

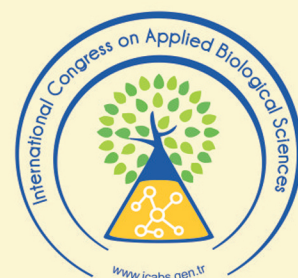
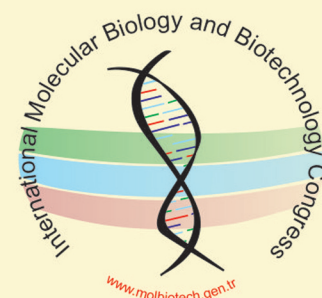
2nd International Congress on **APPLIED BIOLOGICAL SCIENCES**

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ABSTRACT BOOK



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ORAL PRESENTATION ABSTRACTS

Evaluation of Analgesic and Sedative Effects of Repeated and Increasing Dose of Xylazine HCl Administration in Sheep

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Abstract

The aim of this study was to investigate sedative and analgesic effects of xylazine HCl in repeated and increasing doses in sheep, clinically and biochemically. Five Akkaraman breed rams identified to be clinically healthy were used in the study. To create sedation, xylazine HCl was administered in 4 day intervals for 4 times in total. Xylazine HCl was administered to induce sedation at first application dose of 0.4 mg/kg intramuscularly. Second, third and fourth applications dose increased by 20% of the previous dose, the dose applications 0.48, 0.57, and 0.68 mg / kg dose was administered intramuscularly respectively for 4 times with 4 day intervals. Rectal temperature, heart rate and respiratory rate along with rumen motility of all animals were evaluated before and after the administration. The depths of sedation and analgesia, control of reflexes along with various biochemical parameters were studied. After all xylazine HCl administrations, there was not any significant changes in rectal temperature and pulse rate. While respiration rate increased until the 15th min, it approached to the control value at the 30th min and decreased after the 45th min. Ruminal contractions decreased progressively from 5th min to 60th min. Mild, moderate and deep sedation were observed in the all administration on sheep. The degree of analgesic effect was 0 during mild and moderate sedation periods whereas it was 1-2 during deep sedation period. Among all biochemical parameters, only glucose concentration increased. As a result, it was concluded that in order to have the same sedation level in sheep in the next administration, the first dose should be increased by 20%.

Keywords: Sheep, Xylazine HCl, Repeated Sedation

* This study was financially supported by the Yuzuncu Yil University Research Fund (Project No: 2012-VF-B020)

A research on chickens and turkeys premedicated with xylazine hydrochloride and anesthesia with etomidate, ketamine hydrochloride and propofol about clinical parameters

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Absract

In this study, the goal was to shed light on the need of working with an anesthetic drug that is safe, effective and low or no any complications during general anesthesia in avian animals. The study etomidate for a group of six chickens, six turkeys, propofol for a group of six chickens, six turkeys, ketalar for a group six chickens, six turkeys and of a total of eighteen chickens and eighteen turkeys were used. For the purpose for premedication, xylazine (rompun-bayer) 1-2 mg/kg was used. After premedication, 5 mg/kg etomidate (Johnson&Johnson) to the first group and 8 mg/kg propofol (Diprivan-Abbott™ to the second group was administered via vena ulnaris subcutenea. To the third group 50 mg/kg ketamine hydrochloride (Ketasol-İnterhas) was given into the pectoral. Parameters were investigated before induction of anesthesia, during and 24 hours after anesthesia. The number of clinical parameters, heart rate and body temperature, respiratory rate were monitored. In groups of propofol and ketalar chicken and turkey changes heart rate a statistical value of $p < 0.05$ was found to be significant. As a result, etomidate while using in avians may lead to decrease in respiration rate and therefore this issue should be taken into consideration. Because there will be a decrease in both the number of heart rate and respiration while ketamin and propofol are used for winged animals, this fact must be taken into consideration while studying with the ones that have heart and respiration problems.

Keywords: Etomidate, turkeys, ketalar, propofol, chickens.

*This paper is a part of the PhD thesis Project supported by University of Yuzuncu Yil (2010-SBE-117)

Effects of IBA Doses, Rooting Media and Cutting Thickness on Rooting Ratios and Root Qualities of 41B, 5BB and 420 A Grape Rootstocks

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Abstract

The aim of this research was to determine effects of IBA (Indole Butyric Acid) doses [control, 1000, 2000, 3000 and 4000 ppm], different rooting media [perlite, perlite+sand (1:1), perlite+sand+soil (1:1:1)] and cutting thickness [thin (4-7 mm), medium (8-10 mm) and thick (10-12 mm)] on rooting ratios and root qualities of 41B, 5BB and 420A grape rootstocks. Rooting ratios (%), number of roots, root length (cm) and root weight (g) of root stocks were determined. According results, while highest rooting ratio (87.49 %), number of roots (19.31) and root weight (5.22 g) were obtained from 5BB grape rootstock, highest root length (28.71 cm) was obtained from 420 A grape rootstock. 2000 ppm IBA dose and perlite media were given best results in terms of root weight, root length and rooting ratio. Cuttings with medium thickness had highest root weight, root length and number of roots.

Keywords: Grape rootstock, Rooting, Root quality, Hormone, Rooting media, Cutting thickness

Determining Sources of the Hawthorn Genes in Hakkari, Şemdinli**Adnan YAVIÇ, Adnan TAYLAN**¹Department of Horticulture, Faculty of Agriculture, Yuzuncu Yil University, Van**Abstract**

Hawthorn fruit is known as a kind of fruit which naturally growable in many regions of Turkey and is not cultivated yet. In this research, it is aimed to get some prior knowledge about the pomological and chemical properties and sugar contents of Hawthorn fruits in different colours. In the villages of Şemdinli, there have been studied on 39 hawthorn fruits among 2 years. By pomological analysis, weight of the fruit, height of the fruit, width of the fruit, the quantity and weight of core have been analyzed. By chemical analysis SÇKM, pH, TSS and sugar have been analyzed. The research has indicated that weight of the fruit is in between 4.89-2.16 g, and the rate of fruit flesh is in between 85.99%-77.86%. The sugar profile is observed as such; the dominant sugar for the yellow Hawthorn fruits are glucose and sucrose while for the black and red ones they are glucose and fructose. 16 different Hawthorn genotypes which consist of 7 yellow, 5 red, 3 black and 1 white Hawthorn fruits have been determined in Şemdinli (Hakkari) in which various genotypes exist. The achieved results are significant in terms of sorting out the forthcoming breeding studies.

Keywords: Şemdinli, Hawthorn, fruit, breeding

Trace Elements Bioaccumulation in Muscle, Gill and Liver Tissues of Gala Lake Fishes**Cem TOKATLI¹, Arzu ÇİÇEK², Özgür EMİROĞLU³, Esengül KÖSE⁴**¹Trakya University, İpsala Vocational School, İpsala, Edirne, Turkey² Applied Environmental Research Centre, Anadolu University, Eskişehir, Turkey³Departments of Biology, Eskişehir Osmangazi University, Eskişehir, Turkey⁴Eskişehir Vocational School, Eskişehir Osmangazi University, Eskişehir, Turkey

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Abstract

Water pollution has become a global problem because of intensive industrial, agricultural, and domestic applications. Some elements are important inorganic pollution factors and adversely effective on aquatic life. Fishes are known as good indicators for element pollution in freshwater ecosystems. Gala Lake is one of the most important wetland ecosystems for Turkey. But as similar to many wet lands, it is under effect of an intensive organic and inorganic pollution originated from especially agricultural activities conducted around the lake and from industrial discharges by means of Ergene River. The aim of this study was to determine the trace element accumulations (cadmium, chromium, nickel, lead, zinc, boron and arsenic) in muscle, gill and liver tissues of *Silurus glanis*, *Scardinius erythrophthalmus*, *Esox lucius*, *Perca fluviatilis*, *Sander lucioperca* and *Squalius orpheus* living in the Gala Lake and evaluate the detected data in terms of human consumption limits. As a result of this study, copper and zinc levels detected in the muscle tissues of six fish species were lower than the limit values (limit for Cu: 20 mg/kg; limit for Zn: 50 mg/kg), according to the Turkish Food Codex (TGK). However, cadmium levels recorded in the muscle tissues of *S. glanis* and *S. lucioperca* and lead levels recorded in the muscle tissues of all investigated fishes except *S. orpheus* were significantly higher than the limit values (limit for Cd: 0.05 mg/kg; limit for Pb: 0.3 mg/kg). In addition, chromium and nickel concentrations recorded in muscle tissues of all fish species were much higher than the limit values reported by Food and Agriculture Organization (FAO) (limit for Cr: 0.15 mg/kg; limit for Ni: 0.4 mg/kg).

Keywords: Gala Lake, Trace Element, Bioaccumulation, Fish, Human Health

Cytological Features of Apomixis in *Crataegus tanacetifolia* Lam. Pers.**Aslıhan Çetinbaş Genç, Meral Ünal**

Marmara University, Department of Biology, 34722, Istanbul, Turkey

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Crataegus tanacetifolia is an apomictic plant. Concomittant with the differentiation of megaspor mother cell, one or two initial cells differentiate in the nucellar tissue. But only one continues further development. This case is defined as apospory. *Hieracium* type of apospory takes place in *Crataegus tanacetifolia*. Megaspor mother cell divides by regular meiosis and form linear megaspor tetrad. Meanwhile, volume of aposporic initial cell gradually increases and undergoes three successive mitosis in progressive stages. Aposporic embryo sac resulted in the mitosis, crushes megaspore tetrad which is formed by meiosis of megaspor mother cell. Consequently, megaspore tetrad becomes degenerated and mature anatropous ovule has a mature aposporic embryo sac with eight nuclei. Furthermore, callose wall surrounds the sexual megaspore tetrad. Nevertheless, callose accumulation is not observed around the aposporic initial cell. In sections stained by 4',6-diaminido-2-phenylindole, nucleus of aposporic initial cell is spherical and gives bright fluorescent. Additionally, the distortion, fragmentation and faint fluorescent of degenerated megaspore nuclei are obvious.

Keywords: Apomictic embryo sac, Apomixis, Apospory, *Crataegus tanacetifolia*, Embryo sac

The Effects of Grape Seed Extract on Total Oxidant-Antioxidant Status, DNA Damage and Hematological Parameters in Rats with Streptozotocin-Induced Diabetes

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Abstract

Diabetes mellitus is a serious metabolic condition with the high rates of morbidity and mortality in human with different complications. It was aimed to evaluate the total antioxidant status (TAS) – total oxidant status, (TOS), DNA damage and the hematologic findings of rats with experimental diabetes mellitus. In this study total 32 Wistar albino rats were used as research materials. Rats were divided into four groups each of containing 8 rats. First group was the control, second was named as the diabetes group; A single dose of a freshly prepared solution of STZ (45 mg/kg) was injected intraperitoneally and blood glucose levels were checked for high level formation as an indicator of DM, the third group; Grape seed extract (GSE) group was given to each rat intragastrically for 20 days. The last group of rats were chosen from diabetic groups and given same dose of grape seed extract as the third group for 20 days. At the end of the research blood was collected by cardiac puncture for oxidative stress and hematological examinations. The TAS-TOS were analyzed by colorimetric kit and DNA damage was determined by ELISA kits in serum, HbA1c was studied by otonalizer and hematological parameters such as RBC, WBC and PLT were analyzed by Vet blood cell counter in whole blood. According to results, HbA1c, MON and OSI were significantly lower while PLT and PCT in group 4 were significantly higher than group 2. NEU, MON %, MCHC, in group 2 and 4 showed significantly increase while LYM %, MCV showed significantly decrease according to other groups. These changes may result from the hemoconcentration, production of H₂O₂ during DM, and decreases of MCV that affects Fe metabolism. But we believe that these changes could be explained clearly with long term and molecular studies. As result, grape seed extract may positively affect the changes of oxidative stress and hematological indices in STZ- induced diabetic rats.

Keywords: Grape Seed Extracts, TAS, DNA Damage, Hematological Parameters, Diabetes.

Evaluation of Liver Function Tests in Diabetic Patients

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Abstract

Diabetes Mellitus is a very common disorder associated with other endocrine disorders and affects a large number of people. Serious common long term complications of Diabetes Mellitus can be listed as chronic kidney failure, eye disorders, cardiovascular disease, foot ulcer and stroke. Also, as is known there is an association between diabetes mellitus and liver diseases. Abnormalities on the liver chemistry parameters such benign as steatohepatitis or severe as cirrhosis might arise in the patients with underlying diabetes. In this study, it was aimed to investigate changes in liver function and disorders caused by diabetes in patients with diabetes mellitus. Pre-prandial blood samples were collected from 60 patients whose blood glucose levels higher than 110 mg/dl ($207,3 \pm 98,48$) and 31 healthy people whose blood glucose levels were in normal range ($89,41 \pm 9,24$). ALT, AST, ALP, LDH, GGT, Total Bilirubin and Direct Bilirubin parameters were analyzed in both groups. Fasting blood glucose ($p < 0,0001$); ALP and LDH ($p < 0,005$); ALP, AST and GGT ($p < 0,05$) levels were significantly high. Total and Direct Bilirubin levels were statistically insignificant in spite of their increased levels in the patient group. In addition, there were not a statistically significant difference among any parameters of the patient group.

Keywords: Liver function tests, liver enzymes, diabetes mellitus

Chewing lice of birds

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Abstract

Lice (Antennata: Phthiraptera) fauna in Turkey is not a well known field. A large number of the lice species described up to date parasitize on birds. Most of the bird species out of nearly 500 in Turkey have not been examined from the point of louse specimen. No louse was seen on some examined species and that's why lice fauna on poultry have not been searched out well.

This paper emphasizes on what researchers need to pay attention in the course of research, which features and knowledge they need to have and which morphological criteria they need to examine during diagnosis of lice.

Keywords: Lice, Phthiraptera, Ischnocera, Amblycera, wild birds

Effects of protein:lipid ration on C loss and growth of juvenile turbot (*Psetta maxima*)**Fatma Burcu Harmantepe**

Yumurtalık Vocational School, Çukurova University, Yumurtalık/Adana, Turkey

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The high level of C which released by fish farms into the aquatic ecosystems is caused pollution. This study were conducted to evaluate the impacts of protein and lipid on C loss of juvenile turbot (*Psetta maxima*). Triplicate groups of turbot, initial weight 30.49 ± 1.80 g were fed practical diets containing protein:lipid ratios of 56:10, 53:14, 50:17 for 35 days. Fish fed the 50:17 (protein: lipid) had inferior growth performance (final weight and specific growth rate) and feed conversion rate (FCR). Whole body lipid levels were higher in 50:17 than 56:10 and 53:14. Dry matter and protein levels were not affected dietary protein:lipid levels. Whole body C and C/N levels were not influenced by dietary protein:lipid levels. The highest lipid retention and N loss were obtained from 56:10 groups of containing the lowest lipid. No significant effect of dietary protein:lipid ration on N retention was detected. The highest C accumulation and C intake were determined from 50:17 group. The highest C loss value was obtained from fifty 50:17 group. The results indicated that for juvenile turbot there are significant advantages to using 56:10 and 53:14 diets than 50:17 diets.

Keywords: Carbon, nitrogen, protein:lipid, Turbot, *Psetta maxima*

Occurrence of Non-indigenous *Carassius gibelio* (Cyprinidae) and Its Length-Weight Relationship in the Seyhan River Estuary (Turkey)**Deniz Innal, Berat Tocan**

Department of Biology, Mehmet Akif Ersoy University, Istiklal Campus. 15100, Burdur, Turkey

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Rapid increases in population abundance of *Carassius gibelio* (Bloch, 1782) have been reported in several systems throughout the world. Abundance and distribution of *C. gibelio* in Turkey continue to increase steadily and are now consider a threat factor for native fish species. Possible impacts of *C. gibelio* on aquatic environment include: direct predation on native fauna and flora, competition with indigenous fish for food, spawning localities and habitat, the introduction of new parasites or diseases. The reported dispersal of *C. gibelio* in river systems was generally restricted to freshwater zones. This study presents the existence and length-weight relationship from Seyhan River Estuary (Baharlı village, Tarsus), Turkey. *C. gibelio* was captured in high salinity zone (sea level, bottom salinity value was measured as 20.21 ppt) of Seyhan River Estuary in August 2015. A total of 165 individuals, ranging in size between 7.2 and 24.5 cm total length, 5.1 and 299.6 g weight, was examined. The length-weight relationship for all individuals was described by the following parameters: $a = 0.0124$; $b = 3.0977$ and $R^2 = 0.96$.

This research was financially supported by the TÜBİTAK (Scientific and Technological Research Council of Turkey) under the Project numbered KBAG, 114 Z 259.

Keywords: *Carassius gibelio*, salinity, length-weight relationship, Seyhan River Estuary

Otolith features of the Bogue *Boops boops* (Linnaeus, 1758) (Pisces: Sparidae) in Edremit Bay, Aegean Sea, Turkey**Derya Bostancı¹, Dilek Türker², Serdar Yedier¹, Büşra Çoktuğ²**¹ Department of Biology, Faculty of Arts and Sciences, Ordu University, Ordu, Turkey² Department of Biology, Faculty of Arts and Sciences, Balıkesir University, Balıkesir, Turkeyderyabostanci@gmail.com**Abstract**

The sagittal otolith features such as morphometric and biometric characters can be used to distinguish characters among in different fish species inhabiting different freshwaters and marine habitats. The bogue *Boops boops* (Linnaeus, 1758) is one of the most commercially important fish species in Edremit Bay, Aegean Sea, Turkey. A total of 268 specimens were collected with trape nets which have different meshes and fish were sexed. They were ranged in total length, fork length, standard length and weight from 7.7-23.9 cm, 7.3-21.7 cm, 6.7-19.4 cm and 3.81-154.9 g. The t-test was applied in order to determine differences between the bogue male and female otoliths. All data were tested using Kolmogorov-Smirnov test for normality and their homogeneity of variance were tested using the Levene's test. The right and left otoliths were compared and difference between variables of pairs of otolith was investigated with paired t-test for all samples. Statistical analysis was performed using MINITAB 17.0 and SPSS 22.0 statistical analysis software programs. The left and right otolith features of the bogue were observed. Each otolith pairs of the bogue were photographed and the pairs were weighted. The otolith characters such as otolith length, otolith width, otolith area and otolith perimeter were measured using Leica S8APO brand microscope with Leica Application Suit software. The shape indices such as form factor, roundness, circularity, ellipticity, rectangularity and aspect ratio were calculated using the morphometric characters. These characters may also be used to predict unknown fish species in different marine and freshwater ecosystems.

Keywords: Otolith, *Boops boops*, shape indices, Aegean Sea.

Regulation of Adhesive, Invasive and Metastatic Potential of Human Breast Cancer Cells via Voltage-Gated Potassium Channel Activity**Didem Turgut Coşan**

Medical Faculty, Medical Biology Department, Eskişehir Osmangazi University, Eskişehir

dcosan@gmail.com**Abstract**

The voltage gated potassium channels are overexpressed in many of tumors. Kv1.3 and Kv10.1 are members of the voltage-gated potassium channel family. These channels are overexpressed in breast cancer and plays significant roles in the progression. Their functions are linked to formation of primary or metastatic tumors. However, relation of the voltage gated potassium channels with metastasis is not clear. The spread of cancer (metastasis) into major organs is the main cause of the death of patients with cancer. The goal of our experimental study is to determine the role of Kv1.3 and/or Kv10.1 voltage gated potassium channels on invasion and metastasis of human breast cancer cell lines. According to the study hypothesis; “the silenced voltage gated potassium channels change cellular adhesion, migration and invasiveness”. MCF-7 is an estrogen-sensitive and weakly invasive, MDA-MB-231 is an estrogen-insensitive and strongly invasive breast cancer cell lines. MCF-7 and MDA-MB-231 cells were transfected with voltage gated potassium channel specific siRNA. The effects of Kv1.3 and Kv10.1 channels in these silenced cells were studied on adhesion, motility and invasion. Results suggest that Kv10.1 may be more effective than Kv1.3 for breast cancer cell behavior in vitro. The role of Kv1.3 and Kv10.1 may be quite considerable in the prevention of the breast cancer metastasis.

Keywords: Breast cancer, Potassium channel, Cell behavior

Investigation of Phytotoxic Effects of Bio-Synthesized Copper Nanoparticles in *Elodea Canadensis***Fatih Doğan Koca¹, Dilek Demirezen Yılmaz¹, Fatih Duman¹, İsmail Öçsoy²**¹Erciyes University, Faculty of Sciences, Department of Biology, Kayseri, Turkey²Erciyes University, Faculty of Pharmacy, Kayseri, Turkeydemirezen.dilek@gmail.com**Abstract**

The aim of this study was to investigate the phytotoxic effects of both plant extract directed copper nanoparticles (CuNPs) and copper ions (Cu⁺²) in *Elodea canadensis*. The growth, ratio of photosynthetic pigments, total soluble protein, MDA, catalase (CAT), ascorbate peroxidase (APX), and copper accumulation were determined to evaluate the phytotoxicity of the CuNPs and Cu⁺² in the exposure solution. A significant improvement was observed in the growth rate, chlorophyll a and b, carotenoid contents and total soluble protein as a result of exposure to CuNPs. The level of photosynthetic pigments and total soluble proteins were decreased by exposure to Cu⁺². Additionally, CAT and APX activities and MDA contents were enhanced by bio-synthesized CuNPs. The level of malondialdehyde (MDA) changed with Cu concentration. These results suggested an alleviation of stress, which was presumably the result of antioxidants such as catalase (CAT) and ascorbate peroxidase (APX), linearly with increasing CuNPs. As a result, the findings of this study show that Cu⁺² have more negative effects on *E.canadensis* than bio-synthesized CuNPs.

Keywords: Bio-Synthesis, Nanoparticle, Antioxidants, Accumulation, *Elodea canadensis*

Optimization of Toluidine Blue Biosorption Conditions From Aqueous Solutions by *Lentinus tigrinus* (Bull.) Fr. Fungi as Biosorbent with Response Surface Methodology**Helal Akreyi¹, Tekin Şahan¹, Tuba Erşen Dudu¹, Duygu Alpaslan¹, Yusuf Uzun²**¹Department of Chemical Engineering, Faculty of Engineering and Architecture, Yuzuncu Yil University, Van, Turkey²Department of Professional Pharmaceutical Sciences, Faculty of Pharmacy, Yuzuncu Yil University, Van, Turkeyalpaslanduygu@gmail.com**Abstract**

Optimization is a method using for determining the best solution in terms of certain quality criteria, optimum conditions and the performance of the designed system. The optimization of the biosorption process aims at finding the specific conditions such as environmental and/or design parameters for the best possible response, efficiency or removal. Response surface methodology (RSM) is a widely used optimization methods for rational experimental design and process optimization in biosorption research. In this work, the optimization of Toluidine Blue (TB) biosorption conditions onto natural *Lentinus tigrinus* (Bull.) Fr. (*L. tigrinus* (Bull.) Fr.) fungus was determined using central composite design (CCD) in RSM. Firstly, the *L. tigrinus* (Bull.) Fr. fungus was powdered and stored in the desiccator. Then, effect of pH, initial TB concentration (C_0), temperature (°C) and time (min) onto biosorption of TB were determined through CCD. All experiments were carried out in batch system using 250 mL flasks containing 50 mL solution and with magnetic stirrer. The TB concentrations remaining in filtration solutions after adsorption were analyzed by using a UV visible spectrometric method at 640 nm. As a result, the optimum conditions were calculated with quadratic model. The results were confirmed with experiments.

Keywords: Biosorption, Toluidine Blue, Optimization, *Lentinus tigrinus* (Bull.) Fr., Response Surface Methodology.

The Effects of Sage Essential Oil on Memory Impairment, Anxiety and Depression in the Scopolamine Rat Model of Alzheimer's Disease

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Abstract

Neuroprotective activities of the essential oil extracted from *Salvia multicaulis* (1% and 3%, for 21 continuous days), was studied by means of in vivo (Y-maze, radial arm-maze, elevated plus-maze and forced swimming tests) approaches in scopolamine (0.7 mg/kg, i.p.)-induced amnesia rat model. As expected, the scopolamine alone-treated rats exhibited the following: decrease of spontaneous alternation percentage in Y-maze test, increase of the number of working memory errors and the number of reference memory errors in radial arm-maze test along with decrease of the exploratory activity, the percentage of the time spent and the number of entries in the open arm within elevated plus-maze test and decrease of swimming time and increase of immobility time within forced swimming test. Dual scopolamine and *Salvia multicaulis* essential oil-treated rats showed significant improvement of memory formation and exhibited anxiolytic- and antidepressant-like effects in scopolamine-treated rats. These results suggest the neuroprotective potential of *Salvia multicaulis* essential oil in scopolamine-induced amnesia in rats and could act as a promising therapeutic agent for the neurological abnormalities related to Alzheimer's disease.

Keywords: Sage essential oil, Spatial memory, anxiety, depression, Alzheimer's disease

The Structure of the Epididymal Duct in *Miniopterus schreibersii* (Kuhl, 1817) (Chiroptera: Vespertilionidae)**Emine Pinar Paksuz**

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Miniopterus schreibersii is an insectivorous bat which belongs to the order Chiroptera. In this study, we investigated *the structure and morphometry of the epididymis in M. schreibersii*. Six sexually mature specimens of *M. schreibersii* were captured from the Koyunbaba Cave in the state of Kırklareli, Turkey. This study was approved by the animal ethics committee of Trakya University, Faculty of Medicine (2014.07.03). For histological examination, the epididymal tissue samples were fixed for 24 h at 4°C in Saint-Marie solution, dehydrated in a graded series of alcohol solutions and embedded in paraffin. The sections were cut at a thickness of 5 µm using a Leica RM 2145 (Leica Microsystems, Nussloch, Germany) semi-motorized rotary microtome. The sections were stained for general morphological purposes with hematoxylin and eosin (HE) and gomori trichrome. The sections were studied using a Nikon E200 Microscope connected to a video camera and a PC-based image analysis and morphometry system (Argenit Kameram, Turkey). Tubular diameter, luminal diameter and the heights of epithelium were measured in the microscopic structure of the epididymal duct. The luminal surface of the epididymis was lined by pseudostratified columnar epithelium. The epididymis of the *M. schreibersii* is composed of the four main segments; initial, caput, corpus and cauda. Our results indicated that regional differences in the measures are found in tubular diameter, luminal diameter and the heights of epithelium.

Keywords: Chiroptera, epididymis, *M. schreibersii*

The Efficacy of Harpin (Messenger Gold) on Fruit Set and Fruit Quality on '0900 Ziraat' Sweet Cherry

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Abstract

The study has been carried to determine effects of Harpin treatment on fruit set and fruit quality characteristics on 0900 Ziraat Sweet cherry cultivar, which has low fruit set problem. The study was carried out in Suşehri, a district of Sivas in 2015, Turkey. As plant material in the study, it was used five old trees of 0900 Ziraat' sweet cherry variety grafted on MaxMa 14 rootstock. 125, and 250 mg L⁻¹ doses of Harpin was applied both once and twice. While the first application was made at 10 % full bloom (17 April), the second application was made one month before commercial harvest (22 May). Compared to the control, it was determined that Harpin had a significant effect on fruit set on 0900 Ziraat Sweet cherry cultivar. While the fruit set ratio in control treatment was 11.8 %, this ratio reached to 22.0 % with twice 250 mgL⁻¹ Harpin treatment. One of the most significant results of the study is that both increasing number of treatments and increasing amount of dosage led to an increase in fruit set as well.

The fruit quality characteristics such as fruit size, fruit color, pH, SCC and titratable acidity was not affected by Harpin treatment. However, differences on fruit firmness and Stem retention force between treatments were statistically significant.

Keywords: Harpin, Sweet cherry, fruit set, 0900 Ziraat.

