherapy. Improvement in balance and posture, Development of Motor skills, Increase in tactile, sensory, visual, auditory stimuli, Improvement in respiratory function, Development of communication and social skills. Hippotherapy awareness with Turkey and in Europe through established networks and support should be increased. Therefore, it is vital to strengthen hippotherapy with scientific studies.

Keywords: hippotherapy, European Union, horse, equine, Hippotherapy Turkey

Let's Develop Networks and Create opportunities for Hippotherapy (Hippotherapy Turkey) project center funded by European Union 30.12.2019-IPA/2019/413-002



Searching for the Gut Microbial Factors to VPA Model in Rodents of Autism Spectrum Disorder

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Abstract:

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder in which impaired socialization, the deficit of communication skills, repetitive behaviors are seen and the development mechanism has been unknown. In addition to genetic factors, ASD can develop under the influence of many environmental variables such as exposure to teratogens and nutritional deficiency. Besides core symptoms, gastrointestinal disorders are frequently comorbid to ASD and have been associated with these microbial changes. This microbial imbalance is a key contributor to the system dysregulation observed in the pathogenesis of neurobehavioural conditions. Environmental factors can alter its microbial composition and affect the brain, particularly at critical stages of development, through the gut-microbiota-brain axis. Increased microflora and decreased microbial diversity characterize the ASD gut microbiota; this combination of factors can lead to an overgrowth of harmful bacteria that contribute to the severity of autistic symptoms. It is known that increased serotonin levels in the brain of children with ASD are associated with gastrointestinal 5-HT hypersecretion. The relation of behavioral symptoms such as stereotypical movements and decreased socialization seen in autism with increased serotonin level has also been demonstrated by clinical findings. Moreover, an increasing number of studies in animal models of stress, anxiety, and depression also implicate a role for the microbiota in psychopathology that is might be a key factor to also impaired socialization symptoms of ASD. Valproic acid (VPA), which is known to have a teratogenic effect, *in utero* exposure in rats is frequently studied as an autism animal model. Autism-like behavioral symptoms observed in the VPA model have been associated with behavioral abnormalities also seen in changes in the microbiota. Social behaviors have been found to be improved in animal models where microbial changes are induced in the VPA model. The clear is that GI disorders or microbial changes are a significant problem in autism and possibly important contributors to behavioral symptoms. In this review, studies associated with microbial changes and the ASD-VPA model on rodents were examined through online databases.

Keywords: vpa animal model, autism spectrum disorder, gastrointestinal dysregulation, microbial changes



**Evaluation of Zinc Bioaccumulation Using a Fish Species "*Barbus barbatus L.*"
in Dahmouni Dam's - Tiaret, Algeria.**

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Abstract:

Pollution of the aquatic environment has direct or indirect effects on the ecosystem. These consequences are so much important as some pollutants such as heavy metals from the external environment can accumulate in aquatic organisms by the phenomenon of "bioaccumulation". This bioaccumulation may amplify in each of the food chain components. This amplification to each of the food chain components (up to man) can sometimes take alarming proportions in terms of public health. This work aimed to study the accumulative and bioindicator power of the "*Barbus barbatus L.*" fish and to monitor the quality of the Dahmouni dam water. Twenty fish were randomly sampled. Before the determination of zinc contents in soft organs (liver and muscle) by flame atomic absorption spectrophotometer, we measured their size and their age. From the results obtained, we found that the *Barbus* accumulates zinc with high average contents which exceeds AFNOR standards. This metal is accumulated in different proportions in the liver and muscle tissues. Liver concentrate more zinc than muscle. Zinc contents vary also according to the individuals of the fish, in particular depending on their size and age. Zinc concentrations always increase with the size of the fish and the young individuals are more contaminated than adults. The chosen fish provided interesting results which allowed us to learn about the state of freshwater environments.

Keywords: Bioaccumulation, Bioindication, *Barbus barbatus L.*, Zinc, Dahmouni Dam.



Effects of Probiotic Supplementation in Poultry Performance

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Abstract:

The objective of our study was to evaluate the effects of probiotic supplementation on poultry performance. The effects of feeding dehydrated *Enterococcus faecium* (*EF*) "DSM 7134" on growth performance, were investigated. One hundred forty, one-day-old male Cobb 500 broiler chicks obtained from a commercial hatchery were allocated to 2 experimental treatments (control: no probiotic and treated group supplemented with (*EF*) (0,2 g/liter (1×10^9 cfu) in drinking water). Addition of probiotic *E. faecium* had significantly improve weight gain, (BW), feed intake. No significant differences in broiler mortality between the probiotic treatments and the control group was observed. To our knowledge, in our country, there are a few reports focusing on the effects of probiotics on chickens performances. Results showed that the addition of probiotic *E. faecium* had significantly ($P < 0.05$) improve weight gain, (BW) on d21, d28, d35, d42 and d49. Average body weight at the end of experiment (d49) in treated group was 2523,7 g and 2356,2 g in control group. Feed intake of different groups did not differ significantly ($P > 0.05$). It is concluded that probiotic supplementation in poultry, has beneficial effect on growth performance.

Keywords: probiotic; body weight; broiler chicken; performance.



The Use of *Foeniculum vulgare* Miller (Fennel) in Phytotherapy

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Abstract:

The aim of the study is to support the uses of *Foeniculum vulgare* Miller plant, drugs and products obtained from this plant in phytotherapy with current literature and scientific studies. The current literature available in scientific databases on the chemical and botanical properties, medicinal and pharmacological effects of *Foeniculum vulgare* have been examined. *Foeniculum vulgare* has been widely used in traditional medicine since ancient times in various parts of the world. It is effective in dyspeptic disorders such as gas, bloating and upper respiratory tract diseases. It has been demonstrated to possess hepatoprotective, antioxidant, galactogogue and wound healing effects through *in vivo* experiments. It has also been shown by *in vitro* experiments to have antibacterial, antifungal and anticancer effects. Its antispasmodic, estrogenic and sedative activities have been reported in clinical studies. Fruits of *Foeniculum vulgare* possess essential oil 2-6% which contains more than 60% transanetol (50-75%) and 15% fenchone (12-33%) plus less than 5% estragole (2-5%). Both the fruits and essential oil obtained from the plant are used. Studies on *Foeniculum vulgare* are focused on the extracts prepared from the fruit and on the essential oil and the main components of the essential oil. Scientific studies have shown that fennel has estrogenic activity. Therefore, it can be used effectively in the treatment of amenorrhea/oligomenorrhea, polycystic ovary syndrome, menopausal symptoms. It has also been determined that insufficient toxicology data is available on Fructus Foeniculi as a drug. The increase in the popularity of herbal products in recent years makes it important to conduct more studies on toxicology and drug interactions and also to determine safe doses.

Keywords: *Foeniculum vulgare* Miller, fennel, phytotherapy



Is There a Place for Inappropriate Use of Antibiotics in One Health?

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Abstract:

Antimicrobial resistance (AMR) has been identified by the World Health Organization (WHO) as a complex, multifaceted problem that requires an urgent global response. In this study is aimed to draw attention to the multiple negative effects of resistance development that may occur due to inappropriate antibiotic use under 'One Health Umbrella'. According to the literature, in this study, articles were examined which include "One health", "One health umbrella" and "Antimicrobial Resistance". Antibiotics that have resistance developed have become less effective or ineffective in treating or preventing infection caused by this microorganism. This condition does not only affect the person who uses the antibiotic in a irrational way but also poses a danger to anyone where the resistant bacterium can form an infection. Due to infections caused by antibiotic-resistant bacteria, patients' hospitalization times are prolonged, the risk of developing complications associated with it, treatment costs, environmental problems, disease, and death rates increase. Under the 'One health Umbrella' framework, there is growing fear about the emergence of multi-drug- resistance superbugs. These superbugs cause infections that respond to treatment with any currently available antimicrobial agent, stimulating memories of the pre-antibiotic period and raising worries about the post-antibiotic period. In a 2014 study, if we assume that 100% resistance will develop by 2050, it is thought that there will be 700 million deaths annually and this will cost the world economy 1.4 trillion dollars. By preventing inappropriate use of antibiotics, an increase in the rate of outpatient treatment, decrease in antibiotic-induced diarrhea, treatment costs, antibiotic resistance and hospitalization time is achieved. In this study is believed that training studies on the subject, implementation of restriction methods, and preparation of treatment protocols for certain patient groups will be beneficial in order to change habits and behaviors related to the prevalence of inappropriate antibiotic use. Every step to be taken to increase the awareness of the public, healthcare professionals, city and regional planning specialists will emphasize the importance of one health. Thus, the aim of this study significantly reduces the health expenses of both the individual and the country.

Keywords: one health, antimicrobial resistance (AMR)



Family Presence in Routine Care: Attitude and Behaviour of Nurses

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Abstract:

Family presence is a controversial issue. The philosophy of family centered care encourages the presence of family members with hospitalized patients. Aim: The study aimed at determining the attitude and behavior of nurses regarding family presence during routine care and find whether a relationship exists between these two variables. A descriptive cross-sectional study was used to find out the attitude and behavior regarding family presence on a convenience sample of 108 registered nurses in a tertiary care hospital in India. Data were collected using Patient and Family Care Assessment Scale developed by Fisher et al and a demographic questionnaire. Registered nurses working in the inpatient wards of the hospital and were willing to participate were included in the study. Nurses had a favorable attitude and behavior towards family presence in routine care. They had a low agreement on the option of family presence in critically ill situation. In actual practice, they did not support the wishes of the family to be present during daily patient care. A positive correlation between the attitude and the behavior ($r=.273$; $p=.004$) indicated that nurse with a positive attitude engaged in behaviors that supported family presence. It is recommended that policy development in this regard might be considered. However, while evidence is scarce in the area of routine care, further research should explore what influences the attitude and behavior of the nurses and develop interventions.

Keywords: family presence, attitude, behavior, nurses.



The Action Mechanism of Vitellogenin on Honey Bees

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Abstract:

Vitellogenin is an egg yolk precursor protein synthesized in the insect fat body of females, and it accumulated in eggs throughout the queen ovarioles. It is crucial for eggs developing. Honey bees are the most prominent insect model for vitellogenin studies owing to the key roles in social behaviour, immunity, nutrient storage, and ageing. Vitellogenin is a behavioural regulator, an antioxidant with a potential effect on aging and a resource for feeding young worker bees. Vitellogenin has an important roles in the secretion of royal jelly that used for feeding queen bees and larvae. Young workers have the highest vitellogenin titers at ages from 5 to 15 days. Queen bees transfer vitellogenin to their eggs for defence mechanism. Vitellogenin is appear to major zinc-carrier in honey bees' haemolymph. Which is why lacking of zinc and its carrier (vitellogenin) decreased the immunity of honey bees. Worker bees undergo an age-associated behavioural maturation that depends on titers of vitellogenin in their haemolymph. In worker bees, vitellogenin titers is decreased sharply and a corresponding juvenile hormone titers is increasing. That encourage workers to switch nurse to forager and leave the nest to collect nectar and pollen. In this study, the action mechanism of the pleiotropic protein vitellogenin on honey bees has been evaluated in a wide range.

Keywords: Honey bee, vitellogenin, pleiopropic protein, haemolymph, social behaviour

Are Sustainable Nutrition Models Affordable?

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Abstract:

Food and Agriculture Organization defines sustainable diets as eating patterns with low environmental impact, equitable, accessible, affordable, reliable, and culturally acceptable within the framework of the protection and improvement of health for current and future generations. Sustainable diets are rich in whole grains, legumes, nuts, vegetables, and fruits, support moderate consumption of eggs, dairy products, and fish, contain lower red meat, and limit consumption of highly processed products. Recent studies emphasize that healthy diets may not be affordable, especially in developing and underdeveloped countries. The aim of this study is to examine affordability of sustainable eating patterns. In this sense, the results obtained by searching the words "sustainable nutrition" and "affordability" in databases such as PubMed and Science Direct were reviewed. As a result of a comprehensive study involving 159 countries by Hirvonen et al., the cost of the EAT-Lancet diet, was found to be USD 2,84 per capita daily with vegetables and fruits constituting the highest cost share. The study stated that the EAT-Lancet diet exceeds the per capita household income for at least 1,58 billion people, therefore it may not be suitable for underdeveloped countries. In another study conducted in Australia; the purchasing power for Planetary Health Diet and for the Typical Australian Diet was evaluated for different socioeconomic groups. The study found that weekly spending for a Planetary Health Diet costs USD 120 while a Typical Australian Diet costs USD 145. Accordingly, Planetary Health Diet is found to be more affordable for all socioeconomic groups than the Typical Australian Diet. Another study conducted in Australia evaluated the relationship between the purchasing power of different socioeconomic groups and the cost of healthy and sustainable shopping. While individuals in the lowest income group should spend 48% of their weekly income on healthy and sustainable shopping, this rate was 9% for individuals in the high-income quintile. As a result, although the advantages of sustainable nutrition are known, the studies founded contradictory results regarding the global affordability of sustainable healthy diets. More studies are needed on affordability as one of the requirements of sustainable nutrition models.

Keywords: sustainable nutrition, affordability, nutrition, health, eating patterns

Cutaneous Lymphoma in a Dog with Cutaneous Leishmaniasis

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Abstract:

Lymphoma or lymphosarcoma has been identified as one of the most common, yet treatable malignancy among canine population, accounting for nearly 24% of all canine tumors. Cutaneous lymphoma is one of the uncommon neoplastic condition in dog and man and can be subdivided into epitheliotropic and non-epitheliotropic types. Though etiology of cutaneous lymphoma is unknown, in man a chronic inflammatory process has been proposed to be the major cause for cutaneous T cell lymphoma. Cutaneous Leishmaniasis (CL) is a zoonotic disease transmitted via the bite of female sand flies belonging to the genera *Phlebotomus* in the Old World and *Lutzomyia* in the New World. A five years old, neutered pointer was brought to Surgery clinic of our Veterinary Teaching Hospital with clinical signs of lethargy, multiple nodular skin lesions and weight loss. Generalized lymphadenopathy was also detected during physical examination and based up on the cutaneous lesions CL was suspected and a positive serological test against *Leishmania* was detected. Multiple nodular masses were removed by surgery and histopathology results indicated chronic granulomatous dermatitis. A treatment protocol was also started for CL. After a few weeks, the dog was again brought to the clinic with aggravated and ulcerated skin nodules. A wide spectrum antibiotic regime was planned but the symptoms were getting worse day by day. After two months later another skin biopsy was performed, but this time cutaneous T cell lymphoma was diagnosed in the patient. Based upon the deuteriation of the animal's welfare the dog was euthanized. The chronic inflammatory process due to CL was proposed to be the main reason for cutaneous T cell lymphoma in this case report. Hence, we tried to take attention of the need for the evaluation and monitoring of CL cases in terms of the cutaneous lymphoma within this case report.

Keywords: cutaneous lymphoma, dog, cutaneous leishmaniasis



**The Influence of Propolis in Reducing Dental Plaque and the Correlation
between Dental Plaque and Severity of COVID-19 Complications**

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Abstract:

Dental plaque plays an important role in the etiology of dental caries. It is a natural biofilm which contains live and dead bacterial cells surrounded by formed extracellular water- insoluble and water-soluble glucans and glycoproteins of saliva. One of the main responsible factors of the development of dental caries are dental plaque bacteria. Many studies indicate the relationship between oral health, inflammation and systemic diseases. The latest studies indicate that cariogenic bacteria influence the severity of COVID-19 complications. The oral cavity consist of a reservoir for respiratory pathogens which during cough might lead to the development of hospital-acquired pneumonia. Therefore, propolis which is used in dentistry, oral health and medicine seems to be a potentially natural product which can be used therapeutically by humans in the treatment of dental caries. It is a natural resinous substance which possesses antibacterial, anti-inflammatory, antifungal, antiviral and antioxidant activities. The ethanol extract of propolis has been used as a component of toothpaste, mouth rinses and lozenges. The impact of propolis on microorganism connected with dental caries control is based on its bacteriostatic, bactericidal and anti-adherent actions. Moreover, propolis is a natural substance inhibiting glucosyltransferases from mutans streptococci, which plays a key role in the process of making dental caries. It is useful in dentistry and oral health management and can be potentially useful in decreasing the severity of COVID-19 symptoms.

Keywords: dental plaque, dental caries, propolis, Covid-19 complications



Analysis of the Effectiveness of Emollients for Children Under 3 Years of Age with Atopic Dermatitis in the Opinion of Parents

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Abstract:

Atopic Dermatitis is the most common chronic skin disease that develops in early childhood. The clinical symptoms of Atopic Dermatitis include dysfunction of the skin-epidermal barrier, the characteristic localization of skin lesions, dry skin, and a chronic and recurrent course. The aim of the diploma thesis is to analyze the effectiveness of emollients intended for children under 3 years of age suffering from Atopic Dermatitis. A questionnaire was used, addressed to parents (or guardians) of children under 3 years of age with atopic dermatitis. The survey consisted of two parts. Part I was intended to test the general knowledge of the respondents about Atopic Dermatitis. Part II of the questionnaire was to find out the respondents' opinion on the effectiveness of using emollients in the care of atopic skin in children. 165 respondents took part in the survey. The survey was conducted at the turn of September 2019 - February 2020. Emollients are commonly used to care for the skin of children suffering from AD. The emollients used in the series gave better results than when used alone. The use of emollients ensures better well-being of the child and comfort in everyday life, which is confirmed by parents. Emollients are hypoallergenic pharmacy dermocosmetics, safe for children's skin. They contain substances that contribute to the maintenance of the correct epidermal barrier, which protects against the effects of external environmental factors.

Keywords: Atopic dermatitis, children, emollients



Boron and Cancer Treatment

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Abstract:

Boron (B), atomic number 5, atomic weight 10.81g density 2.84g / cm³, melting point 2300 0C, is a semiconductor between metal and nonmetal. Boron is an essential element for human and animal health. Although boron has toxic effects at high concentrations, it has a wide variety of physiological effects on biological systems at low concentrations, and there are many studies related to this. The most common forms of boron uptake into metabolism are sodium borate, boron citrate, boron aspartate and boron glycinate. It is known that boron and boron compounds have antioxidant effects. Cancer is a pathological condition that occurs as a result of a disorder in the mechanisms regulating cell growth and division (cell cycle). Malignant tumors show metastasis feature by spreading to tissues after originating. All cancers are caused by some abnormalities in the DNA sequence. 10-15% of cancers are inherited, that is, inherited by genes from the parents, and the remaining 85-90% are shaped by exposure to mutagens in living cells, slight progressive changes in cell DNA, and errors in replication. is considered Cancer is multifactorial, and many factors, from bacteria to viruses, radiation to inheritance, environmental factors, dietary habits and chemicals, are blamed in cancer formation. The boron neutron capture therapy (BNCT) method, which has come to the fore, especially recently, has been a ray of hope for cancer treatment. This method, which has been tried in many cancer treatments, has been a treatment mainly used in the treatment of brain cancer and is known as a method in which the damage of healthy cells is at the lowest level in addition to the destruction of cancerous cells. It has also been observed that boric acid prevents cancerous prostate cells growth and the proliferation of cancerous cells. It has also been observed that boron taken into the body with diet is inversely proportional to lung and cervical cancers. In some experiments in animals and humans, boron has been shown to positively affect the central nervous system and be a bioactive element associated with a reduced risk for some types of cancer.