Green synthesis of silver nanoparticles using leaf extracts of *Lavandula stoechas* and their antimicrobial activities**Fatih Doğan KOCA¹, Dilek DEMİREZEN YILMAZ¹, Tuğba OĞUZPERDAHÇI², Fatih DUMAN¹**¹Erciyes University, Faculty of Sciences, Department of Biology, Kayseri, Turkey²Erciyes University, Graduate School of Natural and Applied Sciences, Turkeyfatihdkoca@gmail.com**Abstract**

This study reported the biosynthesis potentials of leaf extracts of *Lavandula stoechas* for production of silver nanoparticle without use of any external reducing or capping agent. The appearance of dark brown color indicated the complete nanoparticle synthesis which was further validated by absorbance peak by UV-vis spectroscopy. The morphology of the synthesized particles was characterized by scanning electron microscopy (SEM). The X-ray diffraction (XRD) patterns clearly illustrated the crystalline phase of the synthesized nanoparticles. Fourier Transform Infrared (FTIR) spectroscopy was performed to identify the role of various functional groups in the nanoparticle synthesis. The bio-synthesized nanoparticles showed promising antimicrobial activity against Gram negative (*Escherichia coli*) and Gram positive (*Staphylococcus aureus*) bacteria. The biologically synthesized silver nanoparticles showed promising activity against all the tested pathogenic strains and the activity has been enhanced with the increased dose levels.

Keywords: Green synthesis, silver nanoparticle, antimicrobial activity

Economic Dimensions of Hops (*Humulus lupulus* L.) in Turkey.

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Abstract

Female flowers of the Hops (*Humulus lupulus* L.) used in beer industry to give characteristic aroma and flavor of the beer all around the world. In addition to applications in the brewing industry, hops have been used for various medicinal purposes for a long time. In Europe, hops have been used in traditional medicine as a herbal tea, infusions, powdered herbal substances and oral alcoholic extracts for the treatment of excitability and specifically for restlessness associated with nervous tension, headache and indigestion. In this study, output, cultivation area, contribution to the efficiency and price studies of Hops that grown in Turkey between the dates of 1988-2015 were investigated.

Keywords: Economy, Hops, *Humulus lupulus* L., Agriculture, Turkey

Genomic Conformation of *Apple mosaic virus* Turkish isolates Coat Protein Gene Regions

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Abstract

Apple mosaic virus, a pathogen of stone and pome fruits and hazelnut worldwide, shows great variability in its biological, serological and molecular properties. The coat protein sequences of fifteen ApMV variants from different hazelnut varieties and the 'Granny Smith' apple variety were obtained in Turkey. The phylogenetic analyses of the sequences of the Turkish isolates and of additional sequences of other ApMV variants from the NCBI database indicates the existence of different ApMV groups in the world. The sequences obtained from hazelnut revealed slightly different nucleic acid and amino acid composition compared to the sequences obtained from apples in Turkey and from the different locations in the world.

Keywords: *Apple mosaic virus*, apple, hazelnut, genomic variability

Comparison of Aluminum Induced Programmed Cell Death Characterized by DNA Fragmentation in Gramineae Species

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Abstract

Aluminum (Al) toxicity is one of the major constraints for plant development and crop production on acid soils in the world. Al inhibits the root growth and development due to cellular toxicity including nucleus, chromosome and DNA alterations. The aim of this study is to compare the Al-induced DNA fragmentation, the most widely evaluated criterion for PCD in wheat (*Triticum aestivum* L.), rye (*Secale cereale* L.), barley (*Hordeum vulgare* L.), oat (*Avena sativa* L.) and triticale (*xTriticosecale wittmack*) and their varieties concerning their Al tolerance. All of the Gramineae seeds were grown in Hogland solution with or without 100 µM AlCl₃ (pH 4,5) for 21 d to reveal the long term effects of Al on DNA fragmentation. The genomic DNA was isolated from control and AlCl₃ treated roots, and analyzed by electrophoretically. DNA fragmentation was observed in the Al treated Gramineae species and their varieties. The results obtained can provide a better understanding into the Al induced PCD and Al tolerance in agronomic plants.

Keywords: Aluminum, DNA fragmentation, Gramineae, programmed cell death.

A Morphological and Stereological Study on Cervical Spinal Cord of One and Five Months Age Male Rat

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Abstract

The aim of this study was investigation of the cervical segments of spinal cords of one month old male rats and five months old male rats. It was wanted to prove the volume values of substantia alba, substantia grisea and all tissue. In this study six piece one month old male rats and six piece five months old male rats were used. Cervical spinal segments of spinal cord of male rats were investigated stereologically. All animals were perfused. After perfusion all male rats were kept at 10% formaldehyde solution. Afterwards spinal cords of all group of rats were dissected. Spinal cords were removed. Cervical segments of spinal cord were separated from the other parts of spinal cords. Tissue specimens of cervical spinal cord were obtained and were cut at 5µm thickness and consecutive ten sections were taken by microtome. This sections were stained by hematoxylin eosin and photographed at microscope. Volumes of all tissue of cervical segments of whole spinal cord and substantia alba, substantia grisea were estimated by Cavalieri Estimator. Volume values of cervical spinal segments were exposed. As a result on account of statistics the whole volume of cervical spinal segments of medulla spinalis and substantia alba and substantia grisea were compared with each other, there was a sequentially difference between them and also for each groups of animals.

Keywords: Cervical spinal segment, Rat, Spinal cord, Stereology

Investigation of Anthracnose Disease Resistance in Some Turkish Dry Bean Genotypes with Molecular Markers

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Abstract

Anthracnose caused by *Colletotrichum lindemuthianum* is one of the most important foliar diseases in dry bean production in Turkey. The pathogen causes considerable yield losses and seed quality reduction. The use of resistant cultivars is considered as the most efficient approach to control bean anthracnose. Resistance to *C. lindemuthianum* is conditioned by at least 19 anthracnose resistance genes identified by the *Co* symbol. Molecular markers have been reported to link to some of these *Co* resistance loci. However, little information is available about the presence of *Co* genes associated with resistance to this pathogen in dry bean genotypes in Turkey. In this study, *Co* resistance genes in one hundred Turkish dry bean genotypes originating from different geographical areas were screened by sequence characterized amplified region (SCAR), randomly amplified polymorphic DNA (RAPD) and sequence-tagged sites (STS) markers; OPF10/530 bp, OPA18/1500 bp, OPAZ04/565 bp, SB12/350 bp, TGA1/570 bp, SF10/1072 bp, OPV20/680 bp. The preliminary results showed the presence of *Co-1*, *Co-1⁴*, *Co-1⁵*, *Co-3*, *Co-10*, *Co-11*, and *Co-13* resistance loci in Turkish dry bean genotypes. These genotypes carry predominantly the *Co-1* gene for anthracnose resistance.

Keywords: Dry bean, Anthracnose, Marker-assisted selection, Disease resistance

*This work was supported by TÜBİTAK-TOVAG Project 115R042 (Turkey)

Intestinal ciliate fauna of the Asian elephant, *Elephas maximus* from Gaziantep, Turkey and the description of *Brevitentaculatum antebum* n. g., n. sp. (Suctoria, Allantosomatidae)

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Abstract

Species composition and distribution of intestinal ciliates excreted in the feces of two Asian elephants living in Gaziantep Zoo, Turkey, were investigated. Seven ciliate genera consisting of 15 species were identified. One new Suctorian genus and species *Brevitentaculatum antebum* n. g., n. sp. was described. This new species has two terminal projections and between these projections two longitudinally lined bands are in presence near the dorsal side of the body, probably of fibrillar nature. Short rod-like tentacles, in two zones on the ventral side of the body between terminal projections. Ciliate densities in the two fecal samples were 4.5 and 10 x10⁴/mL.

Keywords: Ciliate, *Brevitentaculatum antebum* n. g., n. sp., Elephant, Suctoria, Turkey

Folate Receptor Targeted Erythrocyte Vesicles Coated Magnetic Nanoparticles for Ovarian Cancer Therapy: Biocompatibility and Cell Culture Studies**Güliz Ak, Şenay Hamarat Şanlier**

Biochemistry Department, Faculty of Science, Ege University, Izmir

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Epithelial ovarian cancer is the most leading of cause of death in women with gynecological cancer. Doxorubicin is used for treatment of many cancers such as breast, ovarian etc. but its usage is limited due to the side effects. Folate receptor targeted drug delivery has become an alternative therapy for the treatment of various cancers, especially ovarian cancer and folate receptors are known to be responsible for cellular accumulation of folate analogs with high binding affinity. Magnetic agents help to reduce the side effects of pharmaceutical preparations by externally applied magnetic field to tumor tissue. Erythrocyte membrane vesicles prepared from the body's own cells can eliminate the problem of biocompatibility. Erythrocyte vesicle coated nanoparticles have both advantages of erythrocyte membrane surface and nanoparticle system as a drug carrier. In this project, doxorubicin loaded magnetic nanoparticles were synthesized, coated with erythrocyte membrane vesicles and folate ligand was anchored to the membrane surface. After characterization studies, serum protein binding, macrophage uptake and hemolysis effect of the drug delivery system were investigated. In vitro cytotoxicity tests and cell uptake studies were performed on A2780, OVCAR3 and SKOV3 cells. IC₅₀ values were calculated using GraphPad Prism software. Cell photographs were taken under fluorescent microscope in order to determine localization of nanoparticles. It can be suggested that doxorubicin nanocarrier system has biomimetic properties and leads to more toxicity via interaction with folate receptor. As a result, the folate ligand anchored erythrocyte vesicle coated magnetic nanoparticles could have advantages against free doxorubicin for ovarian cancer therapy.

Keywords: Doxorubicin, folate receptor, magnetic drug delivery system, erythrocyte vesicles, ovarian cancer

Acknowledgements: We would like to thank for financial support received from the Research Foundation of Ege University (Project ID: 2012 FEN 028).

Molecular Epidemiology and Phylogenetic Analysis of the M Segment of Crimean-Congo Hemorrhagic Fever Virus Strains Isolated in the Eastern of Turkey

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Abstract

Crimean-Congo hemorrhagic fever Virus (CCHFV) causes a fatal febrile illness and the mortality rate in infected individuals reaching up to 30%. CCHF is endemic in many countries including Turkey. In Turkey, there are annually more than 1000 confirmed cases. The genome of CCHFV composed of S, M and L segments. M segment shows genetically differences ranging from %30. Our aim was to perform nucleotide sequences of the M segment of CCHF virus strains from Eastern Anatolia spanning the years 2012–2015 and to identify their phylogenetic relationships. For this reason, randomly selected 25 CCHF patients were involved in this study. Reverse transcriptase PCR followed by direct sequencing was used to partial sequences of the CCHF virus M segment. Detailed genetic comparison has revealed that M segment discrete 7 lineages in Europe and shows two different lineages, “Europe 1” and “Europe 2”. Based on the phylogenetic analysis of M segment, the CCHF isolates clustered in Europe 1 lineage including Turkey, Kosovo, Russia, and Bulgaria. The obtained data from the phylogenetic analysis showed that CCHF strains in Turkey are closely related to Russian and Kosovo strains. It is important to understand the molecular epidemiology of CCHF and virus evolution for the public health programs and vaccine development studies. The present study provides an update into the geographic distribution and molecular epidemiology of CCHF in Turkey. From now on, vector control programs should be discussed to reduce the CCHF positivity rate and further studies should be performed for a better view of the distribution and epidemiology of the virus.

Keywords: CCHF virus, Molecular epidemiology, M segment, Phylogeny, Turkey

Characterization of *Fusarium oxysporum* f. sp. *cumini* Causing Cumin Wilt Disease in Turkey**Harun Bayraktar^{1*} and Göksel Özer²**¹Department of Plant Protection, Faculty of Agriculture, Ankara University, Ankara²Department of Plant Protection, Faculty of Agriculture and Natural Sciences, Abant İzzet Baysal University, Bolubayrakta@agri.ankara.edu.tr**Abstract**

Fusarium oxysporum f. sp. *cumini* is a fungal pathogen causing cumin wilt disease. The disease was one of the most important limiting factors for cumin production of Turkey. The vegetative compatibility grouping, DNA sequencing of the intergenic spacer region (IGS) of rDNA, and Inter-PBS (iPBS) amplification of LTR retrotransposons were used to identify genetic variation among *F. oxysporum* f. sp. *cumini* isolates. The phenotypes of the nit mutants from all isolates were determined on media containing nitrate, nitrite or hypoxanthine as sole nitrogen sources. 74.85% of nit mutants recovered was identified as *nit1* phenotype, 14.26% as *nit3*, and 10.89% as *NitM*. Thirty eight VCG groups were determined among the isolates, most of these VCGs contained only a single isolate. The partial IGS sequences of *F. oxysporum* f. sp. *cumini* were aligned with the sequences of different *F. oxysporum* formae speciales retrieved from GenBank. These isolates were separated into two main clades in the dendrogram with high bootstrap support. Similarly, the dendrogram obtained from iPBS data confirmed the presence of two clades among *F. oxysporum* f. sp. *cumini* isolates from cumin. The results indicate that *F. oxysporum* f. sp. *cumini* isolates are genetically distinct from each other.

Keywords: Cumin, Fusarium wilt, Genetic variation, iPBS, VCG, DNA sequencing

*This research has been supported by Abant İzzet Baysal University Scientific Research Projects Coordination Unit. Project Numbers: 2013.17.17.639 and 2016.10.06.995

Significance of Genetic Diversity in Farm Animal Production

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Abstract

Genetic diversity (GD) refers to the variety of genes within a species. In order to preserve GD within a species, different populations must be sustained. GD allows livestock species for adaptation to changes in environmental conditions over time and is, consequently, essential to species survival. Furthermore, the genetic diversity of a species always tends to alter. Regardless of how many different alternative forms of a gene are present in a current population, only the alleles that are inherited can contribute to species diversity in the next generation. The alleles of a gene cannot be regained in nature once they are lost. Unfortunately, GD in livestock is threatened by various reasons such as intensive artificial selection programs in animal production systems (genomic selection), mating schemes (inbreeding) and global warming along with inappropriate management strategies and policies. Moreover, recent molecular genetic approaches provide more and more powerful tools for unravelling the molecular basis of phenotypic diversity in genomes of farm animals. Future plans concerning GD must contain the sustainable application, development and conservation of domesticated animal genetic resources requires information on the diversity of both national and international resources, therefore referring to global information.

Keywords: Genetic diversity, Genetic resources, Livestock breeding, Environmental conditions

Influence of Gallic Acid Against the Toxic Lead Accumulation in Some Rat Tissues**Hulyam Kurt**

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Lead (Pb) has long been recognized as a harmful *environmental pollutant* that can be detected in almost all of environment and biological systems. Exposure to Pb results in significant accumulation in most of vital organs. Pb binds to erythrocytes and via blood it may transfer to the soft-tissues. Some antioxidants as chelating agents are reported in treatment of Pb toxicity. Gallic acid (GA) (3,4,5-trihydroxybenzoic acid) is a polyphenol from plants. Especially, tea is an important source of GA. It has some biological activities such as antibacterial, anti-inflammatory, antioxidant and antitumorigenic. The aim of the present study was to investigate to the impact of the GA with antioxidant activity against the toxic Pb accumulation in some rat tissues. Twenty-one three-month-old Sprague-Dawley female rats were divided into three groups: 1. Control group: received (0.5 ml/kg 0.9% saline) 2. Pb intoxicated group: received (20 mg/kg Pb) 3. GA supplemented group: received (20 mg/kg Pb) and (50 mg/kg GA). All doses were given intragastrically and daily for 15 days. All animals were anaesthetized and dissected after 2 weeks of treatment. Pb, levels were determined in the liver, kidney, stomach, pancreas, colon, bladder, heart and brain tissue by inductively coupled plasma-optical emission spectrophotometer (ICP-OES 720 ES), after acid digestion in all samples. All statistical analyses were performed using appropriate techniques. GA treatment decreased the lead accumulation in colon and liver ($p < 0.05$). The research evidence showed that combined treatment of lead-exposed animals with GA may have impact on the removal of of lead accumulation on tissues.

Keywords: gallic acid, lead toxicity, rat.

Haemosporidian Parasites in Blood Smears of Sparrowhawks in Northeastern Turkey**Ibrahim Balkaya¹, Ertan Oruc^{2,3}, Esin Guven¹, Hamza Avcioglu¹**¹ Department of Parasitology, Faculty of Veterinary Medicine, University of Ataturk, Erzurum, Turkey² Department of Pathology, Faculty of Veterinary Medicine, University of Ataturk, Erzurum, Turkey³ Faculty of Veterinary Medicine, Kyrgyz-Turkish Manas University, Bishkek, Kyrgyzstanbalkayaibrahim@hotmail.com**Abstract**

The sparrowhawk (*Accipiter nisus*) is a small raptor, member of the family Accipitridae. Quail hunting with sparrowhawks is an ancestral sport in Anatolia. This method is generally used for quail hunting in north-eastern Turkey. Haemosporidians are obligatory diheteroxen parasites requiring both vertebrate and blood-sucking insect hosts to complete their life cycle. This preliminary study was aimed at determining the occurrence of haemosporidian parasites in the blood of sparrowhawks. For this purpose, blood samples were prepared from 9 sparrowhawks. All birds had been collected from different areas of Northeast Turkey. Blood smears were stained with 5% Giemsa solution and examined under the light microscopy. A total of 7 individuals were infected (77.8%). *Haemoproteus* spp., *Leucocytozoon* spp. and *Plasmodium* spp. were detected in 5 (55.6%), 6 (66.7%) and 4 (44.4%) birds, respectively. There were no haemosporidian parasites in 2 birds (22.2%). We observed mixed infections in 85.7% of the birds and single infections (14.3%). Each of the 3 parasites were observed together in 2 birds. Both *Haemoproteus* spp. and *Leucocytozoon* spp. were detected in 3 birds. *Leucocytozoon* sp. and *Plasmodium* sp. were detected in one bird. This is the first report of the occurrence of hemosporean parasites in sparrowhawks in Northeastern Turkey.

Keywords: *Accipiter nisus*, Blood smear, Haemosporidian parasites, Northeastern Turkey, Sparrowhawk

Isolation and Characterization of Arbutin from *Pyrus Communis* L. Leaves**İbrahim BULDUK¹, Selahattin BOZKURT² and Senem ŞANLI²**¹ Health Education Research and Application Center, Uşak University, Turkey² Vocational School of Health Services, Uşak University, Turkeyibrahim.bulduk@usak.edu.tr**Abstract**

Arbutin is a naturally occurring glycoside found in several common medical plants. Among them, the pear leaves (*Pyrus communis*) is a widely used source of this important pharmaceutical active substance. The arbutin-containing plant-drugs have been used for the treatment of urinary infections and as depigmenting agent. In this study, Arbutin was extracted from dried and ground *pyrus communis* leaves with acidic methanol. The extract was evaporated until methanol removed. The remaining extract was cooled in the refrigerator. Suspending agents were removed by filtration. Arbutin was isolated after liquid-liquid extraction, decolorization, concentration and precipitation respectively. It was finally purified. The structures of the compound has been elucidated with spectroscopic methods (FTIR and ¹H NMR, ¹³C NMR). The purity of isolated arbutin was 99 per cent.

Keywords: Arbutin, *Pyrus Communis*, Isolation

The Effect of Traffic-Based Pollution on Some Morphological and Anatomical Features of *Olea europea* L. Leaves

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Abstract

Olea europea L. (olive) is a popular evergreen and economically important tree cultivated in Mediterranean region. This study was conducted to examine the effect of traffic-based pollution on some morphological and anatomical features of olive (*Olea europea* L.) leaves. The leaf samples were collected from olive trees in three different areas where there is no traffic (rural area), less-traffic and high-traffic in İzmir. These samples were fixed in 70% ethyl alcohol. Hand made cross section in leaves were obtained to determine the anatomical layers thickness of leaves. Preparations were photographed with a Leica ICC50 HD binocular light microscope and a Leica Digital Camera Which were used for measurements to determine the values of width-length measurements in leaves tissues. In the end of the study, it was found that traffic-based pollution caused a decrease in the anatomical layers thickness particularly in mesophyll layers where photosynthesis reaction occurs. The least values of leaves layer thickness were obtained from trees in area where there is high traffic. In addition to this, it was observed that traffic-based pollution caused chlorosis in morphological features of olive leaves.

Keywords: Morphology, Anatomy, *Olea europea*, Pollution

Observations of Spore Morphology of Some Encalyptaceae Schimp. Species (Bryophyta) from Turkey

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Abstract

Turkey is one of the main centres of diversity for the bryophytes. Spore morphology has been useful in taxonomy. This study includes spore morphology of four *Encalypta* taxa. The aims of this study are to provide a detailed taxonomical and paleobotanical characterization of *Encalypta* in Turkey. The spores of *Encalypta streptocarpa* Hedw., *E. alpina* Sm., *E. rhaptocarpa* Schwagr. and *E. vulgaris* Hedw. were examined by light and scanning electron microscopy for the first time. The apertural region forms a leptoma in all spores. The spore morphology of the examined taxa of the family belonged to four gemmate types (smooth, finely papillose, warty, coarsely papillose). The spore shape of all studied species was spheroid. Spore size ranged from 11 µm to 23 µm in the genus *Encalypta*. The spore wall of the family Encalyptaceae included sclerine and intine.. We also discussed the taxonomical implications of the genus *Encalypta* with respect to its spore morphology.

Keywords: Bryophyta, Encalyptaceae, Spore morphology, Light Microscope, Scanning Electron Microscope, Turkey.

Goat in Organic Animal Production

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Abstract

Compatible species to adverse environmental factors are important in organic livestock production. Physiological status and health of the animals must be maintained in the production models. In addition to available social needs and to exhibit natural behavior and it should be appropriate to the free culture system that reflects production. Despite the global climate changes, goats in organic livestock production; have some superior properties compared to other livestock species in terms of training, economic and biological aspects in addition to the adaptaion to adverse environmental conditions in a short time, high genetic resistant to the diseases, the relative milk composition and yield. Goats also against some diseases that threaten human health, are more resistant animals. Economically, goat breeding in less developed countries and regions, very little arable land, forest and high mountain forests surrounding the village, is a form of instruction already made in accordance with the rules of organic animal breeding. First, organic livestock production is made at low cost in underdeveloped and developing countries with tropical and subtropical climate zones. In organic livestock production, present and future planning of goat production must strongly be considered.

Keywords: Organic, Livestock, Goat, Climate

Investigation of The Boron-Calcium Relationship in Some Plants That Cultivate Around Boron Mining Area

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Abstract

Mineral requests of plants are variable in growing and development periods. Nutrient level analyzes have great importance for the achieve desired level of production in plants that have economic value. Turkey has 70% of world boron (B) reserves. In this study, Seyitgazi plain (Eskişehir) where has the Turkey biggest B mine was selected as research area. 426,755 decare of this area are cultivated. One-third of this are watery cultivation area and two thirds are dry cultivation area. Annual avarage of wheat production is 70,000 tone and beet production is 4500 tone in this plain. The B element is a microelement with optimum amount and its toxicity boundaries are very close to each other. B has very important role sugar synthesis in cell walls; nucleic acid, phenol, hormone, carbohydrate and protein metabolism; cell elongation and pollen tube formation in plants. Calcium (Ca) moved to plants by the xylem as B and also it has very critical role in root and stem elongation, formation of cell structure, nitrogen and carbohydrate metabolisms and so long-term convection contributes to vital activities in plants. Both of the Ca and B are found in the cell wall and they highly affect to each other over here. Ca and B form different complexes binding to RG-II. C and B can be connected to different parts of the same RG-II. Hypercalcaemia blocks the intake of B and so limits the growth of pollen tube. In this study, accumulation of B and Ca in wheat and beet has been investigated and mapped by ARCGIS method. Also relationship between Ca and B has been evaluated.

Keywords: Boron, Calcium, Wheat, Beet

The protective effects of probiotic mixture on 4,4'-dichlorodiphenyltrichloroethane (DDT) induced toxicity in a rat model

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Abstract

Probiotics are “live”, beneficial microbes that provide important health benefits and have several abilities such as modulation and regulation of the immune function. The aim of this study was to investigate the possible protective effects of probiotic mixture on DDT-induced liver and spleen damage. A total 30 Wistar-albino rats were divided into 5 groups. The probiotic mixture which consist especially *Bifidobacterium* and *Lactobacillus* strains was administered for 12-consecutive days. After the final application, 100 mg/kg 4,4'-DDT was given to the rats by oral gavage. After blood samples were collected, AST and ALT enzymes, TNF-alpha, TGF-beta, IL-1-beta, IL-6, and IL-10 levels were detected by ELISA method. Then, immunohistochemical staining methods were performed by using NF-κB and CD3 immune markers to liver and spleen sections. The AST and ALT enzyme levels had greater increases when compared with the control group levels. It was detected that the levels of measured cytokines normalized by probiotic pretreatment. The levels of TNF-alpha, TGF-beta, IL-1-beta, and IL-6 decreased while IL-10 levels increased in probiotic pretreated groups. It was understood from the histological sections that DDT had a great damage potential to liver and spleen. NF-κB and CD3 immune stainings were more intense in DDT group. However, a little protective effect by probiotics was determined. The NF-κB and CD3 immune positivity decreased in probiotic pretreated groups. As a conclusion, it was shown that probiotics may affect the inflammation biomarkers and oxidative stress process by making changes on the serum cytokine levels and NF-κB positivity respectively.

Keywords: Probiotics, DDT, Inflammation, Liver, Rat

Phenolic Acids, Flavonoids and Radical Scavenging Capacities of *Tanacetum cadmeum* (Boiss) Heywood subsp. *orientale* Grierson and *Tanacetum parthenium* (L.) Sch. Bip.

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Abstract

This study presents the phenolic acid, flavonoid contents and DPPH radical scavenging capacity of *Tanacetum cadmeum* subsp. *orientale* and *Tanacetum parthenium*. The chromatographic analysis was performed using a PREVAİL C18 reversed-phase column (15x4.6mm, 5µm, USA). Catechin (CA), naringin (NA), rutin (RU), resveratrol (RES), myricetin (MYR), morin (MOR), naringenin (NAR), quercetin (QU) and kaempferol (KA) were quantified by DAD separation. Also, vanilic acid, cinnamic acid, caffeic acid, ferulic acid and rosmarinic acid were determined by using HPLC.

Data obtained from present study showed that studied two *Tanacetum* taxa have high catechin amounts (1011,9 and 4479,1 µg/g). It was determined that naringenin amount of *T.cadmeum* subsp. *orientale* is 72.1 µg/g and quercetin amount of *T.cadmeum* subsp. *orientale* is 31.4 µg/g. On the other hand, kaempferol amount of *T. parthenium* is 74.0 µg/g. The other studied flavonoids were found low amounts or absent in the studied taxa. Furthermore this study determined that *T.cadmeum* subsp. *orientale* has vanilic acid (60,5 µg/g), caffeic acid (27,1 µg/g) and ferulic acid (7.3 µg/g). However, *T. parthenium* has low vanilic acid (3 µg/g) and caffeic acid (µg/g) amounts. Furthermore this study demonstrated that studied two *Tanacetum* taxa have strong DPPH radical scavenging activity.