Keywords: Cancer, Bor, DNA, Treatment Methods

Antimicrobial Effects of Stinging Nettle (*Urtica dioica* L.) Extracts on *Campylobacter jejuni*

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Abstract:

Stinging nettle (*Urticadioica* L.) is a perennial plant from the Urticaceae family, whose leaves and stem are covered with irritating hairs. It grows wild in Europe, North America, North Africa and West Asia and in every region of our country. *U. dioica*; regard to its rich nutritional value and essential oils, phenolic compounds and flavonoids, has been used both as a food and traditionally for healing since years. *Campylobacter jejuni* is a gram-negative bacterium that causes infections especially in poultry meat, meat products, raw milk, contaminated water, and foodborne infections. It is a common cause of diarrhea cases in developing countries and sporadic gastroenteritis in developed countries around the world. *C. jejuni* produces adenylate cyclase activating toxin, causing "campylobacter gastroenteritis". It is also a notable pathogen in terms of infection control, due to its association with severe neuropathological sequelae such as, Guillain-Barré, Reiter syndromes, and cases of bacteremia. *C. jejuni*, which can rapidly develop resistance to antibiotics used for infection control, poses a global risk to human health and increases the need for the development of antimicrobials with different mechanisms of action. In today's agriculture and food industry, natural and safe antimicrobials are needed with the widespread use of antibacterials and increased bacterial resistance to existing antibiotics for the control of microorganisms that pose a global health risk in the medical field. For this reason, *U. dioica* is often under investigation for its antimicrobial effects. In the literature, extracts of *U. dioica* against food-borne *Campylobacter jejuni*, *Pseudomonas*, *Shigella* spp., *Bacillus cereus*, *Staphylococcus aureus*, *Vibrio parahaemolyticus*, and *Escherichia coli*; hospital acquired, *Staphylococcus aureus*, *Bacillus subtilis*, *Salmonella* spp. and there are data showing antimicrobial activity on methicillin-resistant *Staphylococcus auerus* (MRSA). In disk diffusion analysis, it was found that *U. dioica* ethanolic extract exhibited antimicrobial effects on *C. jejuni*. It has been determined that tinctures of *U. dioica* have a minimum inhibitory concentration of 3.125% against *C. jejuni*. By using *U. dioica* extract as a strategy to combat infections, it seems to be important revealing its potential of inhibition and bactericidal concentrations, and determine the susceptibility of bacterial genus and species.

Keywords: *Urtica dioica*, nettle, antimicrobial agents, *Campylobacter jejuni*



Arsenic Pollution of Water Sources

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Abstract:

This review examined the present of arsenic and its effect in water. Arsenic is classified as non-metal or metalloid and is included in group 5A in the periodic table. In nature, they can be found in forms with a value of +3, +5, 0, -3, but the forms +3 (arsenide) and +5 (arsenate) are commonly found in water. Arsenic presence in drinking water is a serious threat to human health due to it is a toxic and carcinogenic element. More than 100 million people in many countries around the world have faced the risk of poisoning from arsenic due to arsenic pollution in underground waters. Therefore, the measures to be taken are extremely important. Due to arsenic pollution and health problems in under-ground waters in many regions of the world, including our country, the highest level of pollutants for arsenic with regulations of WHO has been reduced from 50 µg/L to 10 µg/L. Even if arsenic is in low concentrations, it causes significant negative effects in terms of health as a result of long periods of time and it is important to take arsenic away from the waters.

Keywords: water, toxic, arsenic pollution, arsenide, arsenate



Appropriate Anatomical Approaches to Physiotherapy in Cats

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Abstract:

Although physiotherapy applications in animals are newly developed in our country, they have been used in the treatment of horses, dogs and cats since the 1960s. The purposes of physiotherapy applications are as in humans; It is also effective in reducing pain, accelerating recovery, preserving muscle mass, increasing muscle development, supporting joint stability, improving balance and coordination, preventing postoperative complications. Today, it is known that cats are exposed to trauma in the form of falling from the balcony, traffic accident, being crushed by small kittens or being attacked by foreign cats. Appropriate anatomical regions are important in the application of physiotherapy methods in these patients. Spastic muscle groups in cats that are not able to stand up after a traffic accident; musculus iliopsoas, musculus gluteus superficialis, musculus quadriceps femoris, musculus adductor, musculus sartorius, musculus pectineus, musculus biceps femoris, musculus semitendinosus an extension movement is applied to the muscles in an antispastic position. From antispastic muscle groups; Passive ROM(range of motion) exercises are applied to musculus obturatorius externus, musculus obturatorius internus, musculus gemelli, musculus quadratus femoris, musculus quadriceps femoris, musculus semimembranosus, musculus gluteus medius, musculus gluteus profundus, musculus piriformis. After these studies, although there are signs of standing in the process, walking can be performed in a healthy way with the continuation of the exercises. However, with the duration of the exercise, well-known muscle anatomy and interventions in the correct area play a major role in providing effective treatment.

Keywords: cat, muscle, physiotherapy.



The Importance of Model Animals and Organisms in One Health Concept

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Abstract:

"One Health" is the joint use of knowledge and experience produced by different disciplines in order to protect and improve human, animal and environmental health at local, national and global levels. Numerous experimental animal studies with similar results are conducted and many animals are used in these studies. The human species should care about the health of other species in the ecosystem if they want to increase their own health, well-being and lifespan. The aim of this descriptive study is to systematize the necessity of interdisciplinary studies according to the steps of single health understanding and evidence-based medicine practices in order to use a minimum number of model animals in biomedical studies. Model microorganisms and animals are used for the development of vaccines, drugs, biomaterials and health technologies used in the prevention and treatment of human and animal diseases. If a model organism and animal that best imitates human metabolism are used in an experimental study, the results obtained are valid and applicable in humans. More than 115 million model animals are used annually in biomedical research. Studies to be done for the correct and efficient use of model organisms and animals needed in the development of science and technology should be multidisciplinary and the results should be shared. As a result, the use of model organisms should be the first choice in biomedical studies according to the research question and the ethical rules of animal experiments. The results obtained should definitely be shared, the use of a model animal should be designed for the next stage if necessary, and the results should be announced interdisciplinary. One Health understanding is a fundamental requirement of respect for all species and is one of the most important goals of scientists.

Keywords: One health, model organism, model animal.



Role of PNPLA3 Gene Variants in NAFLD Predisposition

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Abstract:

Nonalcoholic fatty liver disease (NAFLD) is a condition manifested by an abnormal accumulation of fat in the liver. The association between the PNPLA3 gene 148M(rs738409) variant and NAFLD has been demonstrated in a number of studies, confirming that this gene is an important genetic determinant of disease development, so we sought to investigate the association between (rs738409) polymorphism of PNPLA3 gene and risk of nonalcoholic fatty liver disease (NAFLD) in the Kashmiri population. A case-control study was designed with 150 patients with NAFLD, and 180 healthy controls. The mutations were analyzed using ARMS-PCR and PCR-RFLP approach. Case-control studies assessing the relationship between PNPLA3 rs738409 G/C gene polymorphism with non-alcoholic fatty liver disease. PNPLA3 rs738409 [G] allele was a risk factor for NAFLD (GG vs CC,) OR 2.28; CI 95% (1.39-3.7); P < 0.001] [OR 4.69 95% CI (2.30-9.59) ; P < 0.001] [OR 2.64 OR 2.28; 95% CI 95% (1.86-3.74); < 0.001]. PNPLA3 gene variant was significantly associated with the disease. In conclusion, PNPLA3 rs738409 polymorphism is not only a risk factor significantly associated with the susceptibility of NAFLD, we found that in the Kashmiri population, individuals harboring the G-allele of rs738409 were susceptible to NAFLD, and rs738409 was associated with plasma levels of ALT, AST, and the histological fibrosis stage. Our study suggests that PNPLA3 may be involved in the progression of fibrosis in NAFLD.

Keywords: NAFLD, NASH, PNPLA3, ALT, AST.

Molecular Comparative Study on Cutaneous Leishmaniasis by Two Target Genes kDNA, Miniexon Gene By PCR-RFLP Technique

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Abstract:

Cutaneous leishmaniasis (CL) is widespread and may cause serious health problems in communities all over the Mediterranean regions and Middle East, including Iraq. Leishmaniasis caused by haemoflagellate and a vector-borne disease transmitted by biting of sand fly. This study was focused to find best method for diagnosis of cutaneous leishmaniasis. Comparison of mini-exon and kDNA as two targeted genes for accurate detection and genetic description of *L. tropica* and *L. major* in human skin lesions by PCR-restriction fragment length polymorphism in Ramadi (Iraq). One hundred twenty-two patients 68 were males and 54 females were with age ranged 1-68 years, CL patients who attended to Branch of Dermatology in Al-Ramadi Teaching Hospital and some Private clinics, during the era between November 2017 to April 2018. Laboratory examination of 122 cases showed 56 infection cases in Cutaneous leishmaniasis by using PCR technique and in infection proportion reaches at 45.9% out of the total number of the cutaneous cases which are similar to leishmaniasis during the months of the study. The direct microscopic smear from lesion which showed amastigotes in the macrophage in 50 (41%) positive case. The Molecular study was carried out to detect the kDNA and miniexone gene by PCR. DNA extracted from 122 samples showed 56(46%) were positive to (kDNA) gene, while all cases revealed negative to miniexone gene. The (RFLP) was adopted on kDNA and miniexone -PCR product and after HaeIII and Eae I digestion at 37°C for 2 hours. Results clarified that kDNA minicircle gene failed to digest by Hae III and Eae I restriction enzyme even after overnight incubation at 37°C, by RFLP technique. We concluded that CL is highly spread with single lesions more than multiple lesions and Mini-exon PCR-RFLP is a very practical method to identify the causative species of cutaneous leishmaniasis, and very useful for identification of *Leishmania* in both vectors and reservoir hosts for further epidemiological studies. It is suitable for promastigote but not with amastigote stage.

Keywords: Cutaneous leishmaniasis, kDNA, miniexone gene, PCR-RFLP.

Vitamin D's Role in COVID-19

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Abstract:

COVID-19 disease, that was first reported in Wuhan city, Hubei region, China in January 2020, then spread to the world and declared as a pandemic by the World Health Organization (WHO) on March 11, 2020, is an infection caused by the acute respiratory syndrome-coronavirus-2 (SARS-CoV-2), which is pathogenic especially in humans and is associated with high mortality and morbidity and has high contagiousness. By February 2021, a total of 105 million confirmed cases and 2.3 million deaths have been reported globally by the WHO. The lack of an effective treatment for the disease, and not being expected to be understood in the near future of the beneficial effects of vaccines developed, although vaccine studies are promising, have led the medical and scientific community to discover a range of therapeutic agents and manage respiratory symptoms associated with the disease. The role of vitamin D in supporting immunity against viruses and respiratory diseases is widely recognized. Studies in various regions of the world have shown a higher prevalence of COVID-19 in regions where vitamin D deficiency is common. At the same time, descriptive and observational studies have reported more frequent mortality and critical cases among patients with vitamin D deficiency. In one study, vitamin D levels in Asia Pacific countries and the number of cases in 1 million population have been subjected to correlation analysis and a significant negative correlation has been found. It has also been concluded that individuals with vitamin D deficiency in 20 European countries are more vulnerable to COVID-19. In Italy, where pandemic causes severe losses, it was reported that vitamin D deficiency is 76% in elderly women. However, it is suggested that the average vitamin D levels are low in aging populations, especially in Spain, Italy and Switzerland, and this group is considered vulnerable to COVID-19. In conclusion, well-designed randomized controlled studies are needed to better elucidate the causality of vitamin D and COVID-19 relationship and to better understand the clinical therapeutic importance of vitamin D or its supplementation.

Keywords: vitamin d, covid-19, inflammation

Serum Antioxidant Capacity in Broiler Breeder Roosters Fed by Camphor Levels

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Abstract:

The current study was aimed to investigate the effect of different levels of camphor ($C_{10}H_{16}O$) on serum antioxidant parameters included: superoxide dismutase (SOD), glutathione peroxidase (GP_X) activities, 2,2-diphenyl-1-picrylhydrazyl (DPPH), and ferric reducing antioxidant power (FRAP) assays in male broiler breeder. As an antioxidant source, camphor was fed to ROSS 308 broiler breeder roosters ($n=35$) at the doses of 0, 50, 250, 750, and 1000 mg/kg of feed for 12 consecutive weeks (31-43 week of age). At the end of experiment, blood samples were collected by cutting the jugular vein. Blood was centrifuged for 15 min at 3000 rpm, and the sera were gathered. SOD and GP_X activities were measured using a commercial kit (Teb Pazhouhan Razi, Tehran, Iran and Biorex Fars, Shiraz, Iran, respectively) according to the guide provided by the manufacturer. Also, the antioxidant status of blood serum was evaluated by FRAP and DPPH radicals scavenging ability. Data were analyzed by the statistical analysis system (SAS) software based on a one-way ANOVA procedure among the groups. The Duncan's multiple ranges test was used for mean comparisons and differences with values of $P < 0.05$ were considered to be statistically significant. Orthogonal polynomial contrasts were used to evaluate linear or quadratic effects of camphor levels. The results showed that the camphor's levels affected SOD activity, DPPH and, FRAP levels ($P < 0.05$). Based on the results, SOD activity, DPPH and FRAP levels increased quadratically with increasing camphor levels in roosters' feed ($P < 0.05$). Among the experimental groups, roosters fed by 50 mg camphor/kg of feed showed the highest SOD activity ($P < 0.05$). Also, roosters fed by 250 and 750 mg camphor/kg of feed had the highest serum' FRAP and DPPH levels, respectively ($P < 0.05$). Thus from the results, it could be concluded that camphor due to its antioxidant potential improves antioxidant capacity in broiler breeder roosters.

Keywords: antioxidant capacity, broiler breeder, camphor, rooster

One Health Approach in Aquaculture

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Abstract:

One Health described as a collaborative, transdisciplinary and multisectoral approach working at local to global levels with the goal of achieving optimal health outcomes; recognize and emphasize, human health is closely connected to the animal health and environment that we live together. One Health implementation to aquaculture industry involves human, animal, environmental health with politics and socioeconomic developments. Industrial production and several other fields led to an overall shift of eating habits around the world during last century. Calorydense, highly processed, nutrient poor products of terrestrial livestock affected eating habits. Also, throughout the decades with the changes to our habits and livelihood, factors that are outside of our reach (COVID-19) have led to sedentary lifestyle that never encountered previously. Non-communicable diseases (NCD) become one of the major issues for the people. In affected countries NCDs became the leading cause of mortality. Likewise, irresponsible use of drugs, pesticides and chemotherapeutic agents unintentionally introduced chemical residues and antimicrobial resistant microorganisms to food chain. Seafood consumption increased but due to overfishing, climate change, pollution, population growth etc. caused wild fish stocks to decline, increasing need and demand for aquaculture to grow drastically in past four decades. With enhanced sustainable production (ESP) goals in mind; choosing right species for farming, creating suitable growing conditions for high stock production, feeds that enhance stock performance with minimal environmental impact, regular and detailed health checks and many other variables evaluated for aquaculture industry ready for challenges industry can face such as invasion of new species, new and emerging diseases, climate change and its effects on aquatic environment, pollution. Climate models predicts tropical regions will become hotter and drier which will negatively impact aquaculture however temperate regions can become warmer and wetter presenting new opportunities for aquaculture. Quantity and quality of freshwater available limits aquaculture ESP, thus proper filtration, pollution control can enable reuse water up to 60%. Therefore, professionals should collaborate, communicate and work together to achieve One Health goals in various fields and accountability must extend beyond national borders, economical classes and importance of veterinary oversight on aquaculture should be understood in every part of the industry.

Keywords: One Health, Aquaculture, Climate Change, NCD, ESP

Adverse Effects of Selection Made for High Milk Production in Dairy Cattle

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Abstract:

The purpose of this review is to evaluate the negative effects of selection for high milk yield in dairy cattle. Undesirable economic losses occur as a result of breeders ignoring important criteria such as herd health and reproductive efficiency by focusing on reducing care- feeding costs and obtaining more milk from animals. Some metabolic diseases and fertility problems are more common in herds with high milk yield. In addition, the herd life of the animals is shorter. Common diseases and lactational incidence rates in cattle are as follows: ketosis, 5.4%; hypocalcemia, 6.5%; displaced abomasum, 1.4%; claw diseases, 7%; retained placenta, 8.6%; mastitis, 14.2%; metritis, 10.1% and ovarian cysts, 8%. It has been reported that there is a positive correlation between the milk yield level of cattle and the lactational incidence rates of the specified diseases. In herds with an average milk yield of 12.000 liters, compared to those with 6000 liters it has been reported that; hypocalcemia, 3.3 times; claw diseases, 2 times; mastitis, 2.5 times; ovarian cysts, 3.1 times; retained placenta, 2.7 times and metritis 1.5 times can be seen more. Every disease in the herd causes economic loss. Economic loss caused by each case of disease seen in the herd: ketosis, \$109; hypocalcemia, \$279; displaced abomasum, \$340; claw diseases, \$223; retained placenta, \$257; mastitis, \$212. In herds with high milk yield, calving interval becomes longer, estrus detection becomes difficult and pregnancy rate decreases. Each one day delay occurring in calving interval, it causes economic loss of \$ 7.5. In herds, 17.9% of culling causes are reproductive problems. Optimal herd life for profitability in dairy cattle should be 6 lactations. The short herd life of cattle causes an increase in herd replacement costs. As a result, the incidence of diseases and reproductive problems increase in herds with high milk yield. Therefore, besides the milk yield of the animals in breeder selection; criteria such as health status, hereditary disorders and herd life should be taken into consideration. Because cattle with high milk yield capacity are more susceptible to diseases, more attention should be paid to preventive medicine and herd management practices.

. **Keywords:** herd health, dairy cows, milk yield, lactational incidence rate, economic loss

Evaluation of Several Freeze/thawing Sequences on Fermentation Efficiency of *Lactobacillus rhamnosus* Encapsulated in Polyvinyl Alcohol

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Abstract:

Lactic acid (LA) is a highly valuable platform chemical that has numerous applications in variety of industries such as food, pharmaceutical, textile, leather, and chemical industries. 90% of LA is currently produced by microbial fermentative processes (mostly using lactic acid bacteria). Although LA production is majorly accomplished by batch fermentation using free cells, application of immobilized cells (biocatalyst) offers various advantages, such as biocatalyst (BC) reusability, higher fermentation rate, easier separation of microorganism from the fermented media, protective effect against substrate and product inhibition, and cheaper inoculum preparation. Polyvinyl Alcohol (PVA) is low-cost, non-toxic, stable, hydrophilic, and biocompatible synthetic polymer, harmless to microorganisms, with porous structure and good mechanical and chemical resistance making it a suitable immobilization carrier for various industrial applications. In this study the effect of 4 freezing-thawing sequences on fermentation efficiency of encapsulated *Lactobacillus rhamnosus* ATCC 7469 in 10% PVA matrix for application in LA fermentation was investigated. PVA BCs were applied in batch L-(+)-LA fermentations on modified MRS broth. The increase of PVA hydrogel strength, reflected both in storage modulus increase and $\tan \delta$ decrease, and was pronounced with the increase of number of freeze-thaw cycles. The PVA BC showed good stability during all 4 batch fermentations. However, 4th fermentation was prolonged to 48 hours indicating that, after 4th sequence of freezing and thawing, the fermentative efficiency of *L. rhamnosus* gradually decreased. The obtained fermentation parameters from the 1st to 3rd fermentation were highly comparable. Reducing sugar consumption was above 90% in 1st to 3rd fermentation. Also, high LA concentration (46.8 to 48.7 g/L), yield (95.5 to 96.3%) and volumetric productivity (1.3 to 1.4 g/L h⁻¹) were achieved in the 1st to 3rd fermentation. The results indicate that PVA BC application in this case, is only limited by survival of microbial cells during freeze-thawing cycles. In addition, larger batch of BC can be produced and used in portions, in 3 different fermentation cycles, without the loss of its fermentation efficiency.