Keywords: DPPH, Flavonoids, Phenolic acids, *Tanacetum*

Removal of Some Textile dyes from Aqueous Environment with Hydrogel-fungi Composite**Tuba Erşen Dudu¹, Duygu Alpaslan¹, Nurettin Sahiner², Nahit Aktas¹**¹Department of Chemical Engineering, Faculty of Engineering and Architecture, Yuzuncu Yil University, Van, Turkey²Department of Chemistry, Science and Literature Faculty, Çanakkale Onsekiz Mart University, Canakkale, Turkeyaktasnahit@gmail.com**Abstract**

Recently, there are many studies focused on removal of textile dyes from contaminant aqueous environments. In the present study, a hydrogel-fungi material had been synthesized, characterized and utilized for some textile dyes removal. Acrylamido-methyl-propane sulfonic acid sodium salt (AMPS) and *Lentinus Tigrinus* (*L.Tigrinus*) were used as the monomer, for synthesize the polymer, and as biosorbent parts, respectively. Brunauer-Emmett-Teller (BET), Fourier Transform Infrared Spectroscopy (FT-IR) and Thermal Gravimetric Analysis (TGA) techniques were utilized for the synthesized composite characterization. The swelling behaviors, pH sensitivity of the synthesized composite were also studied. Then the synthesized composite was utilized for removal of Toluidine Blue (TB), Alizarin Red S (AR), and Gallocyanine (G) textile dyes from aqueous media. Furthermore, a series experiments were conducted to obtain the effects of temperature, pH and initial dye concentration on the absorption capacity of composite. Additionally, the best-known kinetic models were applied to reveal the kinetic behavior of the dye and composite interactions and intra-particle diffusions. Moreover, the most utilized adsorption isotherms models like Langmuir and Freundlich were studied to obtain the best-fitted isotherm equation. Under specified experimental conditions, the maximum absorption capacities for TB, AR, and G dyes were calculated to be 65.93 mg/g, 0.1 mg/g, and 0.16 mg/g, respectively.

Keywords: Biosorbent, Composite, Hydrogels, Dye.

The Parasitic Contamination in Coats of Dogs and in Soil and Sand in Public Parks and Coastline**Selver Karaaslan¹, Nalan Ozdal²**¹ Van School of Health, Yuzuncu Yil University, Van, Turkey,² Department of Parasitology, Faculty of Veterinary Medicine, Yuzuncu Yil University, Van, Turkeynalan.ozdal@hotmail.com**Abstract**

This study was conducted to determine parasitological contamination on dog hairs, and on soil and sand. 246 hair samples taken from the perianal and dorsal region of 132 dogs were examined. 466 helminth eggs were found on the hair of 36 (27.27%) of dogs. Eggs of *Toxocara* sp., *Taenia* sp., *Toxoscaris leonina*, *Trichuris vulpis* and *Dipylidium caninum* were recovered 15.15%, 12.12%, 5.30%, 2.27% and 0.76% of dog hair, respectively. 81 *Toxocara* sp. eggs were found, 20 of which were embryonated and 61 were non embryonated. Of the 466 helminth eggs, 329 were found at perianal hairs and 137 dorsal hairs. In terms of parasitic contamination, the statistical analysis showed that there were significant difference between in stray dogs and owned dogs, age groups and dog races. 190 soil and sand samples from 11 parks and 8 coastlines in Van were examined. *Toxocara* sp., and *T. leonina* eggs were found 7.9% and 1.05% of the samples, respectively. None of the ascarid eggs in soil or sand were embryonated. *Toxocara* sp. eggs were detected more in the soil than those found in the sand and it was found to be statistically significant. Higher concentration of eggs of zoonotic helminth species have been encountered in dog hairs than those found in soil or sand and this situation leads to consideration that direct contact with dog hair is more risky than those contacted with soil in terms of transmission of this disease in humans.

Keywords: Direct contact, dog hair, helminth, soil, environmental contamination

Investigation of Haematologic Profiles in Evolution Process in Van Cats

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Abstract

This study was aimed to determine hematologic parameters in process of growth in healthy Van cat from birth to one years old. For this purpose; 20 Van Cats (10 male and 10 female) subjected to similar care and feeding regime hosted in Van Cat Research Center were used. Blood samples were taken from the Van Cat kittens regularly every month for a year. Hematocrit and hemoglobin levels has reached at the lowest value ($29.9 \pm 0.9\%$, 10.0 ± 0.3 g / dL) in 1st and 2nd month and then the highest value was reached at the 10th month (40.4 ± 2.2) of age. Granulocyte level (%) was the lowest at first month but increased at later on. The rate of Lymphocyte / Monocyte level were determined at the lowest level in the 5th and 6th months.

In conclusion; changes of hematological parameters in growth process would be useful to consider when interpreting in Van cat kittens.

Keywords: Van Cat, Growth Process, Hematological Parameters

Performances of Different Type Intermediate Tomato Varieties in Open Field and Screenhouse

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Abstract

This study was conducted out at Agricultural Application and Research Center of Gaziosmanpasa University among April-November in 2015. Aim of this study is to determine of performances of different intermediate tomato types in open field – Screenhouse and effects of Screenhouse on yield and quality. The seeds were sown on April 20th, 2015. Seedlings were planted out in Open Field and Screen House in May 20th, 2015. The experiment was carried out randomized complete split plots in block design with three replications. According to growing system; maximum average fruit weight were obtained in screen house application with 80,48 g/fruit. Maximum total yield were determined in screen house application with 16,71 kg/m². According to varieties; average fruit weight maximum was determined in Asya F₁ with 171,00 g/fruit and Gülpembe F₁ variety with 163,52 g/fruit. Maximum total yield value was determined in Merkür F₁ variety with 24,96 kg/m². According to growing system x variety interaction; maximum average fruit weight was found out in combination of open field x Asya F₁ with 174,50 g/fruit. Maximum total yield was detected in combination of screen house x Merkür F₁ with 29,61 kg/m².

Keywords: Tomato, ribbed, beefsteak, cluster, cocktail, cherry, pink, chocolate, purple, yield, quality

Effects of *Saccharomyces cerevisiae* and *Spirulina platensis* on rabbit growth performance and meat quality**Nilay Seyidoglu¹, Nurten Galip²**¹Department of Physiology, Faculty of Veterinary Medicine, Namik Kemal University, Tekirdag²Department of Physiology, Faculty of Veterinary Medicine, Uludag University, Bursanseyidoglu@nku.edu.tr**Abstract**

Nowadays, nutrition of people and supplying animal proteins have a great importance because of the rapid increase in the world's population. Population growth, depletion of food resources and balanced diets require the usage of new food sources, especially meats. Rabbit meat, which has a high percentage of easily digestible protein, is an interesting food. It also contains less fat and calorie than other meats. Besides, it has much more phosphorus, calcium and niacin which provide advantages over other types of meats. In addition to this issue, studies have started to focus on improving the quality of meats by natural supplements, such as yeast or algae. *Saccharomyces cerevisiae* and *Spirulina platensis* are the topical additives which have been used to enhance the growth performance and meat quality of animals. This study explores the effects of *S. cerevisiae* and *S. platensis* and their combination on growth and meat quality. Forty rabbits were divided in 4 groups: Control, Group *S. cerevisiae* (3g/kg), Group *S. platensis* (5%), Group Trial (combination). Body weight, weight gain, feed efficiency and feed conversion ratio were evaluated. Blood samples were obtained and some haematological parameters were determined. At the end of the study, 7 rabbits from each group in average weight were selected for meat analyses. According to the results, there were no significant differences in growth, haematological parameters and rabbit meat analyses, which may be due to the dosages. As the importance of meat in nutrition is well known, more studies would be necessary to clarify the dosages and effects of these additives.

Keywords: Rabbit meat, *Saccharomyces cerevisiae*, *Spirulina platensis*.

Development and Validation of a Green Capillary Electrophoretic Method for Determination of Polyphenolic Compounds in Red Wine Samples

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Abstract

A sensitive, simple, rapid, experimentally convenient, cost-effective, environmentally friendly and high-throughput green chemistry by capillary electrophoresis (CE) approach for the determination of eight polyphenolics frequently found in red wines from USA was carried without using toxic organic modifier. Several parameters which influence the separation were investigated to determine the optimum conditions. At room temperature, the eight polyphenolics could be well separated within 15 min. in a 55 cm length capillary at a separation voltage of 26 kV with 40 mM borate buffer (pH 8.9). The limit of detections varied from 0.15 to 0.32 µM. The relative standard deviations of migration varied from 0.208 to 0.630 %. The Californian red wine samples analyzed were bought in the local markets and the polyphenolic compound recoveries were in the range of 98–99.7 %. The method was successfully applied to the determination of studied polyphenolic in red wine samples with satisfactory recoveries. Catechin, syringic acid, apigenin, myricetin, luteolin, quercetin, caffeic acid and gallic acid were detected all samples with gallic acid and myricetin occurring in the highest concentration.

Keywords: Capillary Electrophoresis, Polyphenols, Red wine, Green Chemistry

Comparison of Efficiency of Different Nucleic Acid Extraction Methods for Bovine Enteroviruses in feces

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Abstract

Bovine enteroviruses are thought to be mild pathogenic or non pathogenic viral gastroenteritis agents. However there are some cases where they are identified from cattle having different symptoms. They can also be used as markers of environmental contamination. Enterovirus family has fast replication capacity and can be used as potential vectors. For this purpose isolation and molecular studies concerning Enteroviruses are currently increasing.

In this study 10 Bovine Enteroviruses positive cattle feces samples were used for evaluation of 4 different extraction methods. These methods comprise of TRIzol LS (Life Technologies), QIAamp Viral RNA mini kit (Qiagen), NucleoSpin RNA (Macherey-Nagel) and phenol-chloroform extraction. All procedures performed in BSL-2 cabinet and RNA yield of extracts were analysed in Bio-spec (Shimadzu) spectrophotometer. This RNA templates were then tested by Verso 1 step RT PCR (Thermo Scientific) kit with Enterovirus 5'UTR primers.

Keywords: Bovine Enteroviruses, RT-PCR, Extraction

Hybrid constructed wetlands with microbial fuel cell for boron (B) removal from wastewater and bioelectric production

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Abstract

Constructed wetland systems with microbial fuel cell (CW-MFC) are recognized as an innovative method for various types of wastewater. However, there is no specific information about boron (B) removal thorough CW-MFC in an eco-technology experiment. Therefore, this study is the first report associated with using Hybrid CW-MFC for B removal purpose. The aim of this study was to test performance of CW-MFC for B removal under the controlled environment and determine bioelectric production during the B purification process. In this respect, a small scale hybrid (40 x 40 x 25 cm) CW-MFC was established in Anadolu University Laboratories. The hybrid system was consisted two chambers including the first chamber was transplanted *Lemna gibba* L. and *Typha latifolia* L. and the second chamber was vegetated with *Typha latifolia* L. The results demonstrated that CW-MFC significantly decreased B concentrations from contaminated wastewater in 2 weeks treatment period. Moreover, first chamber in CW-MFC systems produced approximately 1.5 V, and the second chamber produced daily produced 1 V bioelectric in the treatment period. According to ecological perspective of the view, our results suggested that Hybrid CW-MFC systems are a cost effective solution for the removal of B from wastewater and bioelectric production during the treatment process.

Keywords: Constructed wetlands, Microbial fuel cell, Boron removal, Bioelectric production

Bulbous Plants of Phrygian Valley

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Abstract

The Phrygians migrating to Anatolia in the 11th century BC and they settled in the region covering the Afyonkarahisar, Ankara, Eskişehir and Kütahya provinces. The area where situated between Kütahya, Afyonkarahisar and Eskişehir provinces is named as Phrygian Valley. The Phrygian Valley is composed of little valleys which includes a lot of historical ruins. In this study, 60 bulbous plant taxa which belong to 6 families were identified from Phrygian Valley. 12 of these taxa are endemic to Turkey and endemism ratio is 20%. This study aims to determinate the bulbous plant biodiversity of Phrygian Valley and create a database for the ecotourism activities in this area.

Keywords: Bulbous, Phrygian, Plant, Taxonomy, Nomenclature

Influence of Bio-film (Parka) on Fruit Cracking on Sweet Cherry

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Abstract

Aim of this study is to determine effectiveness of the commercial product named Parka and a steric acid based bio film provided by Cultiva to prevent rain cracking in orchards located in Turkey. The study was carried out in the sweet cherry orchards of Faculty of Agriculture at University of Gaziosmanpaşa in Tokat in 2015. In the study, as plant material was used North Wonder cultivar onto grafted Gisela 6 rootstock, The study was carried out as 6 replications. Each replication included 6 trees. Treatment consisted of two applications (once and twice application) and control. First application has made when the cherries are yellow (5th June) The second application has made 7-11 days later (12nd June).. Before the harvest, it rained almost every day. it is observed that the fruit applied the Parka has not occurred fruit cracking, but on control trees has occurred 5 % of fruit cracking. Even if the difference occurred among Parka and control is statistically significant, when the results compared to the results of the study (85 %) carried out in Turkey last year, it can be said that the difference is not significant. The study indicates that cultivar preferences have significant effects on results. It can be considered that the results of fruit cracking is significant since the percentage of fruit cracking of cultivar used on the study is low. It has been determined that the product applied has not an efficacy on fruit quality characteristics.

Keywords: Bio-film, Sweet cherry, Fruit cracking

Micrognathia, Campylognati, Palatoschisis, Polymasti and Hydrocephalus in a Simmental Calf: Multiple Anomaly**Serkan Yildirim¹, Osman Yilmaz², Gamze Çakmak², Nebi Cetin³**¹Department of Pathology, Faculty of Veterinary Medicine, University of Atatürk, Erzurum, Turkey²Department of Anatomy, Faculty of Veterinary Medicine, University of Yuzuncu Yil, Van, Turkey³Department of Obstetrics and Gynecology, Faculty of Veterinary Medicine, University of Yuzuncu Yil, Van, Turkey

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Abstract

Congenital defects are structural or functional abnormalities. These defects may form at various phases of embryogenesis or fetal development, depending on the genetic or environmental effects or both. The subject of this case is a seven day old female simmental calf that was brought us with the complaints of loss of appetite, weakness, inability to stand, and coughing. It was noticed that the tongue of the calf was out, and also micrognathia (brachygnatia inferior and brachygnatia superior), campylognathia, and palatoschisis were identified, as well. Unfortunately, the calf died during the inspection. It was decided to do necropsy. It was determined that there was a polymastia (with six nipple heads). There was not any pathological findings when abdominal cavity has been opened. When thoracic cavity has been opened, it was seen that there were an aspiration pneumonia at lungs, a dilatation at the apex of ventriculus dexter of the heart, and also there was a narrowing on the ventriculus dexter and sinister because of the hypertrophy. The structure of the head bones were looking abnormal. So, the skull was opened and the brain was removed. It was identified that the lateral ventricles were expanded and the hydrocephalus was started to form. The tissues were *histopathologically investigated*. As a result, submitting this case was seen important because all of these defects, including; micrognathia (brachygnatia inferior and brachygnatia superior), campylognathia, palatoschisis, polymastia and hydrocephalus were encountered in an only one calf body, so it was seen very interesting.

Keywords: Campylognati, Hydrocephalus, Micrognathia, Palatoschisis, Polymasti

Anatomical Properties of Medicinal Plant *Hypericum orientale***Öznur Ergen Akçin¹, Merve Yasemin Altıntaş¹, Tuğba Özbucak¹, Yaşar Akçin²**¹ Department of Biology, Faculty of Science and Art, Ordu University, Ordu² Department of Horticulture, Faculty of Agriculture, Ordu University, Ordu, Turkeyoakcin@gmail.com**Abstract**

The genus *Hypericum* L. is represented by 94 taxa (78 species) in Turkey. *Hypericum* has about 43 endemic species. *Hypericum* species is known as 'binbirdelikotu, kılıç otu, kantaron' in Turkish. On the other hand the members of *Hypericum* genus are used as conventional traditional medicines for the purpose of pain relief, parasite reduction and wound healing. *H. orientale* species is used traditional medicines and contain hypericin. The presence of Hypericin is an important pharmacological value in *Hypericum* species. The plant specimens were collected from different localities in the north of Turkey. The plant materials were identified and deposited at Ordu University. Anatomical studies were carried out on specimens that were fixed in 70% alcohol. Cross sections of root, stem, leaf and flower were cut freehand and they were covered with glycerine–gelatin. Leaf is isobilateral. Stomata index is 27.06 for adaxial surface, 31.90 for abaxial surface. Various secretory canals were identified in *H. orientale*. In *H. orientale*, type A secretory canals were located in root and leaf, type B canals were located in petal. Type C secretory canals were seen in leaf, sepal, ovary.

Keywords: *Hypericum orientale*, Anatomy, Hypericaceae, secretory canal, St John's wort

Production of Horticultural Crops in Turkey and The Future

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Abstract

In this study, cultivation of horticultural crops and the future of Turkey were analyzed. Turkey has 40 million hectares agricultural area. Fruit is grown around 3 million hectares (7.50%) and vegetables are grown 1.09 million hectares (2.73%). Approximately 21 million hectares area belongs to forests. Turkey has about 16.4 million tons fruit production and 27.0 million tons vegetable production. 35 fruit species (except tea) are grown commercially in Turkey. 20 Fruits have 92.72% in total fruit production. 32 vegetables species are commercially grown in Turkey. 10 vegetables have 92.72% in total vegetables production. Turkey produces approximately 43.4 million tons fresh fruit and vegetable as annual. Only 5% of this production is exported. Total income from exports of fresh fruit was about 1.27 billion U.S. dollars. Total income from exports of fresh vegetables was approximately 619 million U.S. dollars. In addition, Turkey and the world that is very important for the future of Agriculture, explained the reasons for the importance of jujube fruit and rosehip.

Keywords: Horticultural crops, jujube(*Ziziphus jujuba*), rosehip(*Rosa sp.*)

Effects of Zinc Fertilization on Grape Yield and Fruit Quality of Narince (*Vitis Vinifera L.*) Grape Cultivar**Rüstem Cangi¹, Halil Erdem² Cemal Çelik³**¹ Gaziosmanpaşa University Agricultural Faculty, Department of Horticulture, Tokat² Gaziosmanpaşa University Agricultural Faculty, Department of Soil and Plant Nutrition, Tokat³ Tokat Province of Food, Agriculture and Animal Husbandry Department of Imamate, Almus-TOKAT

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Abstract

This study was carried out between 2013-2014 years at Narince (*Vitis vinifera L.*) grape cultivar grown in the conditions of viticulturist in Tokat. The aim of this study was to determine the effect of zinc fertilization (soil, foliage, soil+foliage) on fresh grape yield and fruit quality. In this study zinc fertilizer (as ZnSO₄ . 7H₂O) was applied to soil at the rates of 0, 4, 8 kg/da in mid-March (winter pruning time). Foliage treatment, 0,2 %, and 0,4 %, doses of ZnSO₄ were sprayed to leaves in berry set and two more times at 15 day intervals, soil+foliage application. The soil+foliage treatments was applied (soil 4 + foliage 0,2% /da; soil 4+ foliage 0,4 /da; soil 8 + foliage 0,2% /da; soil 8+ foliage 0,4 /da) period in the above. In the harvest time, yield of fresh grape (kg/vine), bunch and berry and weight (g), amount of total soluble solids contents (%), titratable acidity (g/l), pH, were determined. Also, N,P, K, Fe and Zn contents of leaves collected from the vine at verasion period were determined. The effect of zinc applications were found to be statistically significant on grapes yield, fruit quality characteristics and nutrient elements of leaves. Zinc applications were increased generally yield,bunch and berry weights, pH, amount of N, P, K, Fe and Zn of leaves; on the other hand, total soluble solids and titratable acidity were decreased compared to the control application.

Keywords : Tokat, soil application, foliage application, total soluble solid content, Fe

Effects of Zahter (*Thymbra spicata* L. var. *spicata*) Essential Oil on Meat Quality of Japanese Quails Reared in Various Stocking Densities

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Abstract

The aim of this study was to investigate the effects of Zahter (*Thymbra spicata* L. var. *spicata*) essential oil (ZEO) on meat quality of Japanese Quails reared in various stocking densities. Totally, 300 Japanese quails- seven days old- were allocated to six dietary treatments. Each group was divided into five replicate, with each comprising ten chicks. Experiment was lasted at 28 days. Optimal stocking density for control group was 160cm²/quail, high stocking density was 90cm²/quail for experimental group. Experimental groups were designed as 1) optimal stocking density group (OSD-CTR, positive control), 2) high density stocking group (HDS, negative control), 3) high density stocking plus 10mg/kg Avilamycine (HDS-ANT), 4) high density stocking plus 200mg/kg ZEO (HDS-ZEO₁), 5) high density stocking plus 400mg/kg ZEO (HDS-ZEO₂), 6) high density stocking plus 600mg/kg ZEO (HDS-ZEO₃). At the end of the experiment, gender did not affect the parameters examined. pH values at 24^h were not affected; b* values and dry matters of brisket significantly affected by ZEO treatment (P<0.01). Dry matter significantly increased in quails fed the ZEO at 600mg/kg level compared to the both control groups. Cooking loss and water retention capacity were improved especially in quails fed the ZEO at 600mg/kg level (P<0.01). Crude protein levels of meat were tend to increase in the groups fed ZEO. In conclusion, dietary ZEO enhanced meat quality parameters and mitigated detrimental effect of high stocking density on meat quality. This property could be important to recommend the implementation of such compounds to the poultry diets in stress condition.

Keywords: Zahter Essentil Oil, Stocking Density, Meat Quality, Japanese Quail

Immobilization of α -Galactosidase on Sepabead EC-EA and Sepabead EC-HA and Its Use in the Hydrolysis of Raffinose Type Oligosaccharides Present in Soymilk

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Abstract

α -D-Galactosidases catalyse the hydrolysis of α -1,6-bounded D-galactose residues of basic and complex oligo- and polysaccharides. In this study, we aimed to immobilize α -galactosidase on Sepabead EC-EA and Sepabead EC-HA by covalent coupling method and also to research useability of both free and immobilized enzymes in the hydrolysis of raffinose and raffinose type oligosaccharides present in soymilk. The enzyme was immobilized on Sepabead EC-EA and HA with the activity yield of 59% and 38%, respectively, under optimized immobilization conditions. Characterization of the soluble and immobilized enzymes were done. The maximum activity was observed at 60 °C and the optimum pH was found as pH 6.0 for both immobilized enzymes. Both enzymes were very stable in the range of pH 3.0-7.5 and 4-70 °C. The K_m and V_{max} values were calculated for free and immobilized enzymes. The operational stability of immobilized α -galactosidases were monitored in a batch-stirred reactor. The immobilized enzymes showed high operational stability values that increase the reusability of immobilized enzymes in industrial applications. The hydrolysis of raffinose-type oligosaccharides present in soymilk were studied in batch-stirred reactors with both soluble and immobilized enzymes. Carbohydrate analysis of hydrolysis samples were made by HPLC-RID. The results showed, α -galactosidase was successfully immobilized on Sepabeads by covalent coupling method. The immobilized enzyme has good stability and has a potential for practical industrial applications. Moreover, the use of the above biocatalyst for the hydrolysis of raffinose type oligosaccharides present in soymilk shows that it may also find an application area in sugar-beet industry.

Keywords: α -Galactosidase, Immobilization, Sepabead EC-EA, Sepabead EC-HA, Raffinose hydrolysis.

Fuel Cells and Their Positive Impacts on Environment

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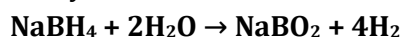
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Abstract

Energy is the most important commodity in a modern society. Its consumption per capita is an indication of the development. Energy sources are mainly fossil fuels (coal, oil and natural gas) which can cause severe environmental problems such as acid rains, global warming and climate changes. In addition to severe environmental problems, the sources of fossil fuels are finite. Because of increasing need of energy, researchers are forced to search for renewable energy sources such as hydro, biomass, wind, solar, geothermal, wave, tide and so on.

Using hydrogen (H₂) as a clean energy carrier is one of the promising way to save environment. H₂ is universally accepted as a clean energy carrier because of its high energy density. It does also reduce the emission of greenhouse gases by using it as fuel in fuel cells or in combustion engines directly.

In order to use H₂ as fuel, it is necessary either to compress it or to liquefy it. Both processes are difficult and costly. Metallic and nonmetallic hydrides have received considerable research interest in recent years. NaBH₄ is the one of the most prospective H₂ storage materials as it stores 10.8 w % hydrogen. H₂ is generated by the following hydrolysis reaction of NaBH₄ in the presence of a suitable catalyst:



Half of the hydrogen produced comes from the water which is a great advantage and make it effective on hydrogen generation for portable PEM fuel cells applications.

With fuel cells cell, one can bypass the 2nd law of thermodynamics where the efficiency is limited by Carnot Cycle. Therefore, the efficiency is much higher as compared to conventional mode which is

Chemical Energy → Heat energy → Mechanical Energy → Electrical Energy

There are a few intermediate steps, hence lower efficiencies.

By using fuel cell, however, it is possible to convert the chemical energy directly into electrical energy

Chemical Energy → Electrical Energy

In this case, Carnot Cycle Limitations are by-passed. Hence, the future of fuel cells is very bright and H₂-economy will probably dominate in near future.

In this study, the future of fuel cells and their positive impacts on environment will be discussed in details.

Keywords: Fuel cells, Environmental pollution, Greenhouse gases

Enzymatic analysis and partially purification of β -galactosidase Produced by *L. delbrueckii* ssp. *bulgaricus* ZN959**Selcen Babaoğlu Aydaş¹, Hazer Yüksekdağ¹, Zehranur Yüksekdağ²**¹ Vocational School of Health Services, Gazi University, Ankara² Department of Biology, Faculty of Science, Gazi University, Ankaraselcenb@gmail.com**Abstract**

Lactose, is found almost exclusively in milk. More than 70% of the world's population, especially ethnic groups suffers from the "lactose intolerance," which means the inability to use lactose or lactose-containing products. These people are lack of the enzyme β -galactosidase that should be present in the human gastrointestinal system to hydrolyse lactose. Recently many studies are conducted to improve products or hydrolysing methods in serve of affected people. Increased attention has been paid to the probiotic *L. delbrueckii* ssp. *bulgaricus* strains as sources of β -galactosidase (β -gal) however, the stability, activity and use of enzyme in lactose hydrolysis should be evaluated in advance. In this study, β -galactosidase enzyme activities of five *L. delbrueckii* ssp. *bulgaricus* strain were evaluated by using o-nitrophenyl- β -D-galactopyranoside (ONPG) as a substrate. The effect of different pH, temperature and buffer conditions on the enzyme activity of *L. delbrueckii* ssp. *bulgaricus* ZN959 which had the highest β -galactosidase activity (4.838 ± 0.000) were determined and the enzyme was partially purified from the strain.

Keywords: Lactobacillus, β -galactosidase, Enzyme purification

Implementation of Water Framework Directive In Turkey**Seyda Karaman⁽¹⁾, Ilgi Karapinar⁽¹⁾, Ebru Cokay⁽¹⁾, Serkan Eker⁽¹⁾**

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Abstract

European Water Framework Directive (WFD) focus on providing sustainable management of water resources to protect water resources and the main objective of WFD is to achieve “good water status”. Surface, coastal and transitional waters must achieve “good ecological and chemical status” to protect human health, water supply, natural ecosystems and biodiversity. Physical and chemical pollution in the water resources has a great importance to achieve a good chemical status. The main concern in the chemical pollution is the priority pollutants and specific pollutants. Priority pollutants to be monitored have been determined by directive 2008/105/EC of the European Parliament and of the Council. On the other hand, EU Member and candidate countries have to determine pollutants which are specific to their countries based on the industrial discharges. Moreover, there is an urgent need in determination of Environmental Quality Standards (EQS) for the listed specific pollutants. This paper summarizes the methodology used by EU countries in determination of specific pollutants, calculation of EQS and for implementation of WFD. Turkey as an EU candidate country has got an action plan for the implementation of WFD to surface water. The recent studies conducted in Turkey for the implementation of WFD regarding to specific pollutants were discussed.

Keywords: priority pollutants, specific pollutants, water framework directive, water resources.