Keywords: lactic acid fermentation; *Lactobacillus rhamnosus*; polyvinyl alcohol; immobilization.

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Phytotherapy and Cancer Approach in Complementary-Traditional Medicine

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Abstract:

Phytotherapy is one of the most frequently used treatment methods, especially by cancer patients. In this review, the relation of phytotherapy with cancer and its preference in addition to the use of pharmacological drugs in cancer types were evaluated. The literature was reviewed in terms of phytotherapy studies published between 2000-2021. The data were obtained by searching the words “complementary and alternative medicines, phytotherapy, herbal medicines, cancer” in the search engines of “Pubmed, Lancet, ScienceDirect and Scopus”. It has been observed that phytotherapy is widely used in Far East countries such as China and South Korea, and its use is around 90% in Palestine within the borders of Mesopotamia where it was first applied. The reasons for this are the side effects of traditional medical methods and pharmacological drug use. Besides, the increase in the prevalence rates in cancer cases supports this trend. World cancer cases in 2020 are listed as breast, lung, colo-rectal, and deaths as lung, colo-rectal, liver regardless of gender. Phytotherapy continues to be applied rapidly all over the world despite its unpredictable side effects. Especially the presence of diseases such as cancer that modern medicine cannot fully cure triggers this. As a result, uncontrolled use of herbal medicine creates threats in traditional treatments, and this situation encourages countries to make legal regulations. The main thing to do is to determine the pharmacological and toxicological parameters of the plants used in phytotherapy applications. It is to establish the standards of herbal medicines in terms of quality, safety and efficacy with the determined parameters.

Keywords: complementary and alternative medicines, phytotherapy, herbal medicine, cancer

Investigation of Lipid Mobilisation Parameters in the Serum Before and After Surgery of Cows with Left Displacement Abomasum[#]

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Abstract:

Left Abomasum Displacement (LDA) is one of the most important metabolic diseases which is caused by negative energy balance (NEB) during the early lactation period for high milk efficient cows. Lipid mobilization seen due to NEB in transition period dairy cattle with LDA is a metabolic adaptation. The purpose of this study was to investigate the lipid mobilization parameters in cows with LDA before and after the operation. In this research, the cows with LDA (n=16) were divided into three groups that are before operation (pre-op LDA), immediately after the operation (post-op LDA), and the 10th day after the operation (post-op 10 LDA). Control groups were formed from cows that are early lactation (n=8) and dry period (n=8). In serum samples collected; total cholesterol, HDL-cholesterol, LDL-cholesterol, aspartate transaminase (AST) enzyme activity was determined spectrophotometrically. Free fatty acid (FFA) (Biovision, USA), and beta-hydroxybutyrate (BHBA) (Cayman, USA) levels were assayed by kit procedures. Triacylglycerol (TG) level and gamma-glutamyl transferase (GGT) activity were determined in Gesan Chem 200 (Italy) autoanalyzer. As a result, It was found while serum total cholesterol, HDL-cholesterol, and LDL-cholesterol levels decreased in cattle with LDA compared to control groups, BHBA levels, AST, and GGT activities increase. In the present study, it was concluded that evaluation of lipid parameters, especially BHBA levels, in the diagnosis, treatment, and prognosis of the disease in dairy cattle with LDA is of great importance.

Keywords: dairy cow, displacement abomasum, lipid mobilization

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Evaluation of the Hemolytic Mechanism of Human Erythrocyte Exposed to Some Heavy Metals

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Abstract:

This study includes estimation the toxic effect of some heavy metals on human erythrocytes. The results can be arranged elements as: Fe > Cu > Ni > Mn > Mg. The results also cleared that with increase the concentration of Fe and Cu, the absorbance increase due to (high % of hemolysis occurred), the combination of Fe: Ni had the highest model deviation ration (MDR) equal to 0.859 which indicated an additive toxic effect. An antagonistic effect was observed for three models metal combination with the strongest effect found, with a MDR of 0.245, for Fe: Cu: Ni. In this study the effect of vitamins (C and B₂) on % hemolysis of erythrocytes pollution when exposed to heavy metal were tested and the results presented that the effect of Vit. (C and B₂) on % hemolysis of erythrocytes when treated with (Fe, Cu and Ni) was decrease, leads to an increase reduction in the rate % hemolysis and lower % hemolysis, but with increasing the concentration of Vit (C and B₂), leads to a lesser reduction of % hemolysis.

Keywords: heavy metals, hemolysis, erythrocytes.

The Impact of Anthropogenic Pollution on the Development and Spread of Resistance Genes in Surface Waters

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Abstract:

The spread of resistance genes in the environment an emerging health concern worldwide. In this work, studies have been conducted to detect antibiotic resistance genes (ARGs) in the natural waters of the Uzh River, which flows in the Carpathian region (Ukraine). The samples were taken from the territory located near the Perechyn timber and chemical plant which is a potential source of pollution of the given territory. The extracted total DNA was subsequently investigated using the PCR amplification method for detection antibiotic resistance marker genes, for this we were used reagents from Lytech" (Russia) production (*bla*NDM, Tet-M, *bla*CTX-M, *bla*OXA48). The Uzh River is a reservoir of transboundary significance, it follows in the Carpathian region (Ukraine) and flows into the Laborec river which is in the territory of Slovakia. Our previous studies allowed us to determine the increased content of chemicals (heavy metals and nitrogen compounds) in water samples and in the bottom sediments of the Uzh river also in the investigated territory was revealed the increased level of bacteriological pollution of water and a considerable quantity of antibiotic-resistant bacteria (Bilkei & Kryvtsova, 2020). In water samples taken from territory up the city Perechyn ARGs have not been identified in any of the 10 investigation samples. The study of water samples from the site where the Domoradzh Stream flows into the Uzh River were detected Tet-M genes in 5 out of 10 samples, *bla* CTX genes were indicated in 3 of 10 samples. A small number of *bla*OXA-48 genes were detected in total DNA from water samples, only in 1 out of 10 samples. In the area downstream from the city of Perechyn were detected only Tet-M genes in 3 of 10 sample. The presented data indicate a high degree of saturation of ARGs in surface waters of the Uzh River.

Keywords: antibiotic resistance genes, anthropogenic pollution, co-resistance, water quality.



Bovine Arachnomelia Syndrome: A Study in the Genetical Aspect

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Abstract:

Bovine Arachnomelia (BA) syndrome is one of genetic disorder that occurred in cattle. The BA syndrome was caused by *Sulfite Oxidase (SUOX)* and *Molybdenum Cofactor Synthesis Step-1 (MOCSI)* genes. The *SUOX* gene (GeneBank: XM_027542176.1) consisted of four exons. Meanwhile, the *MOCSI* gene (GeneBank: XM_024983380.1) consisted of twelve exons. This study was carried out to explain the *BA* syndrome and detection its with PCR-RFLP techniques. The reference sequence of *SUOX* and *MOCSI* genes from GenBank were used in this study to identify the mutation points. Moreover, the information of mutation in both genes were obtained with literature studies. According to the literature study, five mutation points in *SUOX* gene from 664th to 668th nucleotides was occurred in cattle with *BA* syndrome. In addition, two insertion/deletion (indel) mutations of 1913th and 1914th nucleotides in *MOCSI* gene were occurred in cattle with *BA* syndrome. According to the Primer3 software, the primer pairs were obtained to detect the mutation in *SUOX* gene (526 bp) and *MOCSI* gene (584 bp). According to the BioEdit software, mutation in *SUOX* and *MOCSI* genes can be detected with *Sfa*NI and *Dra*III restriction enzymes (RE) respectively. It can be concluded that both RE's can be used to detect the carrier allele for *BA* syndrome in cattle.

Keywords: *Bovine arachnomelia*; GenBank; PCR-RFLP; Primer3.



Isolation and Identification of Bacteria among Renal Failure Iraqi Patients

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Abstract:

Study aim to identification of pathogenic bacteria associated with renal failure patients and to demonstrate its sensitivity to antibiotic . A total of 121 urine samples of renal failure patient were obtained from both Marjan and Al-Imam Al-Sadiq Hospital in Hillah city, belonging to both sexes at various age groups ranging from 15 to 85 years of age, using sterile urine cap, all specimens were immediately transported to laboratory and cultivation within 2 h. findings: morphological and biochemical characterization indicated that 68(58%) of sample had positive and 53 (42%) results of urine culture and biochemical tests for isolated bacteria from renal failure patient were revealed that total bacterial isolate 49 of the most popular bacteria, *Escherichia coli* is 14 (30.4%) afterwards accompanied by *Staphylococcus aureus* 9 (19.5%) , *Enterococcus faecalis* 9 (19.5%) *Staphylococcus saprophyticus* 2 (4.3%) *Klebsiella pneumoniae* 5 (10.8%) ,*Pseudomonas aeruginosa* 2 (6.5 %) ,*Proteus* (2.1%) and *Serratia fonticola* (2.1%) Conclusion: According to the current study renal failure is more common in male than female in Babylon province. Urinary tract infection in female more than male in renal failure patient *Escherichia coli* the most common bacteria isolate .

Keywords: bacteria, kidney, *E.coli*, antibiotic



Diagnosis of Human Saliva by Sequences of Streptococcus Bacteria

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Abstract:

This study aim to benefit from microorganisms, specifically *streptococcus* bacteria, in the diagnosis of human saliva, through the presence of these bacteria in saliva. methods 40 samples of saliva were collected, these samples including the following samples (10 chewing gum samples , 10 bitten food samples , 10 cigarette butts samples , and 10 saliva stains on filter paper) and as virtual samples of crime scene for the period(from April 2019 to August 2019) the bacteria *Streptococcus salivarius*. This study was conducted in the province of Babylon, city of Hillah , in two laboratories , the first is microbiology laboratory in Hillah teaching Hospital and the second is the laboratory of advanced microbiology in the department of Biology college of science University of Babylon .A bacteriological transplant was then carried out and diagnostic tests were carried out which included (phenotypic examinations , microscopic examinations and biochemical examinations). Results showed the presence of a number of bacteria and fungi *Streptococcus salivarius* was most pronounced in most samples , with 70%in gum samples , 60%bitten food ,60% cigarette butts , 80% in saliva stains . After that the genetic diagnosis phase (DNA extraction , PCR , gel electrophoresis and finally DNA sequencing).The result of DNA sequence confirmed the emergence of *Streptococcus* bacteria .conclusion confirms the possibility of considering the *Streptococcus salivarius* as a marker in the forensic evidence of the presence of saliva in the crime scene and distinguish it from bodily fluids.

Keywords: DNA, Streptococcus, saliva, PCR

Investigations of *Hyoscyamus niger* Leaf Alkaloids

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Abstract:

The aim of study is investigation content of alkaloidal extract from *H.niger* leaves which grows naturally in Azerbaijan. *H. niger* L. leaves were collected in September 2018 around riverside from Gadabay, Azerbaijan. Alkaloids were extracted from dried leaves (40 g) with chloroform-methanol-25% ammonium hydroxide - 15:5:1. Extraction was repeated 3 times and evaporated. Residue was resolved with 200 ml of CHCl_3 . 600 ml of 1 N H_2SO_4 were added and mixed well. The CHCl_3 phase was removed and the H_2SO_4 phase was adjusted to pH 10 with 25% NH_4OH in an ice-bath. From the solution, alkaloids were extracted 3 times with 150 ml of CHCl_3 . The combined extracts were filtered after adding anhydrous Na_2SO_4 and the residue was washed with 10 ml of CHCl_3 . The combined extracts were evaporated to dryness. Alkaloids were analyzed by TLC and GC-MS methods. TLC analysis showed that the alkaloid mixture of plant leaves contain 5 different alkaloids (Silica GF₂₅₄, 0.2 mm, CHCl_3 - CH_3OH -7.5: 2.5, Dragendorff's reagent). The GS-MS analysis was carried out on Shimadzu QP 2010 Plus, in EI mode at 70 eV. An HP-5 MS column (30m x 0.25mm x 0.25 mm) was used. The alkaloids were confirmed by comparing the measured data with Nist library of GC-MS. Scopolamine, atropine, nortropin and some similar molecules with tropane, pyrrol, pyrimidin, indol derivatives were identified from plant extract. *H.niger* leaves are interesting material for investigation and GC-MS is one of the useful method to analyze alkaloids. Nevertheless this method is not suitable for termolabile compounds and we need another analysis to confirm structures of substances.

Keywords: *Hyoscyamus niger*, alkaloids, GC-MS, TLC



Investigation of Cell Culture Susceptibility of Rabies Virus Reference Strains by Using Virological Test Methods*

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Abstract:

Rabies virus (RABV) belong to the *Lyssavirus* genus in the family *Rhabdoviridae*, it is neglected viral zoonotic disease. In this study cell culture susceptibility of Challenge Virus Standart (CVS) and Pasteur Virus (PV) agents, which are among the rabies virus reference strains, were investigated. The reference virus strains were inoculated into three different cell cultures, which are BHK-21, Murine Neuroblastoma and Vero, then growth controls were performed. Both viruses were inoculated with three blind passages and supernatants of cells that were frozen and thawed after incubation were collected. End point dilution method (log₁₀) have used for virus titration from all passage fluids. By immunohistochemical method using fluorescently labeled conjugate titers of stained viruses were evaluated under fluorescence microscope. While in BHK-21 the highest titer was determined for the PV strain, CVS strain in Murine Neuroblastoma cell culture was able to reach a higher titer. As a result of this study; while both reference viruses can grow in BHK-21 and Murine Neuroblastoma cell culture, it was concluded that the Vero cell line was not a suitable option for propagation of both viruses.

Keywords: rabies reference virus, cell culture

*This is a PhD study conducted in Ankara University Health Science Institute and supported from Republic of Turkey Ministry of Agriculture and Frestry General Directorate of Agricultural Research and Policies (TAGEM).



International Congress on Biological
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INVITED REVIEWS



Food Poisoning by *Bacillus cereus*

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Abstract:

Bacillus cereus is a ubiquitous soil bacterium and, behind Salmonella, Campylobacter or the norovirus, one of the most important agents of gastrointestinal diseases. It presents a major challenge to food industry, as it can easily be spread to different foods via crop plants and livestock. Furthermore, its ability to produce biofilms and spores makes *B. cereus* extremely resistant towards cleaning and disinfection procedures as well as the technological processing of foods. The bacterium causes two types of gastrointestinal disease: the emetic toxin cereulide is responsible for classical food intoxication with the main symptoms nausea and vomiting. Here, the toxin is pre-formed in foods, ingestion of viable bacteria is not necessary. Enteropathogenic strains cause food infections (“toxico-infections”), typically showing watery diarrhea and abdominal pain. The responsible toxins are produced in the small intestine by viable bacteria. The main pathogenicity factors are the three-component enterotoxin complexes Nhe (non-hemolytic enterotoxin) and Hbl (hemolysin BL). Toxin production of *B. cereus* is, however, subject to a complex regulatory network, which leaves plenty of room for strain-specific variations. Under simulated intestinal conditions, toxin gene transcription and toxin production are enhanced by a factor secreted from colon epithelial cells. Also the mucus layer stimulates the production of enterotoxins. These results show that *B. cereus* adapts ideally to the host environment in a short time, which might be the basis for the relatively short incubation time of *B. cereus*-associated food infections. Moreover, spore survival in simulated gastric fluid is enhanced by foods, especially by fatty milk products such as cream or mascarpone. On the other hand, milk and baby formula reduce the toxic activity of *B. cereus* culture supernatants. A *B. cereus*-associated food infection must be seen as a multifactorial process, in which every step plays an important role, from spore survival in the stomach, germination, adhesion, motility, toxin secretion, up to the toxic activity against epithelial cells.

Keywords: *Bacillus cereus*, enterotoxins, cereulide



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Invited Oral Presentation

One Health and Its Importance

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Abstract:

As the human population continues to increase and expand in our world, interactions of humans, animals and our environment becomes more important and effective, with the effect of developing technologies and science-based evidence. Also, the careful protection of our food and feed resources from foodborne diseases, contamination and terrorist acts has become critical for human and animal health. Therefore, there are many organizations and studies on this subject in the world. A major obstacle to the development of One Health approaches is the lack of communication between the human and veterinary professions, ecological, environmental and evolutionary science. For this reason, it has become mandatory to establish a Single Health unit and to carry out multidisciplinary studies in this context. Thus, one health program will help preserve and save millions of lives.

Keywords: One health, human, animal, environment



Can "One Health" Concept Strengthen Our Understanding and Prevention of Biological Hazards and Manage the Risks of Such Threats?

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Abstract:

Disease epidemics in animal populations, including new and exotic diseases, are neither unknown nor rare in veterinary medicine. The phenomenon of new pathogens, mostly viruses, stems from global, disproportionately exploitative and unilaterally focused disturbance of ecosystems as well as evolutionarily established interactions of pathogens, the environment and natural hosts / reservoirs. The growing disruption of the epidemiological balance is thought to be due to the fact that almost 80% of human infectious diseases today are of zoonotic origin. With the first cases of the COVID-19 epidemic, the principal origin of the virus from the animal world was clearly recognized, and very quickly the possible spreading of infection and/or disease from infected people to pets and wildlife. Additional research is needed to shed light on virus transmission and spreading in a complex epidemiological triangle. Despite the proven genetic similarity of SARS-CoV-2 (COVID19) with its precursors (SARS, MERS), knowledge of highly pathogenic human CoV is still very limited, in contrast to veterinarians' experience with CoV animal pathogens in terms of susceptibility to changes in tropism related to tissues and virulence (IBV, FIPV), as well as relatively easy adaptation to new hosts (CoV pigs) and experiences of disease control through vaccination dating back to the early 1900s. At the same time, international and state-level animal health regulations, including disease surveillance and control, established to protect human health, food safety and economic growth have proved to have a strong impact on the development of epidemiological, diagnostic and regulatory tools in veterinary medicine to effectively control many infectious diseases. Therefore, in the case of zoonotic hazards, veterinary capacities are directly involved, primarily diagnostic, but might be much more utilized and useful in the context of understanding the origin and pattern of disease spread, further research and production of fast and reliable tests, comprehensive monitoring and prediction of incidence trends and effective and safe vaccines and antivirals. The fact that in less than two decades, 3 animal CoVs have adapted to humans as hosts, confirms that veterinary medicine plays a key role in preventing viral highly transmissible zoonoses by maintaining the barrier between natural reservoirs of emergent pathogens and humans (society / community). To prevent future pandemic, there is a pressing need to deepen the understanding of the interface or pathogen transmission between the environment, wildlife, domestic animals and humans as part of complex social – ecological system. However, current surveillance systems are still separated for animal and human disease due to challenges of coordination and active collaboration between various agencies. To build integrated surveillance infrastructure (systematically collection of data) in order to secure early warning and prevent epidemic scenario of existing and new biological hazard is global priority. Effective response will require an adequate institutional landscape (regulations and policy) that facilitate a coordinated One Health governance. At a local level, where direct interaction between humans, livestock, wildlife and other biodiversity component occur, One Health implementation require a transdisciplinary and cross sectoral collaboration with local community and stakeholders, to understand and mitigate environmental and epidemiological risks.