The Effects of Zn- Excess Diet on Nitrate and Nitrite Levels in Rats with Experimentally Induced Renal Failure

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Abstract

This study was aimed to determine level of, biochemical and histological value at to may develop toxical effect of kidney nephron and effect oksidatif damage role at possible to may develop tubuler dejeneration this toxic effect with a effect of majority of Zn which known antioxidant after administration of gentamicin. Four groups were established there are 8 rats in every groups. Control group was given normal saline intraperitoneally for 8 days. The renal failure groups received 100mg/kg gentamisin ip injection daily for 8 days.. Zinc excess group was given combined with water 227 mg/l ZnSO₄ for 2 weeks. Renal failure + Zn excess group was given combined with water 227 mg/l ZnSO₄ for 2 weeks and 100 mg/kg gentamicin for 8 days by ip injection. The result of analysis after kidney tissue samples were collected, Nitrite and nitrate levels in kidney tissue increased in Zn excess group but decreased in other groups according to the control groups.

Keywords: Gentamicin, Lipid peroxidation, Nitrite, Nitrate, Zinc.

Determination of Eleven Flavonoids in Chamomile and Linden Extracts by Capillary Electrophoresis

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Abstract

A sensitive, dependable, simple and rapid method based on capillary electrophoresis with diode array detection (CE-DAD) was developed for identification and determination of eleven flavonoids (apigetrin, naringin, naringenin, catechin, galangin, apigenin, luteolin, quercetin, myricetin, kaempferol, and kaempferide) in chamomile and linden flower extracts. Several parameters which influence the separation were investigated to determine the optimum conditions. At room temperature, the eleven flavonoids could be well separated within 11 min. in a 55 cm length capillary at a separation voltage of 24 kV with 40 mM borate buffer (pH 8.9). Under optimum conditions, linearity was achieved within the concentration ranges of 2.5–100.0 mM for all analytes except myricetin and luteolin (5.0–100.0 mM). The method was successfully applied to the determination of flavonoids in plant samples such as chamomile and linden flowers with satisfactory recoveries.

Keywords: Capillary Electrophoresis, Flavonoids, Chamomile, Linden

Roost Selection of the Bats in the Koyunbaba Cave (Kırklareli-Turkey)**Serbülent PAKSUZ¹, Beytullah ÖZKAN²**¹ Department of Elementary Education, Faculty of Education, Trakya University, Edirne, Turkey² Department of Biology, Faculty of Science, Trakya University, Edirne, Turkeyserpaksuz@trakya.edu.tr**Abstract**

Bats as one of the biggest groups of the mammals with the widespread distribution spend more than half of their lives in roost. Most bat species make use of caves as roost for various purposes during some phase of their annual cycle. In this study, roost selection of the bats in the Koyunbaba Cave, which is of the importance for European bat populations, was investigated. For this aim, a total of 15 surveys were carried out between September 2007 and August 2008. The 7 stations used as roost by bats were determined for population count of bat species. Roost selection of bats was recorded as 3 parameters (roost location, roost type, and roost height) and collected data was analyzed statistically. Different parts of the Koyunbaba Cave were used to various degrees by bats. Rooms and halls in the Koyunbaba Cave were used for nursery while corridors were used for hibernating. Selection of roost height of *R. ferrumequinum* (0-3 m), *R. hipposideros* (0-3 m), *M. myotis/blythii* (5-30 m), *M. capaccinii* (5-30 m) and *M. schreibersii* (5-30 m) showed difference. While wall as a roost type was preferred by bats for both hibernating and breeding/nursing, ceiling and dome as roost type were preferred usually for breeding/nursing. Roost selection by bats depends on the internal characteristics of cave and, therefore, it differs in the particular parts of the cave and changes in the course of a year. Our results show that species have specific requirements for roosts in terms of shelter. (This study was supported by Research Found of Trakya University, Project Number: TÜBAP-2008/15).

Keywords: Bats, Roost Selection, Koyunbaba Cave, Turkey

A Case of Malignant Fibrous Histiocytic Sarcoma in a Budgerigar (*Melopsittacus Undulatus*)**Sevda İnan¹, I Taci Cangul², Nihal Yasar Gül Satar³, Hilal Cesme³, Melike Cetin³**¹ Department of Pathology, Faculty of Veterinary, Namık Kemal University, Tekirdag² Department of Pathology, Faculty of Veterinary, Uludag University, Bursa³ Department of Surgery, Faculty of Veterinary, Uludag University, Bursasevdainan@nku.edu.tr**Abstract**

In this case, we describe a case of malignant fibrous histiocytic sarcoma in a 2-year-old female budgerigar (*Melopsittacus undulatus*). Upon clinical examination rectal temperature, pulse and respiratory rates were within normal ranges. A tumoral mass was palpated on the right proximal antebrachium extending to the carpal joint. Radiographic examination showed that there were two separate masses of approximately 0.5 cm (round) and 1 cm (ovoid) diameter, with well-defined borders and diffuse opacity. The masses were removed and examined cytologically and histopathologically. They had soft consistency; cut surfaces were grey-whitish colored with clearly defined borders. Impression smears revealed atypical large cells with large basophilic nuclei and a rim of narrow, extending cytoplasm. Histopathological examination of hematoxylin-eosin (H&E) stained slides displayed pleomorphic (mainly spindle-shaped cells) cells with indistinct cell borders showing diffuse growth pattern. Focal spindling was observed in some areas. Tumor cells were large and had moderate to abundant eosinophilic cytoplasm, round to irregular nuclei with vesicular chromatin, and one to several distinct nucleoli. Some cells had prominent nuclear grooves. Mitoses were uncommon. Clinical, macroscopic, microscopic, and radiological findings were compatible with malignant fibrous histiocytic sarcoma.

Keywords: Budgerigar, *Melopsittacus undulatus*, malignant histiocytic sarcoma, pathology

Antimicrobial Effects and Effect Mechanism of Honeys in and around Eskişehir, Turkey

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Abstract

Honey is one of the oldest products known as used in traditional medicine. Nectar which is the most important component of honey is produced by plants. In this study, antimicrobial activity of honey samples collected from different regions of Eskişehir were studied. Minimal Inhibition Concentration (MIC) method was used for the identification of antimicrobial activity degrees in honey samples. Later; to determine the effect mechanism of antimicrobial activity in these honey samples, chemical content of samples were analysed by osmotic effect, catalase test and acidity. In an attempt to investigate the source of antimicrobial activities; antimicrobial activities of catalase enzyme treated and non-treated honey samples were measured and compared. At this stage; *Micrococcus luteus* in bacteria and *Candida albicans* in yeasts are defined as the most sensitive to hydrogen peroxide and osmotic stress. *Pseudomonas aeruginosa* is the most resistant bacteria to hydrogen peroxide and osmotic stress. According to the obtained results; antimicrobial activity of honey samples are highly decreased after the catalase treatment. In this study; we determined that the hydrogen peroxide is one of the most important factor on the antimicrobial activity of honey.

Keywords: Eskişehir, honey, antimicrobial activity, effect mechanism

The Effects Of Different Packaging Types On Fruit Quality Of Quince (cv. Eşme) İn Modified Atmosphere Packaging

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Abstract

In this study, investigated the effects of different packaging types on the type of 'EŞME' quince (*Cydonia vulgaris* L.) in grown under Tokat conditions. Applications, control, polystyrene plates+PVC stretch film, packaging low density polyethylene and the transparent polyamide were taken into consideration. The temperature was 0-2 degrees and relative humidity was between 85-95% in cold storage environment. Fruits stored for 6 months. In fruits, the deterioration began from the fourth month. The weight loss of at least approximately was seen as 0.14% in Low-Density Polyethylene packaging. Effects of the type of packaging had significant on the flesh firmness in during storage. At least change, in the implementation of low-density polyethylene were observed. Total soluble solid fell at all packaging applications in during storage. Maximum reduction was seen in application of polystyrene plates+PVC stretch film. In all applications, the acidity increased and the pH fell. The taste test as a result of the fruits of edible quality until the fourth month. The best results were found from control and the application of low-density polyethylene.

Bio- synthesis of silver nanoparticles using extracts of *Lavandula officinalis* and their antimicrobial activities**Dilek DEMİREZEN YILMAZ*, Fatih Doğan KOCA*, Seyda YILMAZ****

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** Erciyes University, Graduate School of Natural and Applied Sciences, Turkey

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This study reported to the biosynthesis potentials of extracts of *Lavandula officinalis* for production of silver nanoparticle without use of any external reducing or capping agent. The appearance of dark brown color indicated the complete nanoparticle synthesis which was further validated by absorbance peak by UV-vis spectroscopy. The morphology of the synthesized particles was characterized by scanning electron microscopy (SEM). The X-ray diffraction (XRD) patterns clearly illustrated the crystalline phase of the synthesized nanoparticles. Fourier Transform Infrared (FTIR) spectroscopy was performed to identify the role of various functional groups in the nanoparticle synthesis. The bio-synthesized nanoparticles showed promising antimicrobial activity against Gram negative (*Escherichia coli*) and Gram positive (*Staphylococcus aureus*) bacteria. The biologically synthesized silver nanoparticles showed promising activity against all the tested pathogenic strains and the activity has been enhanced with the increased dose levels.

Keywords: Green synthesis, silver nanoparticle, antimicrobial activit

The Effect of *Nigella Sativa L.* Extract on Total Oxidant-Antioxidant Capacity and Some Biochemical Parameter Levels in Serum of the Methyl Parathion Exposed Rats**Tahir Kahraman¹, M. Faruk Yiğit¹, Mehmet Berköz², İbrahim H. Yörük³**¹Department of Biochemistry, Faculty of Pharmacy, Yuzuncu Yil University, Van³²Department of Pharmaceutical Biotechnology, Faculty of Pharmacy, Yuzuncu Yil University, Van³Department of Biochemistry, Faculty of Science, Yuzuncu Yil University, Van

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Abstract

This study was designed to evaluate the treatment of the influence of *Nigella sativa L.* extract on acute and chronic toxicity of methyl parathion. In this study we aimed to obtain information on the protective effects of *Nigella sativa L.* extract against to methyl parathion. Fifty six adult male rats were used in this study and randomly divided into four groups. The animals in group 1 were treated with 1 ml of distilled water and determined as control group. The animals in group 2 were orally administered with methyl parathion at a dose of 0.28 mg/kg/day for a period of 28 days. The animals in group 3 were orally administered with *Nigella sativa L.* extract at a dose of (300 mg/kg/day) for 28 days. For group 4, after two hours of administration of methyl parathion (0.28 mg/kg/day), 300 mg/kg/day *Nigella sativa L.* extract was applied for 28 days. The group 2 which was administered with methyl parathion exhibited a statistically significant increase in serum aspartate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase (ALP) and cholesterol levels when compared to group 4 which was treated with methyl parathion (0.28 mg/kg/day), 300 mg/kg/day *Nigella sativa L.* extract was applied for 28 days. At the same time, a statistically significant decrease in serum albumin and vitamin E was observed in Group 2 ($p < 0.05$). Although, there was an arise in lactate dehydrogenase (LDH), gamma glutamyl transferase (GGT) levels, VLDL cholesterol levels and total oxidant capacity, this elevation was not statistically significant ($p > 0.05$). On the other hand, there was a decrease in serum total protein, total triglycerides vitamin A and C levels and total antioxidant capacity, however, this decrease was not statistically significant ($p > 0.05$). As a result, *Nigella sativa L.* extract can treat the methyl parathion induced toxicity but it cannot provide an overall protective effect.

Keywords: Methyl parathion, *Nigella sativa L.* extract, Total oxidant capacity, Total antioxidant capacity

Immune Regulatory, Antigenotoxic and Antimutagenic Effects of Some Lactic Acid Bacteria Isolated From Human and Their Exopolysaccharides

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Abstract

Colorectal cancer is the third most common cancer in both males and females and accounts for about 9% of cancer deaths each year. Today, treatment of colorectal cancer is mainly surgical resection combined with chemotherapy by cytotoxic drugs and radiation therapy. However, this therapy is just moderately successful especially for late stage cancers. Therefore new approaches to the treatment of colorectal cancer are required. Accumulating evidence suggests that the ingestion of probiotics may be able to play a preventive role in the onset of colorectal cancer. Most of microorganisms utilized as probiotics belong to lactic acid bacteria (LAB) and bifidobacteria groups. Some strain of LAB produce exopolysaccharides (EPS). Probiotics have health promoting effects which has been attributed partly to EPS. In this study, some fecal origin lactic acid bacteria; *Lactobacillus plantarum* (GD2), *Lactobacillus brevis* (LB63), *Lactobacillus rhamnosus* (E9) were selected with a high EPS production. After that, their EPSs were isolated and lyophilized. Then, genotoxic and antigenotoxic activity (with Comet assay), mutagenic and antimutagenic activity (with Ames test) and immunomodulatory effect of LAB and their EPS were studied. According to our results, LAB and their EPS exhibited any genotoxic, mutagenic activity and they showed antigenotoxic (against H₂O₂) and antimutagenic activity (against H₂O₂ and NaN₃). In addition, *Lactobacillus* spp. and their EPSs lowered the IL-8 level and increased the IL-10 level in HT-29 adenocarcinoma cell line. Our results suggest that, LAB and their EPS could be a good candidate as an anticancer agent.

Keywords: Lactic acid bacteria, probiotic, exopolysaccharides, anticancer.

Acknowledgments: This work was supported by the Scientific Research Project Unit of Gazi University, Ankara, Turkey, (Project code no: 46/2012-03). In addition, we wish to thanks TUBITAK for providing fellowship to Ümmügülsüm TÜKENMEZ.

Molecular and serological survey of Bovine Herpes Virus 1 infection in breeding bulls in Northeastern Turkey

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Abstract

In this study, Bovine Herpes Virus 1 (BHV-1) infection was investigated in breeding bulls at 1–5 years of age from small scale family operations in Northeastern Anatolian region of Turkey. For this purpose, a total of 250 breeding bulls were sampled in this study. The serum samples were tested for presence of antibodies against BHV-1 using the micro virus neutralization technique. Out of 250 sera samples tested, 110 (44.00%) were detected as positive against to BHV-1 and antibody titres were found to be varied between 1/2- 1/64. Among the controlled regions, the highest seroprevalance of BHV-1 infection was found in Kars (64.81%) followed by Ardahan (30.00%) and Iğdır (26.82%) provinces. In the molecular studies, leukocyte samples were tested for presence of BHV-1 viral genome using BHV1-glycoprotein C (gC) polymerase chain reaction (PCR). BHV-1 nucleic acid was not found in leukocyte samples. As a result the presence of BHV-1 infections in breeding bulls was concerned to be common in Northeastern Anatolian region. Furthermore, recommendations for the control of BHV-1 infection were presented. This study is the first molecular and serological study to determine viroprevallence and seroprevalence of Bovine Herpes Virus 1 infection in breeding bulls in Northeastern Anatolia region, which is the most important livestock production area in Turkey.

Keywords: BHV-1, breeding bulls, micro virus neutralization technique, PCR, seroprevalence.

Significance of Homocysteine and Cardiac Markers in Cattle with Hypocalcemia.**Yıldırım BAŞBUĞAN¹, Nazmi YÜKSEK¹, Nuri ALTUĞ²**¹Department of Internal Medicine, Faculty of Veterinary Medicine, Yuzuncu Yil University, Van Turkey.²Department of Internal Medicine, Faculty of Veterinary Medicine, University of Namık Kemal, Tekirdag, Turkeyyildiraybasbugan@gmail.com**Abstract**

This study was aimed to determine the levels of homocysteine in addition to cardiac markers in cow with hypocalcemia. The study consisted of 20 cows in total, (10 cows with hypocalcemia (diseased group) and 10 healthy cows (control group). Diagnosis of hypocalcemia was based on clinical findings and the definitive diagnosis was made by determining low blood Ca and iCa levels. Standard hypocalcemia treatment was initiated in diseased cows. Blood samples were taken before treatment (BT) and 12 hours after treatment (AT), cardiac markers and homocysteine analyzes were performed on these samples. Homocysteine levels were detected in the control group as $15,89 \pm 2,13 \mu\text{mol/L}$, $4,75 \pm 0,89 \mu\text{mol/L}$ in BT group and $5,82 \pm 1,51 \mu\text{mol/L}$ in AT group. Although the level of Homocysteine decreased in both BT and AT groups in comparison to control group, this difference was not statistically significant. A decreased Ca, iCa, Mg and P levels was detected while cTnI, PTH and CK-MB levels increased in BT compared to the control group. An increase in Ca, Mg, iCa and P levels were detected and PTH levels decreased in AT compared to the BT in cows. CK-MB, CK and Mg levels were also determined to increase while iCa level decreased in AT group compared to the control group. It was concluded that CK, CK-MB and cTnI in addition to cardiac parameters might bear importance for routine clinical diagnosis in cows with hypocalcemia but considered insignificant for prognosis. However the homocysteine level was not important for both diagnosis and prognosis.

Keywords: Hypocalcemia, Homocysteine, Cardiac biomarkers.

The Effects of Pomegranate Flower on NCAM in the Brains of Experimental Diabetic Rats

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Abstract

The aim of this study is to determine the effects of Pomegranate flower on NCAM in the brains of experimental STZ-induced diabetic rats.

60 wistar-albino male rats (220 ± 40 gr) were used in this study. Rats were randomly divided into five groups including control, diabet (STZ), STZ+ Pomegranate flower I, STZ+ Pomegranate flower II, STZ+ Pomegranate flower III. 60 mg/kg STZ were intraperitonally applied. 300 mg/kg/day Pomegranate flower were given in the STZ+ Pomegranate flower I group; 400 mg/kg/day Pomegranate flower were given in the STZ+ Pomegranate flower II group and 500 mg/kg/day Pomegranate flower were given in the STZ+ Pomegranate flower III group. Experimental practices were continued 6 weeks. Rats were sacrificed after the Morris water maze test and NCAM levels were determined in the hippocampus.

Morris Water maze and Probe test results showed that learning and memory functions of diabetic groups were damaged compared with other groups. It was found that NCAM expression in the STZ group were high level. NCAM-180 values in the STZ+ Pomegranate flower III were significantly highest ($p < 0.05$). Present results demonstrated that Pomegranate flower reduced the neurodegenerative and cognitive function damages in the diabetes.

Keywords: Diabetes, NCAM, Oxidative stress, Pomegranate flower

Acknowledgement: This study supported by FUBAP (1574 number) and TUBA

The Current Molecular Informations about Orf Virus Infection Circulating in Van, Turkey**Zeynep Karapınar¹, Ender Dinçer ²**¹YuzuncuYilUniversity, Faculty of Veterinary Medicine, Department of Virology, Van, Turkey²Mersin University, The Center of Advanced Technology Education, Research and Application, Mersin, Turkeyzeynepkarapinar@gmail.com**Abstract**

Ecthyma contagiosum, also known as “Orf”, infects sheep and goats and causes skin lesions. This virus is a zoonotic and epitheliotropic DNA virus belonging to the genus *Parapoxvirus*, transmitted among infected animals by direct or indirect contact. In this study, it was aimed to determine the molecular characterization of local Orf virus. For this purpose, blood samples were obtained from lambs in a herd with suspected clinical findings in Van province. PCR method was performed for the detection of Orf virus DNA by using the primers of B2L gene of parapoxvirus. A PCR positive sample was used for molecular characterization. A phylogenetic map was created by using sequence of the partial B2L gene and the sequence was compared with reference parapoxvirus isolates obtained from GenBank database. The phylogenetic tree showed that the Orf virus sequence from a lamb in Van was found to genetically close related to strain which was obtained from Van province in previous years. Additionally, this strain was found phylogenetically similar to circulating parapoxvirus strains which were identified in previous reports in human and small ruminants in Turkey. Also Turkish Van Orf virus strain was found different (% 98,50- % 99,70 identity) from the other parapoxviruses around the world. This study provides the current informations about Orf virus infection among small ruminants circulating in 2015 in Van province in Turkey.

Keywords: *Ecthyma contagiosum*, Orf, Turkey, molecular characterization

POSTER PRESENTATION ABSTRACTS

Applying Sandwich Bandage on Wild Birds

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Abstract

Orthopedic surgery methods used in fracture cases of mammals can also be successfully used in birds. However, bone structures of birds are different from mammals. Birds have some pneumatic bones and cortical parts of their bones are thin. Besides, bird bones are harder because of higher mineral composition. Extremity bones of birds are tightly surrounded with skin and muscle, therefore traumas usually lead to multiple or open fractures. In this study; external support bandage (sandwich bandage) was applied on 4 hawks, 3 golden eagles, 2 eagle owls and 1 sparrow hawk with non-displaced fractures in wings (radius – ulna – carpometacarpal bones) which were brought to Wild Animal Protection and Rehabilitation Center, University of Yuzuncu Yil and Department of Surgery, Faculty of Veterinary Medicine, University of Yuzuncu Yil. Cardboards are selected as support material and their thickness were adjusted according to the animal species. Stapler was used for fixing the support. The cases were examined radiologically in one week interval. Completely treated and rehabilitated cases were allowed to their natural habitat. As a result, using sandwich bandages is beneficial for non-displaced fractures in birds, because of the rapid healing of the cases and short rehabilitation time for birds.

Keywords: Wild birds, Fracture, Sandwich bandage

Effect on Yields of Foot Diseases in Sheep and Cattle Breeding

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Abstract

Foot diseases in dairy and meat animal breeding cause economically important losses in milk and meat yield. In case the animal's general degradation, and decreased appetite to cause pain these diseases and as a result of watching the lameness. As a result of reduced food intake, in the expected yield and body weight reduction occurs. The formation of foot disease in animal production is due to genetic factors, environmental factors such as conditions inside the barn, nutrition, hygiene and nail care. The treatment for a long time after it is formed, which is troublesome, causing economic losses of foot disease with the minimization of the appropriate measures and completely eliminate the issue in a business is the most desirable. For this purpose, first of all, the incidence of abnormal and foot disease in the company removed from the herd of animals is very important. Secondly, absolutely required routine vaccinations should be applied in cases. The animal treatment should be done without delay and sick animals must be separated from the other animals in barns. Such approaches occur the foot disease will be reduced to a minimum level. Observed economic losses will be eliminated and will contribute to the national economy.

Keywords: Foot diseases, Meat and milk yield, Cattle breeding

An analysis of a monoclonal brain tumor growth with density**Ahmet Şahin¹, Fatma Bozkurt²**¹ Department of Science, Faculty of Education, Erciyes University, Kayseri² Department of Mathematics, Faculty of Education, Erciyes University, Kayserifbozkurt@erciyes.edu.tr**Abstract**

Investigating the growth of tumor is an active research area and has lots of interests in biology, medicine and mathematics. In this work a fractional order logistic equation is considered such as

$$D^{\alpha}x(t) = x(t) \left[\left(r(1 - \beta x(t)) \right) + \gamma x(t) \right] \quad (A)$$

that was previously constructed as a logistic equation with piecewise constant arguments to investigate the behavior of a brain tumor growth [1]. The parameter r and β denote positive real number, γ is a negative number and $0 < \alpha \leq 1$. Eq. (A) explains a brain tumor growth, where γ is embed to show the drug effect on the tumor. To show the analysis in view of the density of the tumor, we have constructed two models; one is Eq.(A) and the other one explains an early brain tumor growth by incorporating Allee function at time t . In this study we show the stability, existence and the uniqueness of both models. Simulations give a detailed description of the behavior of solutions in (A) with and without Allee effect.

Keywords: Fractional order differential equation, stability, existence, uniqueness, Allee effect

Structural and Cytochemical Features of Stigma and Style of *Crataegus tanacetifolia* Lam. Pers.**Aslıhan Çetinbaş Genç, Meral Ünal**

Marmara University, Department of Biology, 34722, Istanbul, Turkey

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The developmental processes in the stigma and style of *Crataegus tanacetifolia* are classified into three stages: pre-anthesis, anthesis and post-anthesis. In pre-anthesis stage, stigma is tight, circular and has smooth surface. Concomitant with anthesis, stigma widens and a small collapse occurs towards to style center. Collapse reaches maximum dimension in post-anthesis. Papillae which are short, rounded and swollen in pre-anthesis, lengthen, lose their rounded shape and appears like cylindrical in anthesis. Together with entering post-anthesis stage, the the expanded papillae secrete their contents and become fractured. The dence cytoplasm of papillae is rich in insoluble polysaccharides and proteins, however it is poor in lipids in pre-anthesis stage. Insoluble polysaccharide and the protein contents of papillae decrease with the start of anthesis. In consequence of cuticula fragmentation and spreading of cytoplasmic contents in post-anthesis stage, insoluble polysaccharides, proteins and lipids in cytoplasm is less than the other stages. In pre-anthesis stage, transmitting tissue of style is not distinctive. Although, it includes plenty of insoluble polysaccharides and proteins in anthesis stage, protein contents decrease remarkably in post-anthesis stage.

Keywords: *C. tanacetifolia*, cytochemistry, develeopmental features, stigma, style

Root and Stem Anatomical Characteristics of Two Endemic subspecies of *Clinopodium troodi* (Post) Govaerts Growing in Turkey

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Abstract

A group of Lamiaceae that has caused confusion over its generic boundaries are those species belonging to the complex surrounding the genera *Satureja*, *Calamintha*, *Micromeria*, *Clinopodium* and *Acinos*. In the current study, root and stem anatomical characteristics of two endemic subspecies of *Clinopodium troodi* (Post) Govaerts, subsp. *grandiflorum* (Hartvig & Å.Strid) Govaerts and subsp. *vardaranum* (Leblebici) Govaerts, previously treated as *Acinos* in Flora of Turkey, is studied for the first time and detailed descriptions of root, stem and trichome structures are described and illustrated. The seconder tissues is only observed in root transverse section of subspecies. The stems are rectangular-orbicular shaped and contain non-glandular and glandular hairs in transverse sections.

Keywords: Anatomy, *Clinopodium troodi*, root, stem, subspecies

Natural Growing Rose hip (*Rosa spp.*) Selections from the Yozgat Province of Turkey**Hatice Uçaral, Aysen Koc**

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Abstract

Yozgat is located in the Central Kızılırmak Division of the Central Anatolia Region on Bozok Plateau in Turkey. Semi-arid climate dominates in Yozgat however, in Çekerek Valley that incoming in Yeşilirmak basin, has mild climate and effects of Blacksea Region has been seen in it. Generally, summers are hot and dry and winters are cold and rainy, and the temperature difference between in day and night are high. It is settled that in Yozgat, there are 213 genus and 399 species that belong to 56 family, 70 of 399 species are determined as endemics. Along with endemics, apples, pears, plums, cherries, peaches, apricots, almonds, walnuts, quinces, native grapes, viburnum are grown; there are also, as wild ones, some fruits such as nuts, cranberries, limes, hawthorn, rosehip, saleps, wild pears, apples.

In our study, genotypes were determined in the rose hips flowering period (31.05-01.07.2015) in the central province of Yozgat and districts. Then fruit period (14-20.09.2015) was revisited these genotypes, fruit samples were taken. The genotypes are the selectin were subjected to physical and chemical properties of the rating scales. Modified weighted grading are considered productivity, fruit weight, fruit flesh ratio, vitamin C content, aroma, total dry matter, total soluble solids and degree of thornless properties. Within the group very well (755-677 scores) enters with 11 genotypes and good group (676-598 scores) enters with 37 genotypes were amplified the wood cuttings and root cuttings during the rest period. Morphological and physiological characterization studies are continuing on this genotype.