Keywords: risk, zoonoses, biosecurity, One health.



The Discovery of Membrane Targeting Antibiotics

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Abstract:

Multi-drug resistant (MDR) bacterial pathogens associated infections are increasingly becoming the most common infections. Coupled with the fact of barren antibiotic development pipeline nowadays, a critical approach is to revitalize existing antibiotics using antibiotic adjuvants. We first showed that the phosphatidylglycerol (PG) in bacterial cytoplasmic membrane is a promising target for designing new antibacterial leads. Then we designed and synthesized a short linear antibacterial peptide SLAP-S25 targeting PG, which solely showed weak antibacterial activity but boosted the efficacy of antibiotics covering all major classes against MDR Gram-negative pathogens. SLAP-S25 effectively enhanced the activity of colistin against MDR *E. coli* associated infections in different animal models. In addition, bacteria infected cells acting as “Trojan horses” not only protect bacteria from antibiotic therapies and immune clearance, but also increase the dissemination of pathogens from the initial sites of infection. Antibiotics are hard and insufficient to treat such hidden internalized bacteria. We found aggregation-induced emission luminogens (AIEgens) such as TBPs showed potent broad-spectrum bactericidal activity against both extracellular and internalized Gram-positive pathogens. Interestingly, such AIEgens activated mitochondria dependent autophagy to eliminate internalized bacteria in host cells. Compared to the routinely used vancomycin, TBPs demonstrated comparable efficacy against methicillin-resistant *Staphylococcus aureus* (MRSA) in vivo. Altogether, these findings provide potential therapeutic options to address the prevalent infections caused by MDR pathogenic bacteria.

Keywords: Antibiotic discovery, multi drug resistance



Drug Discovery and Resupply of Pharmacologically Active Natural Products According to the Traditional Usage of Herbal Medicines

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Abstract:

Many plant-derived compounds have been used as drugs, either in their original or semi-synthetic form. In spite of the current interest in drug discovery by combinatorial chemistry, molecular modeling, and other synthetic chemistry methods, natural-product-derived compounds are still demonstrating to be a precious source of medicines for humans. The importance of plants in modern medicine has been discussed in recent reports and reviews [Fowler, 2006; Gurib-Fakin, 2006; Jones et al., 2006]. Plant-derived and natural product secondary metabolites such as alkaloids, phenolics, and terpenoids have provided several novel prototype bioactive molecules, some of which have led to main drugs that are presented on the market nowadays, templates for synthetic modification, and pharmacological probes. There are also several plant extracts or phytoconstituents in clinical trials for the management of various ailments. Through the last decade, using *in vivo* bioassay- or *in vitro* activity-guided fractionation procedures of ailments have led to the identification of a variety of natural extracts from traditional remedies with proven several activities. These types of studies perform that traditional medicines signify an important source of active lead structures, till recognition as promising and profitable drug substances. In this lecture, the discovery of multi-targeted drug molecules from medicinal plants with the objective of providing rational therapies with reduced adverse effects, minimalizing the risk of drug intolerance was presented. This presentation emphasis on our present knowledge of medicinal plants which have antinociceptive, anti-inflammatory, antidepressant, sedative, wound healing activities and discusses novel mechanisms of their possible therapeutic usage in patients with inflammatory, neurological, and gynecological disorders.

Keywords: Drug discovery, herbal medicines



One Health Status Update- Bangladesh

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Abstract:

One Health is founded on that health of human being, animals and environments that entangled and promotes the well being of all species across the world. It can be only achieved through cooperation across sectors, professions, and different stakeholders as well as across the national boundaries. In Bangladesh the first outbreak of High Pathogenic Avian Influenza was observed in the year 2007. It was a catastrophe for poultry sector and human beings also became too scared due to media coverage. In that situation vulnerability of human being, animal and environmental health was envisioned in the eyes of policy makers and related sectors for the first time in Bangladesh. In the year 2008 at Chittagong Veterinary and Animal Sciences University (CVASU) came up with One Health declaration. Institute of Epidemiology, Disease Control and Research (IECDR), the Ministry of Health and Family Welfare (MoHFW), CVASU and International Centre for Diarrhoeal Disease and Research (icddr,b) formed “One Health Bangladesh” at the end of year 2008. Later on department of Livestock Service (DLS) of the Ministry of Fisheries and Livestock, department of Forests (DF) of the Ministry of the Environment and Forests (MoEF), Bangladesh Agricultural University, Bangladesh Poribesh Andolon joined in One Health Bangladesh.

One Health activities at CVASU

CVASU plays as a whistleblower of One Health Movement in Bangladesh. University Grants Commission (UGC) of Bangladesh has approved the One Health Institute at CVASU on 05/05/2015. From the year 2016 CVASU engaged intern veterinary students in the school children to bring awareness of zoonosis and antimicrobial uses. We provided training to field vet on “One Health” under the banner of continuing education programme. Our institute has some organizations like One Health Young Voice, International Veterinary students Association and they always chalked out different One Health activities in schools and in the society. It also started MS in Public Health (One Health) from the year 2017.

Keywords: One Health, Bangladesh



Equine Amniotic Membrane Derived Stem Cells and Platelet Rich Plasma

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Abstract:

Amniotic membrane is one of the vital sources of stem cells that give the cells with lesser immunogenicity having the strength more than multipotency. Thus equine amniotic membrane derived stem cells were isolated, cultured and propagated till passages ten. In proliferative study, doubling time revealed that passage three (P3) to passage six (P6) had the higher growth and passage four (P4) was the highest proliferation in both epithelial (AEC) and mesenchymal stem cells (AMC). A handy double centrifuged laboratory technique was developed to yield a PRP from horse blood with higher platelets ($717.17 \pm 43.34 \times 10^9$ /L) concentration. Epidermal Growth Factor (EGF) and Platelet-derived growth factor (PDGF) concentration was higher using PRP. Also higher propagation of both AECs and AMCs was confirmed by MTT. There was competent differentiation of both types of stem cells into osteogenic, adipogenic and chondrogenic lineage that were confirmed by alizarin red stain, oil red O stain and alcian blue stain, respectively. In neurospheres generation, both cells proved their ability to produce progenitor cells for nerve tissue by creating well defined, spheroid, three dimensional structures. In PCR analysis, strong expression of two pluripotent markers (SOX 2 and OCT 4) was recorded. Besides these, multipotent stem cell markers like CD 14, CD 44, CD 73, CD 90 and CD 105 had good expression in this study (P0, P3, P5 and P7) for AECs and AMCs. On the contrary hemopoietic cell marker (CD 45) was negative for both cell types. In addition, MHC-II marker (CD 74) had also negative. These results have shown that the amniotic membrane derived stem cells which have both of multipotent and pluripotent characteristics are an important source of stem cells for allogenic treatments.

Keywords: Amniotic membrane derived stem cell, PRP, PDGF, EGF, horse



Reproduction in Small Ruminants: Current Status in Pakistan

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Abstract:

The small ruminant farming is common and popular business in many European and Asian countries including France, Germany, Pakistan, India, China, Bangladesh, Iran, and Turkey. Sheep and goats are reared mainly for the production of mutton, milk, hairs and wool. Moreover, to meet the challenge of food scarcity owing to growing human population, small ruminants farming is advantageous because of their trend to give twin or triplet births. In Pakistan, the native breeds of small ruminants utilize poor quality roughages, adapted to harsh environment and are more resistant to several tropical diseases. On contrary, the production performance of the native breeds of sheep and goats is low owing to poor genetic potential. The reason for low production performance is due to lacking breeding strategy. In this regard sperm cryopreservation and artificial insemination (AI) are the common biotechnologies which provides opportunity to disseminate the genetics of superior males. However, these techniques could not gain popularity for small ruminants breeding. Perhaps, low fertility with frozen thaw sperm is the major reason which discourage the sheep and goat breeders to adapt AI. Another promising area of investigation is the pretreatment of spermatozoa to protect their motility, plasma and mitochondrial membrane integrities during freezing and thawing process. It has been demonstrated that at least, 50% of the total cryopreserved sperm get destructed during freezing and thawing process. The cryopreservation procedure induces irreversible damages to sperm due to oxidative stress. Sperm also depletes energy in the form of ATP during this process which results in exhausting mitochondria. Therefore, the fertility results by using frozen thaw semen in small ruminants are compromised. In this back ground optimization of freezing protocol for sperm coupled with suitable artificial insemination could result in genetic improvement in small ruminants.

Keywords: Reproduction, small ruminants, Sperm, Cryopreservation, AI



Role of Poultry in Human Nutrition and Misconceptions: In Perspective of One Health Concept

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Abstract:

The major portion of human food originates from animal products which are really of high-quality foods rich in protein and fortified with other natural nutrients. As far as human nutrition is concerned animals are more related with the human food and nutrition. Majority of population is unaware about the balance nutrition and living unhealthy lives and the condition is worst regarding the animal nutrition. To eliminate the poverty and to bring the people up to good living standards, health is more important which is the ultimate result of good nutrition. Owing to the importance of animal origin foods for human consumption; the poultry products are relatively economical and are in the approach of common masses. Poultry products have a significant share in animal origin food items being supplied in human food chain. Poultry birds are farmed to provide cheaper protein in short span, and this happened by a years lasting intensive genetic selections in scientific ways. As their genetic potential was enhanced by selection process; meanwhile their nutrient demand also raised to fulfil the nutrient requirements to gain the perceived potential weight in short span. But, unfortunately, our society has not accepted the scientific advancements in true spirit in many parts of world. Many misconceptions are prevailing regarding poultry feed and its farming pattern and ultimately refraining people from consuming poultry products which is far away from reality as these are equal nutritious as conventional animal origin food items. This talk is aimed to highlight and review these mis concepts and to make public aware for the health benefits of consuming poultry products for better and healthy lifestyle.