Keywords: *Rosa*; selection; fruit properties

A Study on Anatomic, Palynological and Karyological Characteristics of Endemic *Silene ozyurtii***Bayram Atasagun¹, Ahmet Aksoy², Esra Martin³**¹ Erciyes University, Science Faculty, Department of Biology, Kayseri, TURKEY² Akdeniz University, Science Faculty, Department of Biology, Antalya, TURKEY³ Necmettin Erbakan University, Faculty of Science, Department of Biotechnology, Konya, TURKEYbyrmatsgn@gmail.com**Abstract**

Silene L. (Caryophyllaceae) is one of the largest genera of the World's flowering plants. This genus is comprised of about 750 species of which approximately half occur in the Mediterranean area. In Turkey, *Silene* is represented by 31 sections and 165 taxa of which 72 are endemic. *S. ozyurtii* is an East Mediterranean element and grows a chasmophyte on serpentine stony slopes and open forest. In present study, the anatomical, palynological, karyological and seed characters of *S. ozyurtii* was investigated. Anatomically, this species have a typical dicotyledonous root and stem characters. In the leaf anatomy, druse crystals were present in mesophyll tissue and leaf type was ecvifacial. Pollen type of the examined species was prolate-spheroidal, symmetry radially, polarity apolar, aperture periporate, ornamentation microechinate-perforate. Seed of this species was reniform, seed colour dark brown or fuscous, seed surface type concave, seed surface granulation coarse-medium, hylar zone recessed. Somatic chromosome numbers were determined as $2n = 24$ for *S. ozyurtii*. Both chromosome number and karyotype were analyzed for the first time for *S. ozyurtii* in this study. Ideogram of this species was drawn by use of an Image Analysis System.

Keywords: Anatomy, Endemic, Karyotype, Palynology, *Silene*.

In vitro* Callus Regenerations from Petal Explants of *Hibiscus rosa-sinensis**Bahar Aslanbay¹, Begüm Akyol¹, Aynur Gürel¹**¹Department of Bioengineering, Ege University, İzmir/ Turkeybegumakyol.ege@gmail.com**Abstract**

Hibiscus rosa-sinensis L. is a member of Malvaceae family. It's a woody ornamental shrub which well-known with glossy flowers and dark green leaves. These plants are distributed widely in the tropical regions. Due to high secondary metabolite content, it is usually used at Chinese medicine and herbal teas. Especially red flowers are preferred at medicinal uses because of healing properties. Flowers have been found to be effective in the treatment of arterial hypertension. Moreover *Hibiscus rosa-sinensis* L. can be used effectively against pyrexia, diabetes, diarrhea liver disorder and cancer. In this research, sterilization experiments were carried out with the petal explants taken from *H. rosa-sinensis* plant. Then the most appropriate plant growth regulator concentration was determined for the callus regenerations at different culture conditions. HgCl₂ (0.1 %) (2, 4 and 6 min) and NaOCl (20% and 40%) (5, 7.5 and 10 min) were used as sterilization agents. 2,4-D in three concentrations (1.25, 2.5 and 5 mg/L) were added to MS (Murashige and Skoog, 1962) medium for callus regenerations. The best sterilization response was observed at 0.1 % HgCl₂ treatment for 4 min (100% sterilization, 83.3 % survival ratio). The best callus regeneration ratio (81.1 %) occurred at dark conditions when MS medium contained 5 mg/L 2,4-D for 26 days. With this finding obtained from this research, the new sterilization and callus regeneration protocols from petal explants of *H. rosa-sinensis* L. were developed. Also this callus regeneration protocol can be performed in the future for the production of secondary metabolites.

Keywords: *Hibiscus rosa-sinensis* L., Sterilization, Petal, Callus

The Role of Cardiac Markers in Diagnosis of Acute Myocardial Infarction**Behiç Selman Erdoğan¹ Mustafa Yöntem² Fatih Erci² Memduha Öncü³**

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Abstract

Cardiovascular diseases are one of the most important causes of poor health and common reasons of mortality in modern societies currently. According to the World Health Organization criteria which revised in 2000 to put more emphasize on biomarkers, diagnostic of AMI can be listed as cardiac troponin increase accompanied by some factors, including typical syndromes, coronary interference, pathological Q waves, ST depression or elevation. Criteria of AMI can be sorted as typical ischemic chest pain, typical differentiations in serial ECG tracings and rise and/or fall serum levels of cardiac markers. It is necessary to meet at least 3 of the included criteria to diagnose a patient with AMI. The aim of this study was to focus on significance of cardiac markers to identify risk factors. Blood samples of 27 patients which were drawn within 48 hours and of 33 healthy persons as control were analyzed. Data of AMI indicators, which are Troponin T, CK, CK-MB, ALT, AST and LDH, were compared with data of blood lipid parameters, including Cholesterol, Triglyceride, LDL and HDL. Analysis of the computed results show that Troponin T, CK, CK-MB and AST levels were significantly increased ($p < 0,0001$). In addition, there were not determined a correlation between Triglyceride and LDL levels, and Troponin T, CK, CK-MB, AST and LDH levels.

Keywords: Cardiac markers, acute myocardial infarction, blood lipid parameters

Biodiversity and Infestation Rates of Ectoparasites (Arthropoda) on the Birds in Kizilirmak Delta, Turkey**Bilal Dik, Esra Per, Kiraz Erciyas-Yavuz**

Selçuk University Veterinary Faculty Department of Parasitology

Abstract

This study was performed to detect ectoparasites occurred on wild birds captured in Cernek Ringing Station in Kizilirmak Delta in Turkey, between May 2014-October 2015. The birds captured by misnets for ringing were examined for ectoparasites, macroscopically. In this study, 619 bird species were examined for ectoparasites, and out of 106 (%17.12) by lice, 117 (%19) by acari found to be infested. The birds belonging to the 11 orders were found to be infested by lice specimens, while the birds belonging to three orders (Caprimulgiformes, Piciformes, Passeriformes) by acari specimens. In this study, 35 louse species belonging to the 21 genera; six out of Amblyceran (*Actornitophilus*, *Colpocephalum*, *Menacanthus*, *Meromenopon*, *Myrsidea*, *Ricinus*) and 15 out of Ischnoceran (*Alcedofulla*, *Ardeicola*, *Brueelia*, *Degeeriella*, *Goniodes*, *Lipeurus*, *Luniceps*, *Maculinirmus*, *Meropoecus*, *Meropsiella*, *Mulcticola*, *Penenirmus*, *Phlopterus*, *Quadriceps* and *Rallicola*) were detected. Seventeen acari species; *Analges chelopus*, *Analges spiniger*, *Analges mucronatus*, *Dolichodectes edwardsi*, *Joubertophyllodes modularis*, *Pterodectes rutilus*, *Proctophyllodes anthi*, *Proctophyllodes cetti*, *Proctophyllodes clavatus*, *Proctophyllodes doleophyes*, *Proctophyllodes leptocaulus*, *Proctophyllodes mesocaudatus*, *Proctophyllodes sylvia*, *Proctophyllodes truncatus*, *Strelkoviacarus quadratus*, *Trouessartia swidwiensis* and *Trouessartia simillima* were detected in this study.

* The study was financially supported by the Research Fund of the Selçuk University (Project number: 14401039).

Antioxidant extracts of *Tricholoma terreum* induce cytotoxicity in liver hepatocellular carcinoma cell line HepG2**Bugrahan Emsen, Abdullah Kaya, Gökhan Sadi**

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Abstract

In this study, it was determined cell growth inhibitory potential of an edible mushroom, *Tricholoma terreum* on HepG2 cells together with their antioxidant power. Antioxidant activities methanolic and aqueous extracts of *T. terreum* were assayed by using 2,2-diphenyl-1-picrylhydrazyl (DPPH) scavenging activity, reducing power and iron chelating. Furthermore, total phenol, flavonoid, β -carotene and lycopene contents of these mushroom extracts were also determined. All extracts exhibited potent and concentration dependent free radical scavenging activity in all the assays tested. For DPPH scavenging activity, IC₅₀ values of methanol and water extract were 66.507 and 31.426 mg/ml, respectively. Reductive abilities of these extracts were also found an increasing in a concentration-dependent manner. For reducing power, EC₅₀ values of methanol and water extract were 46.572 and 5.441 mg/ml, respectively. IC₅₀ values for chelating on ferrous ions were 1.623 (for methanol extract) and 2.179 (for water extract) mg/ml. Total phenol, flavonoid, β -carotene and lycopene content determination showed that all the extracts are rich in antioxidant compounds. The highest quantity was determined in total phenol content (8 μ g/mg) for methanol extract. When cytotoxic effects of two extracts were investigated after 48 and 72 h, it was determined that cell viability decreased depending on passing of time. When compared the IC₅₀ values, the highest cytotoxicity capacities were determined after 72 h. While 72 h IC₅₀ value of methanol extract of *T. terreum* was 6.651 mg/ml, 72 h IC₅₀ value of water extract was 26.063 mg/ml. At the same time, IC₅₀ values of two extracts after 48 and 72 h were statistically ($p < 0.05$) different from each other. The present study shows that tested extracts demonstrated a strong antioxidant and anticancer effect.

Keywords: Antioxidant activity, Cytotoxicity, HepG2, Macrofungi

Water table and character species relationships in different swamp forests (N of Turkey)**Burak Sürmen¹, Hamdi Güray Kutbay², Hacer Babur²**¹ Department of Biology, Faculty of Science, Karamanoglu Mehmetbey University, Karaman² Department of Biology, Faculty of Science, University of Ondokuz Mayıs, Samsunburaksurmen@gmail.com**Abstract**

The distribution of swamp forest plant species is largely driven by hydrologic variables. Plant communities of these forests are closely related with water table levels. In four swamp forests belonging different degree of destruction in north Turkey, we examined relationships between distribution and densities of character plant species and water table levels. We determined 400 m² study area and it was established in homogeneity places in each forest. Six sample plots were established in each study area for determining species composition and percent cover-abundance. Piezometers were placed at medium of study areas. Water table levels and species composition were determined by seasonally (April, July and October) in 2015. The study objectives were (1) to characterize and compare seasonal patterns of water table, (2) to compare plant species composition and distribution and (3) to relate water table levels and plant composition and distribution. Three distinctive water table patterns were identified in four studied forests. Only Haciosman (Samsun) and İğneada (Kırklareli) swamp forests have got similar water table pattern but swamp forests in Sinop and Sakarya have got different water table patterns. These results are closely effective with plant species composition and distribution. So that, maximum character plant species were determined in Haciosman and as secondly in İğneada. But in the other forests, we determined less plant species than Haciosman and Sarıkum. These results suggest that the plant species composition and distribution observed in swamp forests is strongly related to water table levels.

Keywords: Swamp forest, Water table, Plant species**Acknowledgment:** This study was supported by the Ondokuz Mayıs University through the Scientific Research Project commission (Project no: PYO.FEN.1904.15.027).

Metal Accumulation in Tissues of *Capoeta bergamae* Karaman, 1969 (Cyprinidae, Teleostei) from Köyceğiz Lagoon System, South-West TURKEY**Tuncer Okan GENÇ¹, Fevzi YILMAZ¹ and Burak ŞEN²**

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Muğla Sıtkı Koçman University, Graduate School of Natural and Applied Sciences 48000, Kötekli Muğla, Turkey

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The present study investigated metal accumulation in tissues of *Capoeta bergamae* and its relation to individual mean (multi-metal) bioaccumulation index (IMBI). Metals in fish were analyzed by ICP-AES (Inductively Coupled Plasma-Atomic Emission Spectrometry). Metal accumulation of *C. bergamae* was investigated three seasons on 2011. The average maximum concentrations of Cd (0.592 ± 0.32), Co (0.786 ± 0.53), Cu (71.682 ± 66.01) and Fe (159.569 ± 102.48) were determined high in liver on spring, while Zn (86.875 ± 93.76) and Se (2.297 ± 2.00) concentration was found high in liver on winter. On the other hand, Mn (16.354 ± 8.87), Cr (5.789 ± 8.36) and Al (91.796 ± 47.46) concentrations were found highly in muscle on winter. Generally, higher concentrations of the measured metals were found in the spring compared with those during autumn and winter. IMBI values varied from 0.07 to 0.41, 0.03 to 0.31 and 0.04 to 0.34 in liver, muscle and gill respectively. Generally, mean IMBI values calculated in liver (0.18 ± 0.09) were higher than other tissues (0.14 ± 0.08 for muscle and 0.16 ± 0.09 for gill). Average Cd and Pb concentrations in the fish muscle were higher the maximum allowed concentrations for human consumption.

Keywords: Metal, *Capoeta bergamae*, bioaccumulation index, Köyceğiz, Turkey

Determination of biological activity of *Aster squamatus* (Spreng.) Hieron.**Saime Gülsüm Taşcıoğlu¹, Çiler Kartal¹, Şebnem Selen İşbilir²**¹Department of Biology, Faculty of Science, Trakya University, Edirne, TÜRKİYE²Department of Chemistry, Faculty of Science, Trakya University, Edirne, TÜRKİYEcilermeric@yahoo.com**Abstract**

In this study, the total phenolic contents and total flavonoid contents of the methanol, chloroform and petroleum ether extracts of flowers, leaves and ramuses of *Aster squamatus* (Spreng.) Hieron. (Asteraceae) were determined to be gallic acid equivalent and quercetin equivalent, respectively. The antioxidant activities of the extracts were determined by using three different methods, namely, 2,2-diphenyl-1-picrylhydrazyl (DPPH), free radical scavenging, the β -carotene bleaching method and superoxide anion radical scavenging activity assays, while their antibacterial activities were determined by the disc diffusion method. In the total phenolic and total flavonoid methods, the richest extract was found to be methanol extract. The chloroform and petroleum ether extracts showed inhibition below 50% in the DPPH free radical scavenging method, but the methanol extract at a concentration of 500 $\mu\text{g/mL}$ -plus showed 80% activity. The superoxide anion radical scavenging activities of all extracts were almost similar and showed no significance. The chloroform and petroleum ether extracts showed the highest activity in the β -carotene bleaching method. In this method, all extracts possessed comparable activity with butylated hydroxyanisole (BHA), butylated hydroxytoluene (BHT) and α -tokoferol standards at a concentration of 500 $\mu\text{g/mL}$. EC₅₀ valuations were calculated in the DPPH free radical scavenging method and the β -carotene bleaching method. The disc diffusion method, in which no inhibition zones occurred, showed that the extracts had no antibacterial effects on standard test bacteria *Staphylococcus aureus* ATCC29213, *Klebsiella pneumoniae* ATCC33495, *Enterococcus faecalis* ATCC29212 and *Pseudomonas aeruginosa* ATCC27853.

Keywords: *Aster squamatus*, Asteraceae (Compositae), antioxidant activity, antibacterial activity

Effects of Pruning Severity Applications on Yield and Quality of Grape in Erciř Grape Cultivars (*Vitis vinifera* L.)

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Abstract

In order to determine effects of different pruning severity applications on yield and quality of grape in Erciř grape cultivars, this research was carried out in 2014. Vines with goblet training system on their own roots were pruned to bud load levels as 16 bud per vine (2 bud×8 canes), 24 bud per vine (3 bud×8 canes) and 32 bud per vine (4 bud×8 canes) for winter pruning. Compared to the application of 16 bud per vine, the application of 32 bud per vine increased vine per yield 55 % ; on the contrary decreased bunch weight 17 %, bunch width 25.2 %, bunch length 12.5 %, berry width 10.9 %, berry length 6.7 %, berry weight 22.7 %, soluble solids content 2.6 %.

Keywords: Erciř grape, Pruning severity, Yield, Quality.

Occurrence and infection dynamics of *Salsuginus* sp. (Monogenea, Ancyrocephalidae) in four endemic *Aphanius* (Cyprinodontidae) species from Turkey**D. Innal¹, M Yıldıırım², M. M. Stavrescu-Bedivan³, S.S. Güçlü⁴, M.C. Ünal¹, B. Doğangil¹**¹ Mehmet Akif Ersoy University, Department of Biology, Burdur, Turkey² Cumhuriyet University, Department of Biology, Sivas, Turkey³ University of Agronomic Sciences and Veterinary Medicine Bucharest, Romania⁴ Süleyman Demirel University, Eğirdir Fisheries Faculty, Isparta- Turkeyinnald@gmail.com**Abstract**

A study was undertaken to assess the prevalence, mean intensity and seasonality of *Salsuginus* sp. infestation of four endemic *Aphanius* species from southwest part of Turkey. Infection dynamics of *Salsuginus* sp. in the gills of *Aphanius transgrediens* (Lake Acıgöl), *Aphanius splendens* (Lake Salda), *Aphanius sureyanus* (Lake Burdur) and *Aphanius anatoliae* (Lake Eğirdir) were studied between March 2014 and February 2015. In total, 71 *A. transgrediens*, 65 *A. splendens*, 47 *A. sureyanus* and 143 *A. anatoliae* specimens were examined. The overall parasite prevalence and mean intensity (MI) respectively for the fish species were: 5.63 and 1.5; 3.08 and 1; 4.26 and 1.5; 2.1 and 1. The results show that highest prevalence and mean intensity of infection was recorded in *A. transgrediens*. Generally, prevalence of the infection was found higher during autumn period. Infection dynamics of *Salsuginus* sp. have been recorded and is compared with other studies.

Keywords: *Aphanius transgrediens*, *Aphanius splendens*, *Aphanius sureyanus*, *Aphanius anatoliae*, *Salsuginus* sp.

Plant Based Study on Removal of Some Polluter Parameters in the Leakage Waters**Dilek DEMİREZEN YILMAZ^{1*}, Süheyla TANÇ², Fatih Doğan KOCA¹**¹Erciyes University, Faculty of Sciences Department of Biology, Kayseri, Turkey²Erciyes University, Graduate School of Natural and Applied Sciences, Turkey**Abstract**

In this study, the treatment of some polluter parameters and heavy metals in the leakage water collected from Kayseri Waste Dumping Site was investigated by the phytoremediation with using *Myriophyllum spicatum* (Haloragaceae). It was aimed that the negative effects of leakage water from Waste Dumping Sites to the environment were minimized and treated by aquatic plant in the system. In this study, removal efficiency of the average BOD, COD, ammonium, nitrate and phosphate and, heavy metal (Cu, Mn, Pb, Ni) concentrations was investigated. The ratios obtained were found as 71 %, 69.54%, 93.79%, and 61.99% respectively. And then, heavy metal accumulation in *M.spicatum* was calculated in terms of mg/kg dry weight. At the end of the study, *M.spicatum* provided the metal removal Cu, Pb, Ni, and Mn in the leakage water as the ratio of 94.00%, 86,45%, 66,85%, 79.91%, and 82.20% respectively. In this study, the growth and ratio of photosynthetic pigments were determined to evaluate the phytotoxicity of the waste water in the different exposure concentrations. A significant decrease was observed in the growth rate and chlorophyll contents as a result of exposure to leakage water from Waste Dumping Sites. The results showed that this submerged aquatic plant *M. spicatum* can be successfully used for heavy metal and some water pollutants removal.

Keywords: Leakage water, *M. Spicatum*, phytoremediation, heavy metal, BOD, COD

The Effects of *Pimpinella peregrina* Essential Oil on Anxiety and Depressive-like Behaviors in the Scopolamine Rat Model of Alzheimer's Disease

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Abstract

Pimpinella peregrina is a member of the Apiaceae family comprising approximately 150 species distributed in the northern hemisphere. The seeds of *Pimpinella* species have been used in folk medicine, pharmacy and food industry, mainly due to its essential oil attributes. Neuropsychiatric symptoms such as depression, apathy, aggression, and psychosis are recognized as core features of Alzheimer's disease. In the present study, we identified the effects of inhaled *Pimpinella peregrina* essential oil (1 and 3 %, for 21 continuous days) on scopolamine-induced anxiety, and depression in laboratory rats. The anxiety and depressive responses were studied by means of the elevated plus-maze and forced swimming tests. The scopolamine alone-treated rats exhibited the following: decrease of the exploratory activity, the percentage of the time spent and the number of entries in the open arm within elevated plus-maze test and decrease of swimming time and increase of immobility time within forced swimming test. Inhalation of the *P. peregrina* essential oil exhibited anxiolytic- and antidepressant-like effects in scopolamine-treated rats. Our results suggest that the *P. peregrina* essential oil inhalation ameliorates scopolamine-induced anxiety, and depression. Moreover, studies on the *P. peregrina* essential oil may open a new therapeutic window for the prevention of neurological abnormalities closely related to Alzheimer's disease.

Keywords: *Pimpinella peregrina* essential oil, anxiety, depression, Alzheimer's disease

Optimization of ISSR-PCR for Invasive Aquatic Plant *Eichhornia crassipes* in Turkey**Emel Sözen, Muhip Hilooğlu**

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Eichhornia crassipes (Mart.) Solms (Pontederiaceae) is a perennial aquatic invasive weed throughout the tropical and subtropical regions of the world. In recent years, *E. crassipes* (also called water hyacinth) was spread from Syria to Turkey on Asi River. Therefore, knowledge of population structure and genetic variation of this exotic plant species will reveal its population dynamics and this knowledge will provide valuable data for design of management strategies on Asi river. PCR based inter simple sequence repeats (ISSR) have been widely used to survey population genetic structure. ISSR protocol was optimized for water hyacinth based on concentrations of MgCl₂, primer, dNTP and template DNA. Clear and reproducible amplifications were obtained by using 2.2 mM MgCl₂, 2 µM primer, 2.5 mM dNTPs and 8 ng template DNA. Among 45 ISSR primers tested, 20 of them (GAG(CAA)₅, (CAG)₅, (GA)₈YC, (GA)₈T, (AC)₈YT, (GA)₈A, (AG)₈T, (AG)₈C, (AC)₈C, (AGC)₆G, BDB(ACA)₅, DBD(AC)₇, DD(CGA)₅, (AG)₈YT, (CT)₈G, (TC)₈C, (CA)₈RC, (AGT)₆, BDB(CA)₇ ve (CCG)₆) have produced satisfactory results. The optimized ISSR-PCR procedure will be employed to study the population genetic structure of *E. crassipes* in future.

Keywords: *Eichhornia crassipes*, Asi River, ISSR, PCR optimization

The diagnostic value of an immunochromatographic test in cystic echinococcosis in human**Sema Ertug¹, Hatice Ertabaklar¹, Erdogan Malatyali¹, Sercin Ozlem Caliskan²**¹ Department of Parasitology, Faculty of Medicine, Adnan Menderes University, Aydin² Department of Biophysics, Faculty of Medicine, Adnan Menderes University, Aydinerdogan.malatyali@adu.edu.tr**Abstract**

E. granulosus is the causative agent of Cystic echinococcosis (CE) which is a disease of mainly livestock. The infection is transmitted to humans by ingesting *E. granulosus* eggs released in the faeces of dogs. The larval stage of parasite develops a slowly enlarging cyst in visceral organs mainly liver and/or lung. CE may be considered as an important public health problem in Turkey, because of causing morbidity and economic losses. The aim of the present study was to evaluate diagnostic value of an immunochromatographic test (ICT) for CE. Total 50 sera from surgically and/or pathologically confirmed CE patients were included in the study as study group; control group was the patients who were ELISA negative. Sera were selected from collection at Adnan Menderes University, Faculty of Medicine, Parasitology Laboratory by simple random sampling. The collection was composed of sera collected between 2010 and 2014, antibody titers of each serum was determined with in-house ELISA before storage at -20°C. The presence of *E. granulosus* antibody in sera was determined with a commercially available ICT (VIRapid® HYDATIDOSIS) and in-house Western Blotting methods. In the study group (*E. granulosus* confirmed cases), two (4%) of the 50 sera were negative with ICT, 48 (96%) were positive. In the control group (ELISA negative) all were negative with ICT. We found nine antigenic bands with molecular weights of 8 kDa to 110 kDa in study group with WB analysis; the number of bands and densities varied according to the antibody titers of sera. Moreover, no antigenic band was detected in sera of control group. The sensitivity and selectivity of ICT was %96 and %100, respectively, if WB accepted as golden standard. It may be concluded that ICT has significant advantages because it allows testing without any equipment; the method is fast and more individuals can be studied in short time. The current study highlights the importance of ICT; however, further studies are needed regarding the possible cross reactions in extended series of cases.

Keywords: *E. granulosus*, immunochromatographic tests, western blotting

The Determination of Yenice Dam Lake's Water Quality

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Abstract

Yenice Dam is located on the Sararya River for the purpose of electric supply. Heavy industry on the basin, urban and agricultural activities are the most important pollution sources for the Sakarya River Basin. In this study, aimed at determining the seasonal variations with physiochemical parameters of the water quality of the Yenice Dam Lake. Water samples were taken seasonally period during 2015-2016 from two selected stations. Water quality parameters (temperature, pH, dissolved oxygen, turbidity, salinity, conductivity, ammonium nitrogen, nitrite nitrogen, nitrate nitrogen, sulphate, phosphate, biochemical oxygen demand and chemical oxygen demand) were investigated in order to determine the water quality of Yenice Dam Lake. Our results indicated that Yenice Dam Lake was significantly exposed to intensive organic pollution.

Keywords: Water Quality, Yenice Dam Lake, Organic pollution

Gastro-Intestinal Parasites Detected by Coprological Examination in Stray Dogs in Erzurum, Turkey

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Abstract

The aim of this study was to investigate the prevalence of gastro-intestinal parasites affecting stray dogs in Erzurum, Turkey. A total of 88 fresh faecal samples were collected from stray dogs with different age and sex groups. Coprological examination by Fulleborn flotation, Benedek sedimentation and Bearman-Wetzell techniques was performed to determine parasitic oocysts, eggs and larvae. Helminth and protozoan parasites were found in faeces of 88 dogs with an overall prevalence of 67% (helminth 39.8% and protozoan 47.7%). Identified parasites and their prevalences were as follows: *Isospora* spp. 21.6%, *Sarcocystis* spp. 29.5%, *Taeniidae* spp. 19.3%, *Toxocara canis* 15.9%, *Toxascaris leonina* 11.3% and *Uncinaria stenocephala* 7.9%. Dogs harbouring a single parasite species were more common (40.9%) than those harbouring 2 (18.2%) or multiple (7.9%) species. Consequently, it was considered that stray dogs in Erzurum were infected by zoonotic helminths such as *Taeniidae* spp., hookworms and *Toxocara canis* therefore control measures against these threats should be taken.

Keywords: Stray dog, parasite, helminth, protozoan, Erzurum

In Vitro* Germination Responses of Seeds in *Cercis siliquastrum**Esra İLHAN¹, Aynur GÜREL¹**¹ Bioengineering Department, Faculty of Engineering, Ege University, Izmiresrailhan01@gmail.com**Abstract**

Cercis siliquastrum, commonly known as the “Judas tree” is used as an ornamental landscape tree due to magnificent pink-purple inflorescences. Also it is cultivated for windbreak purposes. Because of an impermeability of the seed coat and the presence of ferulic acid as a chemical inhibitor, the seeds of *C.siliquastrum* have physical and physiological dormancy. *C.siliquastrum* seeds were harvested from an adult tree in the Ege University Campus in Izmir. They were shaken soapy water containing 0.1% Tween-20 for 5 minutes and rinsed running the tap water. After the seeds divided into two groups; they were soaked either with 1 g/l GA₃ or deionized water at 25°C for 4 h. The seeds exposed to pre-treatments were sterilized by 0.1% HgCl₂ for 3 minutes and rinsed three times with sterile water. They were cultured in MS or WPM nutrient media containing with 3% sucrose and 0.7% agar without hormones and incubated at dark and also 16 h photoperiod at 4000 lux photon flux (25±1°C) *in vitro* conditions. Eight culture combinations were created: GA₃-light-MS-seeds, GA₃-light-WPM-seeds, GA₃-dark-MS-seeds, GA₃-dark-WPM-seeds, water-light-MS-seeds, water-light-WPM-seeds, water-dark-MS-seeds and water-dark-WPM-seeds. Among them the best germination ratio was obtained from GA₃-light-MS-seeds and GA₃-light-WPM-seeds as 27.8% evenly. Following that GA₃-dark-MS-seeds and GA₃-dark-WPM-seeds had same germination ratios as 23.2%. The worst germination values as 5.6-16.7% were obtained from the other water soaking experiments without considering the other culture conditions. GA₃ pre-treatment was identified the major factor for germination of *C.siliquastrum* seeds and also the presence of light had the supporting effect together with this.

Keywords: *Cercis*, Judas tree, *in vitro*, germination, GA₃

A New Analysis with Fuzzy Initial Condition for a Tumor and Immune System Interaction Model

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Abstract

Cancer is one of the most important diseases in the world, where different fields are working on the treatment processes. Modeling the spread of this disease is one of the tools, that shows a high contribution in medicine, where mostly differential equations are used to explain this phenomenon. This paper is based on an interaction between a monoclonal tumor and the macrophages, which shows a prey-predator structure. The biological interaction phenomenon is explained by using fuzzy initial values and the concept of generalized differentiability. The simulations have shown interesting results comparing the differential equation model and the one with fuzzy initial values.

Keywords: Fuzzy number, Fuzzy derivative, Fuzzy differential equations (FDE), Fuzzy initial values.

Green synthesis of zinc nanoparticles using extracts of *Hibiscus sabdariffa* and their antimicrobial activities

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Abstract

This study reported to the biosynthesis potentials of flower extracts of *Hibiscus sabdariffa* for production of zinc nanoparticle without use of any external reducing or capping agent. The appearance of dark brown color indicated the complete nanoparticle synthesis which was further validated by absorbance peak by UV-vis spectroscopy. The morphology of the synthesized particles was characterized by scanning electron microscopy (SEM). The X-ray diffraction (XRD) patterns clearly illustrated the crystalline phase of the synthesized nanoparticles. Fourier Transform Infrared (FTIR) spectroscopy was performed to identify the role of various functional groups in the nanoparticle synthesis. The bio-synthesized nanoparticles showed promising antimicrobial activity against Gram negative (*Escherichia coli*) and Gram positive (*Staphylococcus aureus*) bacteria. The biologically synthesized zinc nanoparticles showed promising activity against all the tested pathogenic strains and the activity has been enhanced with the increased concentration.

Keywords: Green synthesis, zinc nanoparticle, antimicrobial activity

Stability analysis of a monoclonal tumor growth with piecewise constant arguments

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Abstract

This study is concerned a brain tumor growth model with piecewise constant argument, where we embed $[t]$ and $[t-k]$ as coefficients to the equation to emphasize the treatment therapy for specific time. We construct the study as following:

$$\frac{dx(t)}{dt} = x(t)r \left(1 - \alpha x(t) - \beta_0 [t]x([t]) - \beta_1 [t-k]x([t-k]) \right) - \gamma_1 [t]x(t)x([t]) - \gamma_2 [t-k]x(t)x([t-k]),$$

where the parameters $\alpha, \beta_0, \beta_1, \gamma_1, \gamma_2$ and r belongs to R_+ , $[t]$ is the integer part of $t \in [0; \infty)$ and $k \in N$, where γ_1 is embedded to show the effect of the treatment on the tumor, while γ_2 represents the rate that causes a negative effect from the immune system to the tumor population. In this work we have constructed two models; in the first one we consider a monoclonal growth around the positive equilibrium point, in the second one, we analyzed the growth in case of early detection of the tumor are negative numbers and $[t]$ is the integer part of $t \in [0, \infty)$ and $k \in N$. is embed to show the effect of the treatment on the tumor and is a rate that causes a negative effect from the immune system to the tumor population. To investigate the global behavior of this equation, the discrete solutions has been investigated.

Keywords: DE with piecewise constant argument; local stability, global stability, damped oscillation, Allee effect

Food Plants Used In Uzunköprü Town From Edirne**Fatma Güneş**

Trakya University, Faculty of Pharmacy, Department of Pharmaceutical Botany Edirne 22100, Turkey

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In this study, the utilization of the plants by the local people in Uzunköprü and surrounding villages were investigated. Interviews were carried out face-to-face with the community. At the end of the field studies, 85 taxa included in 29 families, which are food used, were recorded. The most commonly used species; *Brassica nigra* (hardal), *Capsella bursa* (kaşıkçalan, kazdişi), *Chenopodium album* (sirken), *Malva sylvestris* (ebegömece, gümülcün otu), *Papaver rhoeas* (gelincik), *Polygonum cocnatum* (kazotu), *Portulaca rousii* (semizotu), *Prunus spinosa* (güvem), *Pyrus elaeagnifolia* subsp. *bulgarica* (ahlat), *Raphanus raphanistrum* subsp. *raphanistrum* (eşek turbu), *Rosa canina* (köpek gülü), *Rubus sanctus* (karamık), *Rumex acetosella* (kuzukulağı), *Rumex crispus*, (labada), *Scorzonera cana* var. *cana* (tellice), *Silybum marianum* subsp. *marianum* (sütlü kengel), *Stellaria media* (kuşotu), *Trapa natans* (çökelek), *Urtica dioica* (ısırgan), *Urtica urens* (ısırgan, ısıran). The scientific names of the plants, local names, families, useable parts and forms of utilization were listed alphabetically in the tables.

Keywords: Ethnobotany, Food Plants, Turkey, Uzunköprü

Economic Dimensions of Thyme (*Thymus* sp. and *Origanum* sp.) in Turkey.

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Abstract

Thymus and Origanum species have very importance place between the most important medicinal and aromatic plants. They are recommended as a aromatic and medicinal plants because of the therapeutic properties of their essential oils. Also Thymus and Origanum species are commonly used in folk medicine as a spice and their species are known as a principal source of antioxidant compounds. In this study, output, cultivation area, contribution to the efficiency and price studies of Thymus and Origanum species that grown in Turkey between the dates of 1988-2015 were investigated.

Keywords: Economy, Thymus, Origanum, Agriculture, Turkey

Aging and Suicide: Physiopathology of Suicide and Relation with Aging

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Abstract

The purpose of this study is to define suicide case and evaluate the physiological connections between aging and suicide. Therefore, TÜİK (Türkiye İstatistik Kurumu) data and medical-physiological sources were searched and summarized for this purpose. According to TÜİK data, suicide is situation to kill by oneself as a result of a psychical conflict. Age of 65 is a limit age for elderliness that is accepted by World Health Organization (WHO) and when it is investigated of special suicide velocity, it is seen that, age group of 75+ is responsible for the highest rate of suicide in all age groups as the rate of 8,08th of hundred thousand in our country. According to 2013 data, there are 373 people suicided whose ages are over 65. 100 people of them are known to suicide because of health dysfunctions; however, we do not know the reason of suicide 215 of them. Between 2002-2011, %23,276 of all reported dead-ended suicide cases were associated with an illness. Dysfunctions of body functions, neurological deformations and insufficiency of psychological functions are known to play the most important role for suicide of elderly people. To understand physiopathological reasons of suicide of elderly people makes it possible to help elderly people to solve problems and to deal with this entire chaotic situation. It is thought that we could manage to help elderly people only if it could be organized mutualistic effort together with studying groups on health, social helping, philosophy and/or sociology.

Keywords: Suicide, Aging, Physiopathology, TÜİK data

A New Natural Host of *Apple mosaic virus* : *Berberis thunbergii atropurpureum*

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Abstract

Apple mosaic virus (ApMV), a pathogen of stone and pome fruit trees in the world, shows great variability in its biological and molecular properties. *Berberis thunbergii atropurpureum* plants with systemic symptoms consisting of light and dark red mosaic patterns were collected in Ukraine in 2008 and 2009 and subjected to DAS-ELISA and RT-PCR tests. They were all positive against ApMV antiserum in DAS-ELISA and isolated RNAs were all amplified with ApMV primer set. RT-PCR amplified products of all isolates were subjected to restriction enzyme treatment and the results used to generate similarity coefficient dendrograms. *B. thunbergii atropurpureum* isolates were shown as a separate and new ApMV genotype among the other genotypes tested therefore, *B. thunbergii atropurpureum* was a new host of the pathogen for the world.

Keywords: *Apple mosaic virus*, *Berberis thunbergii atropurpureum*

Genotoxic Effects of Aluminum Oxide Nanoparticles in *Triticum aestivum* (wheat) Characterized by ISSR Analysis**Mehmet Emin Uras, Fatma Yanık, Filiz Vardar, Ibrahim Ilker Ozyigit**

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Abstract

The development of nanotechnologies has increased the amount of manufactured metal oxide nanoparticles emerging environmental pollution. Aluminum oxide nanoparticles (Al_2O_3 NPs) have wide range of applications in industrial as well as personal care products. In the present study, wheat (*Triticum aestivum* L. cv Demir 2000) roots were exposed to different concentrations of 13 nm sized Al_2O_3 NPs (1, 5, 10, 25 and 50 mg/ml) for 96 h, to reveal the genotoxic effects of Al_2O_3 NPs. Genomic DNA isolated from control and treated seedlings was used for inter-simple sequence repeat (ISSR) with 6 ISSR primers. The amplified products of ISSR primers were detected along with molecular weight marker by gel electrophoresis on 1,5% agarose gels prepared with 0,5x Tris-Borate-EDTA (TBE) buffer at 200 V for 1 hr. After staining with red safe (1/20000), the amplified products were visualized and recorded under UV light using the Genoplex UV transilluminator system. In ISSR analysis no polymorphic fragment was observed even in the highest dose 50 mg/ml. According to our observations monomorphic fragmentations suggest that the plant material may indicate a tolerant variety or the used ISSR primers are not suitable for exhibiting the genotoxic effects of Al_2O_3 NPs.

Keywords: Al_2O_3 nanoparticles, ISSR, *Triticum aestivum*, wheat.

The Molecular Detection of Lumpy Skin Disease Virus from infected cattle in Turkey.**Firat Doğan¹, Touraj Aligholipour Farzani², Veysel Soydal Ataseven¹, Seval Bilge Dağalp²**¹Mustafa Kemal Üniversitesi Veteriner Fakültesi Viroloji Anabilim Dalı, Hatay, Türkiye.²Ankara Üniversitesi Veteriner Fakültesi Viroloji Anabilim Dalı, Ankara, Türkiye.firat9837@gmail.com**Abstract**

Lumpy skin disease virus (LSDV), member of Capripoxvirus genus and Poxviridae family, is a DNA virus which is antigenically related to Sheeppox and Goatpoxviruses. Virus transmission occurs mainly via insect vectors however other routes like secretion and excretion sometimes play role in the spread of infection among the cattle. The most characteristic symptoms of disease are the lymph nodes enlargement and nodule-like lesions on the skin of infected animals. Besides, fever, salivation, lacrimation, conjunctivitis and corneal opacity are common symptoms. Due to the mentioned symptoms the LSD disease's differential diagnosis must be conducted with other diseases like Malignant Catarrhal Fever (MCF, Coryza). Morbidity rate of the virus is high but the mortality is generally rare. However due to the milk drop, abortion, infertilities, production loss and decreased skin quality, this infection causes important economical losses. LSD is endemic in Africa but the last years disease begins to spread to the other countries. In Turkey, the disease has been detected for the first time in 2013 in East Mediterian Province and then started to spread and cause anormous economic losses through the other regions of country. The rapid detection of LSD disease is so important during the control programs due to the similar symptoms of the other diseases. By considering all the facts about this disease, we have analysed the required materials from skin nodules, ocular swabs from animals showing conjunctivitis and corneal opacity and conducted PCR that detects viral attachment protein of the virus and as a result we have demonstrated all the mentioned animals as positives. The proper transportation of the LSDV suspicious samples to the laboratories is an important factor in rapid detection of the disease, designing the correct plan to control against (like quarantine or vaccination) and finally prevention of the more economic losses.

Keywords: Lumpy skin disease, PCR, pox virus, cattle.

Stereologic Study on Thoracal Segments of Spinal Cord of Quail

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Abstract

In this study, volume density of white and grey matter of thoracal segments of spinal cord of quail's was investigated stereologically. Six mixed gender quails were used. All animals were fixed by perfusing 10% buffered- formalin. After perfusion, quails were kept at 10% formaldehyde. Afterwards spinal cords of quails were dissected. Spinal cords were removed. Tissue specimens of thoracal spinal cord were obtained. Then these tissue specimens were cut every fiftieth section at 5µm thickness by microtome. And mean six or seven sections were taken. Then these sections were stained by hematoxylin eosin and photographed. Density of volumes of all tissue of thoracal segments of whole spinal cord and substantia alba and substantia grisea were estimated with Principle of Cavalieri. As a result, at thoracal segments of spinal cords, volume of substantia alba and volume of substantia grisea were realized the value of density of volume each other at the light of literatures.

Keywords: Quail, Spinal cord, Stereology, Thoracal.

Zooplankton Fauna of Bozova District Coastal Region of Atatürk Dam (Sanliurfa, Turkey)

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Abstract

Atatürk Dam Lake is the largest reservoir of Turkey. This reservoir is located within the boundaries of Şanlıurfa-Adiyaman. This study was conducted to determine some physico-chemical parameters and the zooplankton fauna of Bozova region (from Barage to Tunnel) of Atatürk Dam Lake. For this purpose, four stations were selected and sampling was conducted on a monthly basis from November 2011 to October 2012. During the period of investigation 59 species of zooplanktons representing 3 groups namely Rotifera, Cladocera and Copepoda were determined. Rotifera included 46 species, Cladocera 12 species and Copepoda 1 species were identified. All of the species identified in this study are new records for Atatürk Dam Lake.

Keywords: Zooplankton, Rotifera, Cladocera, Copepoda, Atatürk Dam Lake, Şanlıurfa, Bozova District

Rumen Ciliate Protozoa of Domestic Cattle (*Bos taurus taurus* L. 1758) in Kastamonu, Turkey, with the Description of a New Species**Gözde Güreli**

Department of Biology, Faculty of Sciences and Arts, Kastamonu University, Kastamonu, Turkey

ggureli@kastamonu.edu.tr, ggureli@yahoo.com**Abstract**

Species composition and distribution of rumen ciliate protozoa were investigated in the rumen contents of 25 domestic cattle (*Bos taurus taurus* L.) living in Kastamonu, Turkey. Forty-seven species and 37 morphotypes in 15 genera were identified. Of them, one new *Ostracodinium* species was recognized, then described as *Ostracodinium anatolicum* n. sp. This new species has two caudal lobes, ventral lobe is triangular shaped and directed to dorsal side like a thick hook. In this new species, anterior end of the macronucleus bends toward the left like a hook. The density of ciliates in cattle was $96.8 \pm 43.3 \times 10^4$ cells per mL and the mean number of ciliate species per host was 14.2 ± 4.4 . *Entodinium longinucleatum*, *E. nanellum*, *E. simulans* and *Isotricha prostoma* were the most abundant, each with an incidence of 88%. *E. chatterjeei*, *E. bifidum* m. *monospinosum*, *Hsiungia triciliata*, *Oligoisotricha bubali*, *Ostracodinium dogieli*, *O. mammosum* and *O. munham* are new host records for cattle from Turkey.

Keywords: Ciliate, Cattle, *Ostracodinium anatolicum* n. sp., Kastamonu, Turkey

Comparative Anatomy, Micromorphology and Morphometry of Some Rhizomatous Orchid Species (Orchidaceae) from Turkey**Gülcan Şenel¹, Mustafa Kemal Akbulut¹, Şenay Süngü Şeker¹, Öznur Ergen Akçin²**¹Department of Biology, Faculty of Arts and Sciences, Ondokuz Mayıs University, Samsun, TR-55200, TURKEY²Department of Biology, Faculty of Arts and Sciences, Ordu University, Ordu, TR-52200, TURKEYgsenel@omu.edu.tr**Abstract**

Orchidaceae has a rich biodiversity because it has more than 200 taxa in Turkey. The family is also cosmopolitan nature because it contains many tuberous or rhizomatous species which are photoautotrophic or saprophytic and which are spread in various geographical areas and have different ecological requirements. Because their tubers are used in the salep production and they are preferred as an ornamental plant, many orchid species have the economic value. In this study, we aimed to examine the detailed structural properties of four tuberous or rhizomatous species belong to *Cephalanthera*, *Limodorum*, *Listera* ve *Neottia* genera which are photoautotrophic or saprophytic and spread in various geographical areas. The anatomical, morphological, micromorphological and morphometric characteristics were examined with light and electron microscopy to identify important distinction among the species. The measurements from a variety of cells and tissues in vegetative and generative organs of the specimens were evaluated statistically. All qualitative and quantitative characteristics were comperatively evaluated with the help of different ordinal tests. The significant differences were detected among the studied taxa in terms of anatomical characteristics such as the presence of pit space and epidermis structure in root and stem, the composition and type of vascular bundles, the presence of mineral inclusions like starch or crystal, the presence and structure of velamen in the root, the number of xylem arches in root, the structure of the boundary layer such as perivascular sclerencymatic sheath in stem and exodermis in root; and in terms of morphological and micromorphological characteristics such as the shape and number of leaves, leaf arrangement on the stem, surface structure of generative organs such as flower, fruit and seeds.

Keywords: Anatomy, Mikromorphology, Rhizomatous orchid

In Vitro Studies of Dual Drug-Peptide Conjugate Decorated Magnetic Nanoparticles on Lung Cancer Cell Lines**Güliz Ak^{1,2}, Şenay Hamarat Şanlıer^{1,2}, Ayşe Nalbantsoy³, Habibe Yılmaz^{1,2}**¹Biochemistry Department, Faculty of Science, Ege University, Izmir²ARGEFAR, Ege University, İzmir³Faculty of Bioengineering, Ege University, Izmirguliz.ak@gmail.com**Abstract**

Approximately 1.6 million new cases of lung cancer are diagnosed each year throughout the world and in many countries, the mortality related to lung cancer continues to rise. Matrix metalloproteinases are thought to be responsible for the turnover and degradation of connective tissue proteins and regulation of various cell behaviours with relevance for cancer biology. These include cancer-cell growth, differentiation, apoptosis, migration and invasion, and the regulation of tumour angiogenesis. Matrix metalloproteinase-11 (MMP-11) is one of the matrix metalloproteinases which's expression increases in lung cancer. Pemetrexed is a widely used anticancer drug and acts as an anti-folate to the cells. Pazopanib is a new generation anti cancer drug and an inhibitor of tyrosine kinase enzyme. Magnetic drug targeting ensures the concentration of drugs at a defined target site with the aid of a magnetic field. In this project we aimed to investigate the toxicity potential of dual drug peptide conjugate (that could be degradable with MMP-11, leads to drug release) decorated magnetic nanoparticles on lung cancer lines. MTT test was applied to determine the survival activity of drug treated A549-luc, NCI-H460, NCI-H358, NCI-H226 cells and also non-cancerous cell, CCD-34Lu. Cell photographs were taken under microscope and IC₅₀ values were calculated using GraphPad Prism software. Obtained values were compared with each other.

Keywords: Pemetrexed, Pazopanib, Magnetic nanoparticles, Peptide drug conjugates, Lung cancer cell**Acknowledgement:** We would like to thank for financial support received from The Scientific and Technological Research Council of Turkey (Project ID: 213M672).

Seroprevalence of Zoonotic Crimean-Congo Hemorrhagic Fever Infection among Different Occupational Groups

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Abstract

Crimean-Congo hemorrhagic fever (CCHF) is an acute febrile and highly fatal viral disease. In this study, our aim was to compare and evaluate the CCHF antibody prevalence among occupational high risk groups by using ELISA method and draw an attention to the occupational groups which are under a high risk for CCHF infection, in an endemic region for these zoonotic infections in Erzurum, Turkey. In this study, the antibody levels against Crimean-Congo hemorrhagic fever virus were surveyed among slaughterhouse workers, animal breeders and veterinarians. Study population composed of 72 participants having direct contact with animals and 19 blood donors who are not direct contact with animals were included in the study. The overall rate of CCHF IgG positivity rate in risk groups was found 6.94% (72/5). The CCHF antibody rate of the animal breeders was found in 4 (12.5%) individual. This ratio considered significantly higher compared with the healthy control group. CCHFV antibody was found positive in only one person (4.0%) who is abattoir worker. In the vet group, all people were found as negative (Table 1). In conclusion, CCHF infection is a potential occupational hazard for peoples who work in jobs directly related to animals or animal products. It was included that our region is endemic with regard to CCHF infection and person who had direct contact with the animals are under a high-risk. Thus, these participants must take the necessary measures to protect themselves from the CCHF and should be trained by health authorities.

Keywords: Crimean-Congo Hemorrhagic Fever, Seroprevalence, Different Risk Groups

Biogas Production Potential of Solid Wastes: A Research Experience

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Abstract

Increasing of the energy requirement is dependent on rapidly increasing population on the world. The growth of energy requirement caused the rapid increase of new renewable energy facilities. Generally the requirement of energy is met from fossil fuels all over the world. The usage of fossil fuels is harmful and made countries dependent to foreign countries. In case of that renewable energy sources is most important in terms of both economically and environmentally. One of the most popular renewable energy resources is biogas. In this study, content and amount of biogas produced by solid waste in Tokat is determined. Experiments made in controlled conditions between January and July. The amount of solid waste daily entered to the biogas production facility (kg), electricity (MW) and methane gas production are determined. In addition to that, temperature and relative humidity are examined. The daily solid waste entered to the process is between 4494 kg and 7239 kg. By this solid waste is was produced minimum 43,33 m³ and maximum 54,91 m³ methane gas, and minimum 1,58 MW and maximum 7,85 MW electricity in one day.

Keywords: Renewable Energy, Biogas, Solid Waste

Prevalence of *Echinococcus granulosus* in Stray Dogs in Erzurum, Turkey

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Abstract

Echinococcosis is one of the most important zoonotic parasitic disease, threatening human and animal health, causing important economical loss and maintaining actuality and importance. The aim of this study is to investigate the presence of *E. granulosus* in stray dogs in Erzurum region, which is an endemic region for cystic echinococcosis. Faecal samples were collected from 88 stray dogs and were examined macro and microscopically to establish if the adult tapeworm or its proglottids were present. Faecal samples were examined under stereomicroscope and then detected materials in four samples were subjected to PCR to amplify fragments of mitochondrial 12S rRNA gene and CO1 mitochondrial gene of *E. granulosus*. PCR results confirmed the macroscopical examination and the presence of *E. granulosus* in four (4.5%) of the samples. This is the first study determining the presence of *E. granulosus* in dogs in Erzurum, Turkey. Since echinococcosis is an important zoonotic disease, prevalence data in animal populations is essential for epidemiological surveillance.

Keywords: *E. granulosus*, stray dog, PCR, zoonotic, Erzurum

Impacts of Climate Changes in Animal Genetic Diversity

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Abstract

Ecological changes taking place around the world will influence in living things and their environment in many ways. One of the most important factors is climate changes, threatening not only to the existence of species, plants or animals but also to their genetic diversity. Genetic diversity is the variation in genomes of living things that is inheritable from generation to generation. Furthermore, it is a raw material for us to observe how species to adapt to their new environmental conditions against climatic fluctuations. A wide genetic variation in animal species is quite substantial for agriculture. Especially in livestock animal productions, populations that are composed of a wide variation refer animals with inherent resistance to certain diseases or harsh environmental conditions in spite of yielding less economically important traits. On the other hand, using intensive selection approaches by breeders on farm animals causes to lose variation in populations, consequently making them be in danger to become extinct. Climate changes have certain effects in genetic diversity based on population size, gene flows and distributions among different geographical areas, and selection in terms of pressure, therefore should be under investigation how a species can be protected in the original habitat in order for mankind to maintain genetic variation.

Keywords: Climate changes, Genetic diversity, Livestock animals

Optimization of Colchicine Extraction from *Colchicum Autumnale* Bulbs Using Response Surface Methodology**İbrahim BULDUK, Mehtap DÖNMEZ ŞAHİN**

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Abstract

Colchicine, the major alkaloid of *Colchicum autumnale*, is one of the most prominent natural products and, like other tubulin-binding natural products, exhibits great pharmaceutical potential. In order to establish optimal extraction process of colchicine from *Colchicum autumnale* bulbs, response surface method, based on Box-Behnken Design, was used to optimize extraction conditions. A second order quadratic mathematical model for colchicine in colchicum autumnale bulbs extraction was established. Its validity was verified and the alternate action of the above three factors and their optimum level ranges were investigated. Results showed that the optimum conditions to achieve the maximum extraction rate were as follows: methanol concentration of extraction solvent 49.99%, extraction temperature 61.55 °C and extraction time 39.19 min. Under such conditions, extraction rate of colchicine reaches 0.223% , which was well matched with the predicted yield.

Keywords: *Colchicum autumnale*, colchicine, extraction, optimization, RSM.

Comparative Pollen Morphology Studies of Two Endemic *Nocca* Moench (Brassicaceae) Taxa from Turkey

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Abstract

This study is supporting the biological characteristics of the plants to put forward more efficient systematic and evolutionary relationships by pollen morphology study. It is aimed to determine the comparative palynological features of the two endemic taxa from Brassicaceae family which are naturally growing in Turkey. Detailed morphological investigation of the pollen of the Turkish *Nocca elegans* (Boiss.) Al-Shehbaz and *N. cilicica* (Schott & Kotschy ex Boiss.) Al-Shehbaz were carried out under light microscope and Scanning Electron Microscope (SEM). The results are described here for the first time. It was revealed that the pollen grains of two endemic taxa were the tricolpate type and sphaeroid/suboblate shaped. Exine was seen to be semitectate- reticulate ornamentation. Comparisons which will be made with the collected species and other taxa within the family will make contribution to taxonomy for family.

Keywords: Brassicaceae, Pollen Morphology, Light Microscope, SEM, Turkey.

Determination of Dissociation Constants of Azole Antifungal Agents by Reversed Phase HPLC Method**Kader Poturcu¹, Senem Kamaci Sanli², Nurullah Sanli³, A. Guleren Alsancak¹, Ismail Ozmen¹, Mustafa Calapoglu¹**¹Department of Chemistry, Faculty of Arts and Sciences, Suleyman Demirel University, Isparta²Department of Chemistry, Faculty of Arts and Sciences, Uşak University, Uşak³Department of Food Engineering, Faculty of Engineering, Uşak University, Uşaksenem.sanli@usak.edu.tr**Abstract**

The treatment of fungal diseases in the last two decades involved mainly the use of amphotericin B. However, due to its significant adverse effects, the development of new classes of antifungal agents with good pharmacological features and with a suitable bioavailability has been necessary [1]. In particular, imidazole (e.g., ketoconazole and miconazole) and triazole (e.g., itraconazole) derivatives are a new class of antifungal drugs that present low toxicity, versatility of administration, and a broad activity spectrum being widely used or recommended for pharmaceutical use as antimycotics [2].

The pK_a of a molecule is defined as the pH at which the molecule is 50% protonated. The pK_a of a molecule predicts the degree of ionization of the molecule at a particular pH [3]. The knowledge of the pK_a is important in analytical chemistry in optimization of experimental conditions for separation and analysis of many types of compounds [4].

In the present work, ionization constants of several azole fungicides named as fenticonazole, isoconazole, ketoconazole, miconazole, tioconazole and itraconazole were determined by the reverse-phase liquid chromatographic (HPLC) method in 70% MeOH- water binary mixture. The pK_a values of studied compounds were determined from k/pH data pairs by means of the non-linear regression program NLREG.

Keywords: Antifungal Agents, Dissociation Constants, HPLC

The importance of keeping records in organic animal production

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Abstract

In terms of business activities and animal breeding one of the most important factors is to keep records with profitability, efficiency and increases success. The main objective of organic livestock production is to produce healthy, genetically unmodified and demandable products by consumers. Moreover, it is important to take a detailed record of all data related to certification. At all stages, It must take place in a controlled and certified according to the laws of organic production. Recording of organic animal products (from where, under what conditions and is obtained from sources, control steps, as detailed all of the data related to certification, animal selection, breeding systems, group size, ensuring environment can show the natural behavior of the animals, increasing the efficiency, creation of criteria to ensure animal welfare and at all stages of up to market entry) is important. In organic farming activity, trained and experienced breeders must be served. For producers and consumersegetives must be determined. As a result, record keeping at all stages of production and evaluation checked the records and finding a solution is extremely important in terms of future business planning.