Keywords: Human nutrition, Animal origin food, Healthy food items



Apitherapy and Integrative Approach in Preventive Medicine

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Abstract:

Integrative approach seeks to integrate the conventional medicine with a broader understanding of the nature of health, incorporated by all healthcare systems, including traditional and complementary therapies. Within the scope of the World Health Organization's (WHO) Traditional Medicine Strategy for 2014-2023, the member countries are recommended to develop their national health policies as integrated as possible; and this integration has been suggested to be made especially in primary healthcare services. An important part of primary healthcare is preventive medicine, and the aim is the absence of disease by preventing the occurrence of a disease. The Regulation on Traditional and Complementary Medicine Practices, which entered into force, was one of the steps taken towards this integration. Apitherapy is one of the methods in this regulation. Apitherapy is the use of honeybee (*Apis mellifera* or *Apis mellifica*) and bee products for health purposes. Primary bee products are honey, beeswax, bee pollen, royal jelly, propolis and bee venom. Honey and bee pollen contain health promoting food ingredients and functional food components. The immunomodulation effect of apitherapy products with high antioxidant content has highlighted the use of apitherapy applications especially in preventive medicine. This presentation reviews the evidence based literature on the apitherapy products and their potential with an integrative approach in preventive medicine.

Keywords: apitherapy, integrative healthcare, preventive medicine



Microfluidic Systems in Assisted Reproduction Technologies

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Abstract:

In the past few decades, an extensive efforts have been made to improve the outcomes of human assisted reproductive technologies (ART). Culture medium, laboratory technologies and equipments have changed over time and have positively influenced ART results. Recent progress in microfluidic technology has turned the research's attention to the human ART procedure. Studies on microfluidic system in ART labs have been focused on sperm cell (selection and cryopreservation), oocyte (selection, denudation and cryopreservation) as well as *In vitro* fertilization (IVF) and embryo culture. In this regard, selection of sperm by using microfluidic technologies gained considerable attention. Microfluidic devices have been designed based on sperm characteristics such as motility, rheotaxis, chemotaxis, thermotaxis and boundary flowing property. Microfluidic sorted sperm samples showed lower DNA fragmentation compared to conventional selection methods. Moreover, cryopreservation of low number human spermatozoa by using microfluidic chip has advantage over the micro-quantity straw. Microfluidic based oocyte selection and denudation improved fertilization of human and animal oocyte. Finally, application of dynamic microfluidic system resulted in improved embryo development compared to conventional culture system. In conclusion, microfluidic technologies could provide a simple and user-friendly system for all of the procedure of human ART.

Keywords: Microfluidic, Sperm selection, Oocyte, Embryo culture



“Emerging of Antimicrobial Resistance in Zoonotic Pathogens Under One Health Approach”

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Abstract:

Many misconceptions about animal production and antibiotics resistance remain among consumers, retailers, legislators and politicians and it has become a serious issue internationally. Current scenario in communicable (zoonotic) diseases has generated new era that identifies the “One health” approach to understand the sharing and management of etiological agents with its impact on ecosystem. Under this context the relevance of zoonotic diseases generates major concern. The misuse of antibiotics in animal husbandry creates substantial pressure on the gut microbiome for development of resistance. Resistance to antibiotics in zoonotic agents like *Salmonella*, *Campylobacter* and *Escherichia coli* as well as methicillin-resistant *Staphylococcus aureus* in turkeys was assessed. The resistance to ampicillin, fluoroquinolones, tetracyclines and sulfonamides in *Salmonella* and *Escherichia coli* isolated from broilers, fattening turkeys and meat thereof, was frequently detected, whereas resistance to third-generation cephalosporins was uncommon. Presumptive extended spectrum beta-lactamase (ESBL)-/AmpC-/carbapenemase production in *Salmonella* and *Escherichia coli* was monitored in poultry. The occurrence of ESBL-/AmpC-producers was low and carbapenemase-producers were not detected. Resistance to colistin was observed at low levels in *Salmonella* and *Escherichia coli* from poultry and meat thereof. High resistance to ciprofloxacin and tetracyclines was observed in *Campylobacter* isolates from broilers and broiler meat. The bacteria are developing resistance to commonly used antibiotics. Alternative therapies could also be a useful option for animal sector. Close cooperation and interaction between veterinarians, occupational health physicians and public health operators is necessary, for a worldwide strategy to expand interdisciplinary collaborations and communications in all aspects of health care for humans, animals and the environment. This is what the One Health Approach was intended to be.

Keywords: Antimicrobial resistance, one health



The Global Threat: Antimicrobial Resistance

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Abstract:

Chemotherapy is described as “fatal or growth inhibiting therapy of pathogens such as; bacteria, internal or external parasites, viruses and protozoa found in the host, with a slight or no harm to the host”. Also antibiotic is described as; substances that are either synthesized artificially or naturally by bacteria, fungi or actinomycetes, which are capable of killing or inhibiting growth of bacteria even in very small concentrations. Usage antibiotics should be considered from a greater frame and should not be considered separate from breeding, welfare, hygiene, nutrition and insemination. In order to decrease the demand for antibiotics, diseases should be controlled and approached holistically. Resistance to antibiotics is an ability of bacteria and other microorganisms and, in general used to describe their impervious nature. "Resistance" is defined as if the pathogen microorganism or strain is not affected by the drug in the dose range in which the antimicrobial drug is used. Every year 33,000 people die in EU countries, caused by bacteria resistant to antibiotics. According to The Centers for Disease Control and Prevention (CDC) records in the USA, it is stated that this number is at least 35 000 people (at least 2.8 million people are infected with antibiotic resistant bacteria / fungi). It is stated that at least 12 thousand people in England, 58 thousand in India and 38 thousand people in Thailand died from antibiotic resistant infections. With the data of EU, USA and India, every 4 minutes in the world, 1 person dies from diseases caused by antibiotic resistant microorganisms; In India, this number is the death of children every 9 minutes. There are 700 thousand deaths in the world every year due to antibiotic resistance. Indiscriminative use of antibiotics in human clinics or hospitals together with the use in food industry is the major reason causing antibiotic resistance. Numbers of licensed antibiotics that are used in various parts of the world in recent years are lower than what used previously and research and development regarding novel antibiotics is scarce. In order to decrease the possibility of antibacterial resistance development in bacteria, proper attention should be given to some points. Drug should only be used if either it is known or believed that the agent is susceptible. Drug should be applied as fast as possible with adequate dosage. Inadequate dosages or prolonged treatments may facilitate development of resistance. Drug of choice should be applied after having the results of susceptibility testing of the isolated bacteria. Antimicrobial resistance prevalence in that particular region should be well known, emphasizing the research that should be conducted on the subject. Choice of antibiotic should be as narrow-spectrum as possible. Some drugs in animals, rather than treatment of infections, are mostly included in feed and water for growth promotion increasing the frequency of prophylactic usage of antibacterials in animals than in humans. Drugs of this purpose should not have therapeutic potency in humans or favor cross-resistance. In order to control antibacterial resistance, emphasis should be given on some strategic subjects such as, survey of steps of antibacterial resistance development and tendencies in particular geographical regions. One important future of effective usage of antibiotics is that they should be prescribed.

Keywords: Antimicrobial, Antibiotic, Resistance, Global Threat



Antibiotic Resistance and Dairy Medicine: Mastitis and Metritis

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Abstract

Mastitis is the most common disease of dairy cows and is also the most common reason of antibiotic use in dairy cows. An economic loss due to bovine mastitis is estimated to be \$2 billion in the United States alone. Intra-mammary Antibiotic tubes are the most common treatment for mild and moderate cases of mastitis. Antibiotics are usually given without knowing the type of bacteria that is causing the infection. Over 90% of dairy farms in the US infuse all udder quarters of all cows with antimicrobial regardless of their health status. Infusion of long-acting antimicrobials into the udder at drying-off has been the major management tool for the prevention of IMI during the dry period, as well as to clear IMI established during the previous lactation. Metritis is also one of the most common cattle diseases and is the most common element of systemic antibiotic use on dairy farms that impairs cow comfort, farmer's income, and public health. Cow develops metritis after calving, and suffers fever, lack of appetite, depression, and impaired productive and reproductive performance. Cows with abnormally enlarged uterus and a fetid watery red-brown uterine discharge without fever are classified as having "clinical metritis" and with fever (> 39.5 °C) and signs of systemic disease (decreased milk yield, dullness, decreased dry matter intake, elevated heart rate and dehydration) within 21 days in milk are defined as having "puerperal metritis". The prevalence rate of puerperal metritis in dairy cows ranges 15.3% to 69%. The total costs of metritis have been calculated to approximate US \$329 to US \$386 per cow. The majority of dairies are using systemic antibiotics to treat signs of metritis at fresh cow screening (temperature and/or abnormal vaginal discharge) whether or not systemic signs of disease are observed (i.e. lack of appetite, drop in milk yield, or depressed attitude. The use of antibiotics is associated with the emergence of bacterial resistance, which is the major concern of their cautious use. Recently, several studies have reported serious concerns about the bacterial resistance in zoonotic bacteria in cattle. It has been reported that ceftiofur, a third-generation cephalosporin, is an effective antibiotic to treat metritis and mastitis in dairy cows and has a 0 day withdrawal time for milk. Third-generation cephalosporins are used commonly to treat severe infections in humans. Therefore, the more common use of ceftiofur in dairy cows could be a possible threat to the ability for treating the life-threatening infectious diseases in humans.

Keywords: Dairy cow, mastitis, metritis, antibiotic resistance