Keywords: Organic farming, Record keeping, Animal production

The Possibilities For The Use Of The Plant In The Design Of The Some Pome Fruits

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Abstract

They are important plants in landscape architecture. Used for functional purposes, in addition to relating to for aesthetic purposes are preferred. In the design of the plant; stems, leaves, flowers and fruits such as the features of organs are evaluated. These properties are also planting design principles, color, texture, form and the measure reveals. In this study, Environmental Design in landscape architecture will be proposed alternatives to the use of pome fruits in the fruit are edible. In addition, the aesthetic-functional properties will be given information. For this purpose, some pome fruit species is widely grown in Turkey, planting design principles are examined (such as apple, pear, service tree, medlar, pear, hawthorn) . Of this species; colors, textures, forms, and measurements were evaluated.

Keywords: Pome fruits, Ornamental plants, Softscape

Sterilization Treatments For Micropropagation of *Lysimachia nummularia* L.**Mehmet Karatas¹, Muhammet Doğan²**¹Department of Biotechnology, Faculty of Science, Necmettin Erbakan University, Konya, Turkey²Department of Biology, Kamil Ozdag Faculty of Science, Karamanoglu Mehmetbey University, Yunus Emre Campus, 70200 Karaman, Turkeymemetkaratash@gmail.com**Abstract**

Lysimachia nummularia L., belonging to the Primulacea family, is an attractive cultivar plant. The plant is widely used in aquariums because it creates a beautiful display with its oval leaves. Sterilization is the first stage of tissue culture studies. Surface sterilization of aquatic plants is usually difficult due to the intense bacterial and fungal microorganisms. In this study, surface-sterilization of *L. nummularia* was conducted. 3-5 cm stems of *L. nummularia* were washed for 15 min under tap water, followed by isolation of upper plant stem segment and were exposed to various concentrations and periods to H₂O₂ and commercial bleaching (NaOCl-ACE). Thereafter, plant parts were rinsed thrice for 5 min with sterile distilled water and various explants were transferred to free-hormone Murashige and Skoog (MS) medium. Maximum contamination rate from all explants was determined using 10% H₂O₂ and NaOCl for 5 min. This study will be helpful for the tissue culture studies of *L. nummularia*.

Keywords: *Lysimachia nummularia* , Commercial Bleaching, Hydrogen Peroxide, Sterilization**Acknowledgment:** This study was supported by the Karamanoğlu Mehmetbey University through the Scientific Research Project commission (BAP) (Project no: 50-M-12).

Unexpected Grup A Rotavirus Genotype (G8P[8]) in a child in Turkey**Hakan Aydin ¹, Mehmet Ozkan Timurkan ¹, Osman Aktas ², Murat Karameşe ³**¹ Ataturk University, Faculty of Veterinary Medicine, Department of Virology, Erzurum, Turkey² Ataturk University, Faculty of Medicine, Department of Medical Microbiology, Erzurum, Turkey³ Kafkas University, Faculty of Medicine, Department of Medical Microbiology, Kars, Turkeytimurkan@gmail.com**Abstract**

Group A rotaviruses are an important causative agents of severe diarrhea resulting in infants including human and many animal species. The rotavirus are double-stranded RNA virus and genome consists of 11 segments. This segments encode 12 viral proteins in which 6 structural and 6 non-structural proteins. In human and animal rotaviruses 27 G genotypes and 37 P genotypes have been identified. In this study, it is aimed to report of the molecular characterization of the VP4 and VP7 genes of an unexpected rotavirus detected in Turkey. In the present study, fecal sample obtained from one year old child was extracted using commercial isolation kit. Rotavirus RNA was detected by RT-PCR and then performed sequencing reaction. Data were evaluated via bioinformatic analysis programs (Bio edit v.7.0.5 and MEGA v.6.1) and constructed phylogenetic tree using neighbor-joining algorithms. Fecal specimen obtained from one year old child with acute diarrhea were screened for rotavirus by RT-PCR. This sample were confirmed as rotavirus, but contrary to expectations a rare genotype of rotavirus G8P[8] was detected. These confirmed positive sample investigated in terms of Group A rotavirus G and P genotype. Contrary to usual types, G8P[8] genotype detected. The data from this study demonstrate that usual rotavirus genotypes have been changing from year to year. Due to the recent emergence of G8P[8] rotavirus types, our findings are important since this provide new data concerning the regional spread of rotavirus genotypes.

Keywords: Rotavirus, Unexpected genotype, Molecular Characterization

Comperative Seed Anatomy of Selected Eleven Commercial *Triticum aestivum* L. Varieties (Poaceae) from Central Anatolia-Turkey Using SEM and Light Microscopy

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Abstract

Anatomical study is surveyed on 11 varieties of *Triticum aestivum* L. Seed anatomy is one of the significant taxonomic tools that recently used. Caryopsis fruit of *T. aestivum* L. represents an important source of starch-rich food. Seeds of each variety were examined, measured and photographed. The main parts of a section are pericarp layer, testa layer, aleuron cell, endosperm layer, crease depth and cavity width. Different section dimensions were measured, generally the section dimensions found to be related in some means to the fruit size.

Keywords: Poaceae, Triticum, Seed, Anatomy

Prevalence and risk factors of chronic Hepatitis B and C infections in Kafkas University Hospital, Kars, Turkey: A retrospective study**Murat Karamese¹, Emsal Aydin², Hakan Aydin³, Sergulen Aydin⁴**¹ Department of Medical Microbiology, Faculty of Medicine, Kafkas University, Kars, Turkey.² Department of Infectious Diseases and Clinical Microbiology, Faculty of Medicine, Kafkas University, Kars, Turkey.³ Department of Virology, Faculty of Veterinary Medicine, Ataturk University, Erzurum, Turkey.⁴ Department of Family Medicine, Faculty of Medicine, Kafkas University, Kars, Turkey.murat_karamese@hotmail.com, drmuratkaramese@kafkas.edu.tr**Abstract**

Viral load is a key factor to determine the development of HBV-HCV infections and to assess treatment options for the disease. There is a lack of studies analyzing viral load levels in chronic hepatitis B and C patients in our country (Turkey) especially in our region (Kars) and the epidemiologic data is limited. The aim of this study was to determine viral load levels, its distribution, and some related parameters in patients diagnosed with chronic hepatitis B and C. A total 389 chronic-HBV patients and 30 chronic-HCV patients were enrolled. The following parameters were analyzed: serum AST, ALT, ALP levels, fasting blood glucose levels, CRP and sedimentation levels, HBeAg and Anti-HBe values and Hepatitis-Delta Antibody (for HBV patients), Anti-HCV values (for HCV patients), HBV-DNA and HCV-RNA viral loads. The mean age and genders as well as treatment status were recorded for all the participants. For 7 HCV-RNA positive patients, HCV genotyping was performed. 57.14% HCV Type 1b (4/7), 28.57% HCV Type 2 (2/7), and 14.29% HCV Type 3 (1/7) were detected. The availability of viral load levels in chronic HBV and HCV patients permits assessment of practice of actions to analyze follow-up and/or treatment options for preventing disease complications, and improving health. Additionally, data analysis for detecting and genotyping HCV was an important factor for understanding the epidemiology and treatment strategies of HCV. Finally, it is needed to perform further molecular epidemiologic studies for chronic HBV and HCV patients.

Keywords: Viral load, Hepatitis B, Hepatitis C, genotyping

The Seeds Micromorphology and Morphometry of Certain *Dactylorhiza* (Orchidaceae) Species Distributed in Turkey

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Abstract

In this study, we examined the seeds of 7 *Dactylorhiza* taxa (*D. nieschalkiorum* and *D. osmanica* var. *osmanica*) of which 2 are endemic to Turkey (*D. euxina* var. *euxina*, *D. iberica*, *D. romana* subsp. *romana*, *D. saccifera*, *D. urvilleana*) in terms of morphological, micromorphological and morphometric properties. We analyzed the seeds using standard procedures of light microscopy and electron microscopy (SEM). The seeds collected from different localities were examined in terms of 22 characters, such as seed shape and size, length/width ratio, embryo volume, seed/embryo volume, percent air space, position of the embryo and seed surface features were analyzed. Furthermore the morphometric measurements showed that some diagnostic characters could be important for these taxa. As a result of study, the dendograms were formed based on the numerical analysis and important differences were determined in terms of examined characters among taxa. The characters of the seeds of genus *Dactylorhiza* are characteristic even in species level. The seed properties identified would help researchers on genus-related problems.

Keywords: *Dactylorhiza*, Micromorphology, Morphometry, Orchidaceae, Orchids, Seed.

The Lipide-Soluble Vitamine and Sterol Contents of *Achillea schischkinii* Sosn. and *Achillea santolinoides* Lag. subsp. *wilhelmsii* (Koch) Greuter by Using HPLC**Mustafa Yunus Emre¹, Murat Kurşat², İrfan Emre³, Ökkeş Yılmaz⁴**¹Vocational School of Health Services, Mardin Artuklu University, Mardin²Department of Biology, Faculty of Science and Arts, Bitlis Eren University, Elazığ³Department of Primary School, Faculty of Education, Fırat University, Elazığ⁴Department of Biology, Faculty of Science, Fırat University, Elazığy_emre85@hotmail.com**Abstract**

The aim of present study is to determine lipide-soluble vitamins and sterol contents of *Achillea schischkinii* and *Achillea santolinoides* subsp. *wilhelmsii* by using HPLC. Plant materials extracted with acetonitrile/methanol (75/25; v/v) and 50 mL were injected into the HPLC instrument (Shimadzu, Kyoto Japan). Determination was carried out at 320 nm for retinol (vitamin A) and retinol acetate, and 215 nm for α -tocopherol, vitamin D, α -tocopherol, α -tocopherol acetate, 202 nm for phytosterols, 265 nm for vitamin K. The results of the analyses were stated as $\mu\text{g/g}$ for samples.

Present results showed that studied two *Achillea* species have high stigmasterol and β -sitosterol contents. Stigmasterol and β -sitosterol contents of *A. schischkinii* were determined as 70.65 $\mu\text{g/g}$ and 82.1 $\mu\text{g/g}$, respectively. Also, Stigmasterol and β -sitosterol contents of *A. santolinoides* subsp. *wilhelmsii* were determined as 13.3 $\mu\text{g/g}$ and 42.1 $\mu\text{g/g}$, respectively. However, the ergosterol contents of studied *Achillea* species were found low amounts (0.55 and 1.65 $\mu\text{g/g}$). On the other hand, it was found that the lipide-soluble vitamin contents of studied two *Achilleae* species were low amounts. K1 contents of two species were found as 4.1 and 3.35 $\mu\text{g/g}$; D2 contents of two species were found as 3.2 and 1.1 $\mu\text{g/g}$ and retinol acetate contents were found as 0.1 and 0.55 $\mu\text{g/g}$ respectively.

Keywords: *Achillea*, Lipide-Soluble Vitamins, Sterols

A Preliminary Study on Cytotoxic Activity of Natural *Bacillus thuringiensis* Isolates from Boron Related Habitats**Müjgan Oktay, Burcu Poyraz, Hatice Güneş**

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Bacillus thuringiensis is a gram positive bacterium characterized by the production of insecticidal crystal proteins. The insecticidal parasporal proteins contain two families of toxins, Cry and Cyt proteins. Earlier studies have reported an another crystal protein called parasporin that is non-insecticidal but preferentially killing cancer cells. This study includes the preliminary studies on determination of cytotoxic activity of parasporal proteins of *Bacillus thuringiensis* on cancer cell lines. Firstly crystal shapes of Bt isolates were identified and the most abundant crystal shapes were bipyramidal, spherical and irregular among 14 isolates. It is known that Bt isolates have a large variation of plasmid patterns reflecting strain diversity. Therefore, plasmid patterns of isolates were investigated and 12 different bands varying the size 1200bp-40.000bp were detected. Cyt proteins can exhibit cytotoxic activity to cancer cells so we characterized *cyt* gene profiles of Bt isolates. Two of the isolates harboured only *cyt1* gene while four of isolates harboured only *cyt2* gene. One of the isolates contained both of the *cyt* genes together. Moreover, conditions were optimized for solubilization and activation of parasporal proteins in appropriate buffers at different pH and enzyme concentrations. Finally, experiments have being carried out to identify the cytotoxic activities of parasporal proteins on different cancer cell lines.

Keywords: *Bacillus thuringiensis*, *cyt* genes, cancer cell lines, cytotoxicity

The effect of nigella sativa oil on serum biochemistry parameters in the rat induced metabolic syndrome**Naci Ömer ALAYUNT¹ Bilal ÜSTÜNDAĞ²**¹Banaz Vocational School of Higher Education, Usak University, Usak, Turkey²Firat Medicine Faculty, Firat University, Elazig, Turkeynacialayunt@hotmail.com**Abstract**

In this study, we had the purpose to contribute to the literature with the data to be obtained from investigating the mechanism of the reason of increase of the development and the prevalence of the Nigella sativa oil syndrome, blood glucose levels, insulin levels, HOMA-IR levels, lipid profile having a metabolic syndrome formed in rats with a fructose diet. In the study, 21 male Sprague-Dawley rats about weight of 200-240 g have been used. The rats were separated to 3 groups, each of which has 7 rats. Group1; control group (8 weeks), Group2; MS with fructose (8 weeks), Group3; given Nigella sativa oil after MS progress (8+4 week) in created. Rats were decapitated after the study. Blood samples were taken, the serum glucose, insulin, total cholesterol, triglycerid, HDL, LDL, VLDL levels were measured in the serum and the effects of Nigella sativa oil on these parameters were examined. Serum insulin, glucose, HOMA-IR, triglyceride, total cholesterol, LDL-C were found statistically significantly higher and the HDL-C amount was found significantly lower in the MS groups ($P<0,05$). After the formation of MS, that we gave the Nigella sativa oil group serum glukoz, İnsülin, HOMA-IR and lipid profile levels significantly different ($p<0.05$) were lower. Consequently, Nigella sativa oil have a positive effect the serum insulin metabolism and lipid profile which can be useful to in the patients with MS and it looks like a promising option has been concluded.

Keywords: Metabolic syndrome, Nigella sativa oil

Prevalence of ovine oestrosis (*Oestrus ovis* Linnaeus, 1761, Diptera: Oestridae) and risk factors in Eastern Turkey**Nalan Özdal¹, Pinar Tanritanir², Fatma İlhan³, Serdar Değer¹**¹ Department of Parasitology, Faculty of Veterinary Medicine, Yuzuncu Yil University, Van, Turkey,² Van School of Health, Yuzuncu Yil University, Van, Turkey,³ Department of Pathology, Faculty of Veterinary Medicine, Yuzuncu Yil University, Van, Turkey,nalan.ozdal@hotmail.com**Abstract**

This study was carried out to estimate the prevalence, larval burden and some risk factors of ovine oestrosis on 328 heads of randomly selected sheep slaughtered for one year at Van, eastern Turkey. Of the total heads, 127 (38.71%) were infested with *Oestrus ovis* (Linnaeus, 1761, Diptera: Oestridae) larvae. The prevalence of *O. ovis* was 51.68% in summer, 40.69% in spring, 35.80% in autumn, and 23.61% in winter. The differences among seasons were significant statistically ($P < 0.05$). Out of a total of 511 larvae collected, 17% were L1, 29% L2, and 54% L3 larvae. All three larval instars were observed in each study months except that no first-stage larvae were seen in December and March. The overall larval intensity for the infested sheep was 4.02, with 3.42 in spring, 3.80 in summer, 4.03 in autumn and 5.82 in winter. The infestation rates were 41.26% in female and 34.42% in male sheep. Infestation rate less than 2-years-old was 23.33%, 2 to 4 years-old 36.42% and older than 4 years old was 48.43%. Sheep with dark head color had a higher risk compared with sheep having white and spotted head ($P < 0.05$).

Keywords: *Oestrus ovis*, Prevalence, Risk factors, Sheep, Turkey

Effects of Bionur Doses and Application Numbers on Yield, Quality and Plant Growth of Crisp Salad

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Abstract

This study was carried out to determine effects of bionur, including organic matter and nitrogen, acidithiobacillus thiooxidans, Acidithiobacillus ferrooxidans bacteria, humic and fukvic acid, doses and application numbers on yield, quality and plant growth of crisp salad in unheated greenhouse conditions. Caipira F1 crispy lettuce cultivar (*Lactuca sativa L. var. Crispy*) was used. Seeds were sown on November 1st, 2014 and seedlings were planted on December 1th 2014. Plants were covered with agryl cover. Liquid worm fertilizer was applied 6 different doses (0,5, 1, 1.5, 2, 2.5 and 3 ml/plant) and numbers (1, 2 and 3 times). Harvest was done on March 11, 2015. The experiment was designed with 3 replications in randomized plots. Total and marketable yields (g/ plant), head length and diameter (cm), pH, soluble solids content (%) and total acidity were investigated. Bionur doses and the number of applications affected significantly some parameters. When doses and applications numbers increases, affected parameters were positively increased. Some parameters have been interaction between doses and application number.

Keywords: Bionur, crisp salad, yield, quality, chemical composition

Determination of Dissociation Constants of Tyrosine Kinase Inhibitors by Reversed Phase Chromatographic Method

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Abstract

Cancer is a disease that appears as a result of invasion of adjacent tissues by body cells which proliferate in an uncontrolled and abnormally way, or spreading of body cells to a location that farther away from the source of the organ via the blood or lymph. An increase in functions of protein kinases is determined in most cases of cancer, deletion, mutation or amplification increased level of function depending on deletion, mutation or amplification and in many studies it is reported that cancer growth can be stopped or slowed down by the inhibition of kinases.

In the present work, ionization constants of several tyrosine kinase inhibitors named erlotinib, canertinib and bosutinib that are used for the treatment of cancer (especially leukemia, breast and lung cancer) determined by the reverse-phase liquid chromatographic (HPLC) method in 60% (v/v) ACN- water binary mixture. The pK_a values of studied compounds were determined from k/pH data pairs by means of the non-linear regression program NLREG. Determination of the ionization constant by HPLC method is the first step in the optimization of the separation of desired compounds.

Keywords: Cancer drugs, HPLC, Dissociation Constants

Acknowledgments: This work was supported by Usak University Department of Scientific Research Projects (BAP). (Project no: 2014MF-012)

An innovative bioremediation approach using Lemna-chitosan based technique for boron (B) and arsenic (As) removal from aqueous solution**Onur Can TÜRKER^{*1}, Talat BARAN², Cengiz TÜRE³**¹ Aksaray University, Faculty of Science and letters, Department of Biology, TURKEY² Aksaray University, Faculty of Science and letters, Department of Chemist, TURKEY³ Anadolu University, Faculty of Science, Department of Biology, TURKEYocturker@aksaray.edu.tr**Abstract**

Eco-technologies represent direct and indirect benefits to people, owing to cleaning wastewater to acceptable discharge levels, protecting biotic and abiotic source, as well as ecological balance in the ecosystems. Lemna species and chitosan absorbent are commonly used for metal and metalloid removal from wastewater, and in recent years, several studies have been carried out to test both Lemna and chitosan for bioaccumulation of metals from aqueous solution. However, there is no literature report related to using Lemna species together with chitosan absorbent at the same time for aqueous solution contaminated with boron (B) and arsenic (As). In this study, *Lemna gibba* L. and chitosan were applied in order to removal of boron (B) and arsenic (As) from water in the seven days test period. According to results, B and As concentrations in outflow samples were lower than inflow water samples after 7 days treatment period. This result demonstrates that *Lemna*-chitosan based method is capable of removing B and As from aqueous solution, and thus the this techniques could be a reasonable bioremediation option to remove B and As directly from water used for irrigation purpose in arid and semi arid regions.

Keywords: Bioremediation, Lemna, chitosan, boron, arsenic

A New Veronica (Plantaginaceae) Species from Central Anatolia, Turkey**Ömer Koray Yaylacı¹, Kurtuluş Özgişi¹, Okan Sezer¹, Atila Ocak¹, Onur Koyuncu¹**

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Abstract

Veronica is a genus of the Plantaginaceae sensu angiosperm phylogeny group (1998, 2003) formerly placed in Scrophulariaceae. Veronica genus is represented with ca. 500 species and is distributed over most of the Northern Hemisphere and in many parts of the Southern Hemisphere. It has high ecological diversity and its taxa grow in aquatic to dry steppe habitats from sea level to high alpine regions. It was represented by 89 taxa in Turkey. However, a few new taxa were added afterwards and with these studies, the number of Veronica taxa has reached 107 and 35 of these taxa are endemic for Turkey. *Veronica ersin-yucelii* sp. nov. (Sect. Veronica, Subsect. Caespitosae Elenevsky, Plantaginaceae) is described and illustrated as a new species. It grows in marble rocks and scree, 1700–1820 m in Central Anatolia (Eskişehir Province). Its several morphological characters related to habit, stems, leaves, inflorescences, bracts, corolla, capsule and seed are given, and also those related to the indumentum of different parts of the plant, especially stems, leaves and capsule. Diagnostic features are also given to enable comparison with the most similar species, *Veronica caespitosae*, particularly in the indumentum, habit, inflorescences, bracts, leaves and seeds. The International Union for Conservation of Nature threat category and observations on the ecology of the populations are noted. The distribution map of this new species and closely related species in Turkey is presented.

Keywords: Biodiversity, Plantaginaceae, Veronica, Taxonomy, Nomenclature

Phytochemical Content of Seed, Skin and Pulp Parts of Grape (*Vitis Vinifera L.*) Cultivars

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Abstract

In this study total phenolic compounds, total anthocyanin and antioxidant capacity were investigated in different tissue of Gewürztraminer, Pinot Noir, Narince and Syrah wine grape cultivars grown in Kazova (Tokat) region. The results of the present study showed that the cultivars with high color, smaller size and thick peel had higher antioxidant capacity and higher phenolic content. The antioxidant capacity of Gewürztraminer, Pinot Noir and Syrah grape cultivars were determined 28,41-198,98 and 235,53 TEAC ($\mu\text{mol TE/g ta}$) in harvest, respectively. The total phenolic compounds and total antioxidant of grape cultivars ranged from 28,4 (Gewürztraminer) to 235,5 (Syrah) $\mu\text{g/g fw}$, from 1081,9 (Narince) to 2886,7 (Syrah) $\mu\text{g galik acid/ g fw}$, respectively. The total phenolic compounds and antioxidant capacity were higher in seed than that in skin and pulp at harvest.

Keywords: antioxidant capacity, anthocyanin, seed, pulp, skin, total phenolics

Effect of Foliar Applied Iron (+Fe) on Fruit Quality of Different Pear Cultivars

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Abstract

In this research, effects of pre-harvest 0.25% iron treatments on yield, some fruit parameters, biochemical properties and micronutrient content of Santa Maria, Deveci and Akça pear cultivars were investigated. Effects of iron treatments on yield were found to be significant. While fruit firmness decreased with iron treatments in Santa Maria and Akça pears, the value increased in Deveci cultivar. Besides, total phenolic compounds and antioxidant activity also decreased with iron treatments. Effects of iron treatments on individual phenolic acids were not found to be significant. It was concluded that foliar iron treatments had positive effects in all cultivars.

Keywords: Antioxidant, Color, Fruit firmness, Micro-Macro elements, Rutin, Yield.

Water Quality Assessment of Sarıyar Dam Lake

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Abstract

Sarıyar Dam Lake is located on the Sakarya River for the purpose of electric supply. Domestic and industrial wastes discharge constitutes a significant constant polluting source, whereas surface runoff is seasonal differences largely affected in the Sakarya River basin. The aim of in the present study, water quality parameters (temperature, pH, dissolved oxygen, salinity, electrical conductivity, ammonium nitrogen, nitrite nitrogen, nitrate nitrogen, sulphate, total phosphorus, chemical oxygen demand, biochemical oxygen demand) of Sarıyar Dam Lake's were investigated. Physicochemical data's values were compared with European Commission's water quality directive, 2006 criteria required to protect fresh water fish and by taking account of Inter-Continental's Water Pollution Control Regulations Water Supplies Quality Criteria existed in Turkish Environment Regulations. Water samples were taken from five stations at Sarıyar Dam Lake and also one stations were selected input point of Sakarya River to Sarıyar Dam Lake. Water samples were collected seasonally from Dam Lake in April 2015, August 2015, November 2015 and February 2016. According to datas, significantly decreasing of water quality and increasing especially nitrogenous compounds were determined. Measured physicochemical parameters indicated that the organic pollution in the lake water was high especially input point of Sakarya River to Sarıyar Dam Lake station. According to Turkish Regulations, in terms of nutrial parameters, input point of Sakarya River to Sarıyar Dam Lake station and Sarıyar Dam Lake stations were fourth class quality in all seasons. In this study, Eskişehir Osmangazi University Scientific Research Projects supported by the Commission as Project No. 2014-325

Keywords: Water Quality, Sarıyar Dam Lake, Sakarya River

Cytotoxic Effects of Gibberellic Acid on *Allium cepa***Burçak Tütünoğlu, Özlem Aksoy, Rabia Özbek, Fevzi Uçkan**

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Gibberellic acid (GA₃) is a natural plant growth regulator which is effective in germination, vegetative growth, flowering and fruit formation in plants. When high concentrations of plant growth regulators are used, they might inhibit the plant growth and development and cause abnormalities in plant tissue. We planned to determine the cytotoxic effects of GA₃ on *Allium cepa* L. var. *cepa*. We determined EC₅₀ value that increases the root length 50% as 600 ppm and use EC₅₀ (600 ppm), EC₅₀/2 (300ppm) and 2xEC₅₀ (1200 ppm) value for the rest of the study. Furthermore, for cytological analysis, the meristematic cells of *A. cepa* root tips were treated with GA₃ for 24, 48 and 72 hours and analysed by mitotic index (MI) and chromosome aberrations. Percentage of *A. cepa* root tip germination reduced from 90% to 26% with 1200 ppm GA₃, mitotic index reduced from 18.5% to 12.4% with 1200 ppm GA₃ treatment compared to control group. The lowest mitotic index value was observed in the treatment of 1200 ppm GA₃. In addition, different kinds of abnormalities (polar slip, chromosome bridges, c-mitosis and deformation of cell membrane) were determined in different phases of mitosis. In accordance with the findings, it was thought that these results provided determination of cytotoxic effects of different concentrations of GA₃ on *A. cepa* and it was indicated difference which was significant among the control and different GA₃ concentrations, it was concluded that 1200 ppm GA₃ treatment is more toxic than control and other treatment groups.

Keywords: *Allium cepa*, *Allium* test, Gibberellic acid (GA₃), Mitotic index

The Usage of Aromatic Plant Extracts in Ruminant Nutrition

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Abstract

Turkey as well as being the center of many plant genes, it is also a country where there are some of the endemic species. this endemic species are becoming increasingly common due to the use of the treatment of animal diseases and giving flavor, odor, flavor and appetizing properties to feed. All of the antibiotics used as feed additives has prohibited to participate in the feed since beginning of 2006 by EU . By banning the use of antibiotics and other chemicals used as growth promoters , other feed additives quest has been raised as alternative to this result.

By changing the quantity and quality of rumen fermentation , the purpose of use of additives has become to improve the utilization of nutrients . The basic action mechanism of essential oils is the inhibition of the production of ammonia from amino acids. This effect consists through by its effects on bacteria that producing high ammonia ratios of essential oil . Due to some factors , essential oils are unable to fully determine the impact on nitrogen metabolism. These factors are; Essential oils are known to inhibit ammonia-producing bacteria in the rumen . Due to being in vitro of all studies in this regard , the status of these bacteria may be outnumbered in used rumen fluid.

1. The reason of failing to reveal exactly effects of essential oils on rumen microbial fermentation may be effects of protozoa.
2. The doses of essential oils may be used as inadequate in vitro studies
3. Effect of the essential oils' adaptation period of rumen microorganisms can not be fully determined.

Turkey has a very rich flora in terms of plant diversity. The usage of this existing potential of plants in various industrial fields may be very significant when considering all the studies conducted around the world and in our country . In fact , to overcome the contradiction between the datas obtained in studies of herbal extracts for use in ruminant , the results obtained in vitro must be supported by in vivo studies with more detailed examination of the fermentation process.

Keywords: Ruminants, Rumen, Extract, Feed Additives, Animal Nutrition

Micromorphological Properties of Medicinal Plant *Hypericum orientale***Öznur Ergen Akçin¹, Gülcan Şenel², Mustafa Kemal Akbulut²**¹ Department of Biology, Faculty of Science and Art, Ordu University, Ordu, Turkey.² Department of Biology, Faculty of Science and Art, Ondokuz Mayıs University, Samsun, Turkey.oakcin@gmail.com**Abstract**

Micromorphological properties of leaf, fruit and seed of *Hypericum orientale* L. were reported. The genus *Hypericum* L. is represented by 94 taxa (78 species) in Turkey. *Hypericum* species is known as 'binbirdelikotu, kılıç otu, kantaron' in Turkish. Some *Hypericum* species are used as medicines plant. *H. orientale* species is used traditional medicines and contain hypericin. The presence of Hypericin is an important pharmacological value in *Hypericum* species. The plant specimens were collected from different localities in the north of Turkey. For scanning electron microscopy, dried mature leaf, fruit and seed were mounted on stubs using double-sided adhesive tape. Samples were coated with 12.5–15 nm of gold. Coated leaves were examined and photographed with a JMS-6060 LV scanning electron microscope. The surface type of fruit is striate-rugose. Seedcoat of *H. orientale* is reticulate - foveate and foveate – scaliform.

Keywords: *Hypericum orientale*, Microphology, fruit surface, seedcoat surface , Hypericaceae

Plant Characteristics and Pomological Properties of Some Local Pomegranate Cultivars (*Punica granatum* L.)

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Abstract

In the study, flowering, fruit set and fruit quality changes were examined of 'Canernar' and 'Hicrannar' pomegranate cultivars in Antalya conditions. two varieties, flowering began at the end of the month of April and continued until the month of September. Fruit ratio changed depending on flowering. Fruit ratio, Caner cultivar 10,61-5,88% and hicran cultivar 12,09-5,66% were found. 'Hicrannar' cultivar harvest was 10-15 days earlier, according to the 'Canernar'. Fruits were harvested 3 times. the fruits of the first harvest was bigger, compared to the others. Varieties of the grain, dark red and soft. Average grain yield of varieties 'Canernar' and 'Hicrannar' were found 75,77% and 68,11%, respectively. Usare yield was found as 39,93% and 44,27%, respectively. In both varieties, total soluble solid of 16% and titratable acidity of 1% was around.

Keywords: Pomegranat, Canernar, Hicrannar, Blooming, Pomology, Antalya

Effect of Vine Leaf Pickling moval on Must and Wine composition of *Vitis vinifera* L. cv. Narince
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Abstract

In this study, it was aimed to determine the effect of brined vine leaves on must and wine quality. The research was carried out at producer vineyard in Tokat Central county in 2014 and 2015 vegetation period. In study, four applications of leaf harvest (Control, 2,4, and 6 time) were experienced. The grapes harvested during the technological maturity were produced wine from Narince cultivar by using classical different maceration methods by microvinification method. The total soluble solid content, pH, total acid, density, total phenolic an flavonoids were detected in the must and wines. The total soluble solid content, total phenolic and flavonoids were increased with leaves picking; but, total acid decreased.

Keywords: Narince, Leaf picking, Total acid, Quality, Brined leaf

Essential Oils and Their Use in Animal Feeds; Effects on Serum Lipid Profile and Immun Response in Japanese Quails

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Abstract

In recent years, different plant-derived agents have been explored for their usefulness in animal production systems to improve health and the quality of their products. However, they are not simple compounds, rather a mixture of various compounds (mainly terpenes and terpene derivatives). It has been shown that the inclusion of these agents in the diets of poultrys leads to improvement in growth performance and reduced pathogen load. For instance, it was demonstrated that a diet containing a blend of essential oils (EO) as a feed additive improved feed intake and carcass yield, regulated serum lipid profile, and enhanced immun response in poultry. The efficacy of any plant extract or EO will be linked to certain active molecules at a clearly defined dosage, and variations in this concentration could be the reason for a lack of response sometime observed with these products. Thus, numerous reports exist in the literature regarding the effect of EOs on the performance of poultry with varying and conflicting results. Some reports have demonstrated that EOs improved animal performance, controlled pathogens in gut microflora, decreased blood cholesterol and triglyceride levels, supported immun response against to antigens and delayed lipid peroxidation in the blood and meat of poultry, while some researchers reported that these additives were not effective in these regards. The purpose of this paper is to provide an overview of our own published and unpublished data on the serum lipid profile and immun response reviewed from the studies conducted on Japanese Quails.

Keywords: Essential Oil, Animal Performance, Lipid Profile, Immun Response, Japanese Quail

Immobilization of α -Galactosidase on Sepabead EC-EA Derivatized with 3-Aminophenylboronicacid and Its Characterization

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Abstract

Enzyme immobilization technology is an effective means to perform enzyme reuse and to improve its stability. A new trend is to create different bioaffinity bonds between the matrix and enzyme. In bioaffinity immobilization, enzyme is immobilized to a matrix via biospecific interactions. In the present study, α -galactosidase from tomato was immobilized on Sepabead EC-EA by using a bioaffinity protocol. In this protocol, Sepabead EC-EA was first activated by glutaraldehyde, derivatized by 3-aminophenylboronicacid (AFBA) and then used for immobilization of α -galactosidase. The immobilization protocol was optimized and several parameters that effect to the immobilization of the enzyme were also investigated. Some parameters effecting to the enzyme activity and stability were also searched. The immobilized enzyme was also used in the hydrolysis of raffinose. Optimum immobilization conditions were determined as; [Glutaraldehyde]: 1.25% (v/v), ABFA amount: 10 mg/g, protein amount: 1 mg/g, pH: 5.0 and I: 25 mM. Under this optimized conditions the enzyme was immobilized with 72% activity yield. Characterization studies showed that optimum pH and temperature of free and immobilized α -galactosidases were pH 5.0 and 40°C, respectively. The immobilized enzyme was found to be very stable in comparison to free enzyme at a temperature range of 25-60°C and a pH range of 2.0-7.0. The kinetic constants (K_m and V_{max}) of immobilized enzyme were calculated from Lineweaver-Burk plot as 0.71 mM and 0.18 U/mg, respectively. Various metal ions, saccharides and chemicals were also examined for their effects on α -galactosidase activity. The immobilized enzyme has good properties for its various industrial applications.

Keywords: α -Galactosidase, *Lycopersicon esculentum*, Immobilization, Sepabead EC-EA, Aminophenylboronic acid.

Optimization of Capillary Electrophoretic Method for Simultaneous Determination of Some Antidiabetics

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Abstract

Drugs belonging to class such as sulfonyl ureas (e.g. glipizide, glibenclamide, gliclazide) and thiazolidinedione derivatives (pioglitazone, rosiglitazone) are commonly prescribed hypoglycemic drugs for the treatment of non-insulin-dependent type II diabetes mellitus. The use of combination of sulfonyl ureas and thiazolidinedione derivatives is commonly observed in clinical practice.

In this study, the six anti-diabetic drugs chosen for this study were glibenclamide (GLB), gliclazide (GLC), glipizide (GLZ), pioglitazone (PGL), glimepiride (GLP), and rosiglitazone (RGL) and capillary electrophoretic method was developed and optimized for determination of these drugs. The effect of buffer pH and concentration, temperature and injection time were investigated. The optimum conditions for separation of all six drugs was determined to be; 25mM fosfate, pH 6.5, temperature 20 °C with an applied voltage of 30kV.

Keywords: Capillary Electrophoresis, Antidiabetic Drugs, Method Optimization

Acknowledgments: This work was supported by Usak University BAP (project 2014MF-008)

Uptake of Toluidine Blue, Alizarin Red S, and Gallocyanine dyes from Aqueous Environment with poly(2-acrylamido-2-methyl-1-propansulfonic acid sodium salt)- *Polyporus squamosus* (Huds.) Fr.**Duygu Alpaslan¹, Tuba Erşen Dudu¹, Senol Kubilay²**¹Department of Chemical Engineering, Faculty of Engineering and Architecture, Yuzuncu Yil University, Van, Turkey²Department of Chemistry, Faculty of Sciences, Yuzuncu Yil University, Van, Turkeysenolkubilay@yyu.edu.tr**Abstract**

Recently, numerous approaches have been studied for the development of cheaper and more effective absorbents containing functional polymers or polymers/composite mixture for removal of a variety of pollutants. In this study, p(AMPS)- *Polyporus squamosus* (Huds.) Fr. (*P. squamosus* (Huds.) Fr.) composite hydrogels were synthesized by using Acrylamido-methyl-propansulfonic acid sodium salt (AMPS) based the monomers and *P. squamosus* (Huds.) Fr. as fungi. Synthesized composite hydrogels were investigated swelling behaviors in deionize water and sensibility pH and were characterized using Fourier Transform Infrared Spectroscopy (FT-IR) and Thermal Gravimetric Analysis (TGA). In the environmental applications of composite hydrogels aimed removal from aqueous medium of Toluidine Blue (TB), Alizarin Red S (AR), and Gallocyanine (G) textile dyes. Therefore in this study investigated effect on the absorption performance of initial dye concentration (mg/L), the pH of the media, and contact time (min). Ultra-Violet spectroscopy was used to quantify TB, AR, and G during absorption studies. A comparison of kinetics models applied to the absorption of TB, AR, and G dyes on the composite hydrogels was utilized for the pseudo-first-order (Lagergren models), pseudo-second-order and intraparticle diffusion kinetic models. Moreover the most utilized adsorption isotherms models like Langmuir and Freundlich were studied to obtain the best-fitted isotherm equation. Under specified experimental conditions, the maximum absorption capacities for TB, AR, and G dyes were calculated to be 40.94 mg/g, 0.1 mg/g, and 0.13 mg/g, respectively.

Keywords: *Polyporus squamosus* (Huds.) Fr., Hydrogels, Acrylamido-Methyl-Propansulfonic Acid Sodium Salt, Textile Dyes.

Effects of Pre-Harvest AVG Treatments on Fruit Quality of Jonagold Apple Cultivar throughout Cold Storage

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Abstract

The present study was conducted to investigate the effects of pre-harvest AVG treatments on weight loss, flesh firmness, soluble solids content, starch degradation, titratable acidity and pH content of Jonagold apple cultivar at harvest and at 60 days post-harvest intervals throughout cold storage at 2 ± 0.5 °C and $90\pm5\%$ RH. A total of 225 mg L^{-1} AVG dose was applied at once in a single application at different times. AVG treatments applied at once (225 mg L^{-1}) 8 or 4 weeks before the anticipated harvest time. All spray solutions contained 'Sylgard-309' as surfactant (0.05%, v/v). Unsprayed trees were served as control. AVG treatments delayed flesh softening, starch degradation rates and consequently lowered fruit ripening.

Keywords: Weight loss, Fruit firmness, Starch degradation, SSC.

Terrarium In Indoor Ornamental Plant Designs

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Abstract

In rapidly evolving word, the fact that unplanned urbanization has exterminated ecological urban phenomenon and natural habitat. As a result of the reduction of natural habitat, it has revealed which the need to see a part of nature for people who live in indoor areas-concrete building. Terrarium is generally made of clear container (glass, plastic) and are composed of a simulate environment as land environment consisted of reptiles, insect, some plants species.

In this study, succulent plant which need less water and to be used in terrarium were handled. basic elements such as humidity, light, temperature, water were examined for terrarium materials and according to organisms which live in terrarium to created controlling environment

Keywords: Succulent plant, Terrarium, Artificial habitat

Comparative Seed Anatomy, Micromorphology and Morphometry of Some Orchid Species (Orchidaceae) Belong to the Related *Anacamptis*, *Orchis* and *Neotinea* Genera**Senay Süngü Şeker, Mustafa Kemal Akbulut, Gülcan Şenel**

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Abstract

Orchis is a genus from Orchidinea subtribe generally distributed in the Mediterranean, Northern Europe and Asia. It forms a big group in terms of the number of species it includes, and studies conducted in recent years reveal results which are different from each other in terms of the systematics and phylogeny of the genus. According to molecular studies, a few species which formerly used to be in *Orchis* have been included in *Neotinea* and *Anacamptis* genera which used to be known as monotypic. On the other hand, a lot of researches on orchid seeds have indicated that some seed characters have the diagnostic or phylogenetic value. Therefore, in order to reveal both qualitative and quantitative seeds properties of the species belongs to phylogenetically related genera in detail and to investigate which properties are diagnostic among these taxon, the seed micromorphology and morphometry of 10 taxa from *Orchis*, *Anacamptis* and *Neotinea* genera were examined using a light and electron microscope. In this study, significant differences were detected at the genus level in terms of morphometric characteristics such as seed length and width, embryo length and width, length, width and surface areas of the seed coat cells; length/ width ratios of seed, embryo and cells; seed volume and embryo volume; and in terms of micromorphological characteristics such as shape of seed, chalazal region cell shape, cell shape difference between chalazal region and medial region, periclinal wall ornamentation and anticlinal wall sculpture. The seed micromorphological and morphometric characteristics were examined with the help of different ordinal tests and hierarchical clustering analyses by taking into consideration the taxonomic status of closely-related *Anacamptis*, *Neotinea* and *Orchis* genera.

Keywords: *Anacamptis*, Anatomy, Micromorphology, *Neotinea*, *Orchis*,

Synthesis of Nanobubbles for Dual Therapy and Dual Targeting, Research Into Its Biocompatibility and Pharmacokinetic Studies

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Abstract

Lung cancers are most common and fatal cancer in developed countries. Lung cancer rate is still 12.8% of all cancers in the world, and cause of 17.8% of all cancer deaths'. When the high smoking rates considered in our country, lung cancer is one of the most common malignancies as in all over the world. Cancer is the beginning uncontrolled cell division. For the emergence of cancer, tumor cells must gain other malignant properties as well as invasion and metastasis. For this purpose, cancer cells use matrix metalloproteinases to surpass the barrier that contains extracellular matrix elements. Matrix metalloproteinase-11 (MMP-11) is one of the matrix metalloproteinases which's expression increases in lung cancer although it does not expressed in healthy tissues. A peptide sequence which may be broken by MMP-11 will be designed for conjugation to magnetic nanoparticles and a new antifolate drug pemetrexed and one of a new tyrosine kinase inhibitor pazopanib which are available in use for lung cancer treatment will be conjugated to peptides. After conjugating the peptides to magnetic nanoparticles, pazopanib and pemetrexed will be attached to the peptide decorated magnetic nanoparticles and it is planned to encapsulate into the prepared nanobubbles which was build in liposome form. In this project, we aimed to produce magnetic and ultrasound responsive pemetrexed and pazopanib containing nano delivery system in i.v. injection form to use these nanoformulations at biocompatibility and pharmacokinetic studies.

Keywords: pemetrexed, pazopanib, dual targeting, dual therapy, nanobubble

Acknowledgement: We would like to thank for financial support received from The Scientific and Technological Research Council of Turkey (Project ID: 213M672).

Biyo-synthesis of silver and zinc nanoparticles by *Persea americana* (Avacado) and its antimicrobial activity against multi drug resistant *Staphylococcus aureus***Fatih Doğan KOCA*, Dilek DEMİREZEN YILMAZ*, Seyda YILMAZ**, Kürşat DEMİREZEN*****

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** Erciyes University, Graduate School of Natural and Applied Sciences, Turkey

*** Step to City Technology and Promotion Inc. Minorus Informatics

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This study reported to the biosynthesis potentials of leaf extracts of *Persea americana* (Avacado) for production of silver nanoparticle without use of any external reducing or capping agent. The appearance of dark brown color indicated the complete nanoparticle synthesis which was further validated by absorbance peak by UV-vis spectroscopy. The morphology of the synthesized particles was characterized by scanning electron microscopy (SEM). The X-ray diffraction (XRD) patterns clearly illustrated the crystalline phase of the synthesized nanoparticles. Fourier Transform Infrared (FTIR) spectroscopy was performed to identify the role of various functional groups in the nanoparticle synthesis. The bio-synthesized Zn and Ag nanoparticles showed promising antimicrobial activity against *Staphylococcus aureus* bacteria. The biologically synthesized zinc and silver nanoparticles showed promising activity against all the tested pathogenic strains and the activity has been enhanced with the increased dose levels.

Keywords: Green synthesis, silver nanoparticle, antimicrobial activity, *Staphylococcus aureus*

Seed Germination Responses of Eastern Mediterranean Species to Smoke-water, Karrikinolide and Mandelonitrile

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Abstract

In the early 1990's, smoke was identified as an important germination cue in fire-prone regions. After that, karrikinolide (KAR₁) and cyanohydrin was isolated from smoke-water in 2004 and 2011, respectively. Smoke-stimulated seed germination is well documented in the Mediterranean Basin, but the effects of KAR₁, cyanohydrin and their combined use are still unclear. In this study, we have examined the germination response of 34 eastern Mediterranean Basin species to smoke-water (plant-derived), KAR₁ and mandelonitrile (a cyanohydrin analogue). Smoke treatment resulted in significant increase in the germination of 6 species. Both KAR₁ and mandelonitrile treatments markedly promoted the germination percentage of 4 species. Finally, germination of 11 species was significantly stimulated by combined effect of KAR₁ and mandelonitrile. The results of our study show the role of smoke-derived compounds in the germination of Mediterranean species. Our results also suggest that smoke-derived compounds have synergistic effect on germination process. More studies are still needed to determine the role and mechanism of the smoke-derived compounds in post-fire germination.

Keywords: Smoke-water, Karrikinolide, Mandelonitrile, Germination, Mediterranean Basin

Acknowledgment: This study was part of PhD thesis of the first author, which was financially supported by Muğla Sıtkı Koçman University Scientific Research Unit (Project No: 15/153).

The Investigation of Feline Parvoviruses (FPVs) into Two Different Phylogenetic Lineages in Turkey.

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Abstract

Carnivore Parvoviruses, namely Feline Panleukopenia virus (FPV) and Canine Parvoviruses (CPVs), closely related at the genetic level, have high mortality rate among the domestic cats and wild felid species. Many researchers implied that occurrence of new subtype or strain may be possible in consequence of RNA recombination between these viruses. It is also reported that the presence of parvovirus infections in domestic cats in Turkey. Hence, in this study we aimed to obtain current knowledge about FPVs among domestic cats using by molecular and phylogenetic methods. The organ and blood samples obtained from three cats were found positive and their molecular characterization were examined based on partial VP2 gene region. Through this analysis, sequences of two cats have localized on monophyletic clade as a sister branch of CPVs whereas one sequence placed in distinct clade as paraphyletic. Maximum Likelihood (ML) and Bayesian Inference (BI) methods were used for comparative molecular characterization and as a conclusion, obtained data have presented circumstances of cross-species transmission and genetic diversity of parvoviruses in Turkey.

Keywords: Feline Parvoviruses, Genetic Diversity, Turkey

Synthesis and Characterization of bio-based composite and Their Application for Environmental Purposes

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Abstract

Poly(3-Acrylamidopropyl-trimethyl ammonium chloride)- *Polyporus squamosus* (Huds.) Fr. (p(APTMACl)-*P. Squamosus* (Huds.) Fr.) composite were synthesized by using APTMACl as the monomers and *P. Squamosus* (Huds.) Fr. as the bio-part. Synthesized composite was investigated to obtain swelling behaviors in deionize water and sensibility at pH. The synthesized composite was characterized by Fourier Transform Infrared Spectroscopy (FT-IR) and Thermal Gravimetric Analysis (TGA) techniques. In the environmental applications of composite was expected to remove Toluidine Blue (TB), Alizarin Red S (AR), and Gallocyanine (G) textile dyes from textile wastewater. Furthermore, the effects of initial dyes concentrations (mg/L), medium pH and contact time (min) were investigated on the absorption performance of the composite. Ultra-Violet spectroscopy was used to quantify TB, AR, and G during absorption studies. Additionally, kinetic investigation of the dyes and composite interactions were studied. Moreover the applicability of the Langmuir and Freundlich isotherms for the absorption process carried out to obtain the best-fitted model. Under these experimental conditions, the maximum absorption amount of TB, AR, and G dyes were calculated as 0.18 mg/g, 31.30 mg/g, and 36.67 mg/g, respectively.

Keywords: Adsorption, Hydrogels, Textile Dye, Composite.

Removal of Textile Dyes from Aqueous Environment with poly(2-acrylamido-2-methyl-1-propansulfonic acid sodium salt -co- 3-acrylamidopropyl-trimethyl ammonium chloride)-*Polyporus Squamosus* (Huds.) Fr. Composite Hydrogel**Tuba Erşen Dudu¹, Duygu Alpaslan¹, Nahit Aktaş¹**¹Department of Chemical Engineering, Faculty of Engineering and Architecture, Yuzuncu Yil University, Van, Turkeytuba_ersen@hotmail.com**Abstract**

Biomass by ability of a large part of metabolic adaptability have shown resistance to different dye species including textile wastes and many of them have the potential to removal dyes from aqueous solution. Both living and non-living biological biomass can use as effective dye collector. In this investigation, p(AMPS-co-APTMACl)- *Polyporus Squamosus* (Huds.) Fr. composite hydrogels were synthesized by using 2-Acrylamido-2-methyl-propansulfonic acid sodium salt (AMPS) and 3-Acrylamidopropyl-trimethyl ammonium chloride (APTMACl) based the monomers and utilized for targeted dyes removal. Synthesized composite hydrogels were investigated swelling behaviors in deionize water and sensibility pH and were characterized using Fourier Transform Infrared Spectroscopy (FT-IR) and Thermal Gravimetric Analysis (TGA). In the environmental applications of composite hydrogels aimed removal from aqueous medium of Toluidine Blue (TB), Alizarin Red S (AR), and Gallocyanine (G) textile dyes. Therefore in this study investigated effect on the absorption performance of initial dye concentration (mg/L), the pH of the media, and contact time (min). Ultra-Viole spectroscopy was used to quantify TB, AR, and G during absorption studies. A comparison of kinetics models applied to the absorption of TB, AR, and G dyes on the composite hydrogels was utilized for the pseudo-first-order (Lagergren models), pseudo-second-order and intraparticle diffusion kinetic models. Moreover the most utilized adsorption isotherms models like Langmuir and Freundlich were studied to obtain the best-fitted isotherm equation. Under specified experimental conditions, the maximum capacities for of TB, AR, and G dyes were calculated to be 0.07 mg/g, 3.57 mg/g, and 10.83 mg/g, respectively.

Keywords: Absorption, Composite Hydrogels, Acrylamido-Methyl-Propansulfonic Acid Sodium Salt, Acrylamidopropyl-Trimethyl Ammonium Chloride.

Biological And Coloring Properties of Sambucus nigra L. (berries), Inula viscosa (L.) Aiton (leaves) and Datisca cannabina L. (leaves) As a Sustainable Fabric Dye**Tulin Askun^a, Gulendam Tumen^a, Pinar Celikboyun^a**

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Abstract

Three plants ethanol extracts, *Datisca cannabina* (herba), *Sambucus nigra* (fruit), and *Inula viscosa* (herba), were investigated according to their antifungal activities, phenolics and potential of using a colorant for textile. Antifungal activities of the plant ethanol extracts were assayed against four fungus using microdilution well-plating method. Phenolics were determined by using HPLC. The dyed fabric samples were tested according to standard of AATCC 147 (parallel streak method of fabrics) for antibacterial activity against *Staphylococcus aureus* and *Klebsiella pneumonia*. The ethanol extracts were evaporated and powdered using the spray-dryer. In dyeing process, fabrics comprised 30/ 1 Rib and single jersey % 100 cotton were used. Mordanting was performed by means of FeSO₄, tartaric acid, CuSO₄ and KAl (SO₄)₂.12H₂O in aqueous solution.

In this study, ethanol extracts showed fungicidal activity against *Aspergillus ochraceus* and *Fusarium proliferatum*. Natural dyes obtained from the leaves of *D. cannabina*, *I. viscosa* and *S. nigra* were yellow, yellow-brown, and brown respectively. The best color performances were ensured by the mordants of FeSO₄ and tartaric acid.

As a result, dying fabrics of natural dye from the herba and fruits were accomplished. Determined antifungal efficacies were by *I. viscosa* against *C. albicans*, *A. flavus*, *A. ochraceus*, *F. proliferatum*; by *S. nigra* against *A. ochraceus*, *F. proliferatum*; and by *D. cannabina* against *C. albicans*, *A. flavus*, *A. niger*, *A. ochraceus* and *F. proliferatum* respectively. As a results, these plants are found suitable for natural fabric colorants.

Keywords: Antifungal activity, natural dyes, *Inula viscosa*, *Sambucus nigra*, *Datisca cannabina*, phenolics

A Preliminary Study of Metal Pollution Assessment in Water and Sediment of Sarıçay Stream in Muğla (TURKEY)

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Abstract

The concentrations of six heavy metals (Cr, Pb, Cu, Mn, Zn and Ni) were measured in water and sediment of Sarıçay Stream in Turkey. The decreasing trend of metals were observed in water as Mn>Zn>Cr>Cu>Ni>Pb and in sediment as Mn>Zn>Ni>Cu>Cr>Pb. The level of studied metals were not exceeded the safe limits of toxicity reference value for fresh water, indicated that water from this stream is safe for organism. The assessment of pollution load index (PLI) values of metals in sediment at all sites was ranged from 0.18 to 0.21 during winter and 1.43–1.80 during summer. It is supporting that the sediment of the studied stream was not contaminated on winter but contaminated on summer. Furthermore, geoaccumulation (*I*_{geo}) values for Mn (3.99) and Zn (3.18) during summer indicate heavily contaminated status. The higher geoaccumulation index (*I*_{geo}), pollution load index (PLI) and contamination factor (CF) values on summer indicated that Mn and Zn are the major contributors to the sediment pollution. Calculated values indices Sarıçay stream can be classified as unpolluted to moderately polluted stream environment.

Keywords: Metals; pollution index; geoaccumulation index; enrichment ratio; Turkey

Adhesion Potential of Lactic Acid Bacteria Isolated From Different Sources to HT-29 Cell Line**Ümmügülsüm Tükenmez¹, Belma Aslım¹**¹Gazi University, Faculty of Science, Department of Biology, Ankarautukenmez@gazi.edu.tr**Abstract**

Probiotics are “live microorganisms that, when administered in an adequate amounts, confer a health benefit on the host”. Most of microorganisms utilized as probiotics belong to lactic acid bacteria (LAB) and bifidobacteria groups. LAB have shown protective effects against colorectal cancer by modulating and reinforcing the host’s natural defence mechanisms. In addition, LAB may modify luminal secretions, affect epithelial cell proliferation and reduce the exposure to carcinogenic and toxic compounds in the colon. The adhere ability of probiotic strains to intestinal surface is one of the main criteria for selecting probiotic strains. Due to studying of bacterial adhesion *in vivo* condition is difficult, generally, *in vitro* models with intestinal cells are adapted for this evaluation. HT-29 cell line is one of the most commonly used cell line which was isolated from human colon adenocarcinoma. It is representative for colon epithelium, because of its ability to produce mucus with large quantity. In the present study, the adhesion ability of high exopolysaccharide (EPS) producer LAB isolated from human faecal samples; *Lactobacillus plantarum* (GD2), *Lactobacillus rhamnosus* (E9), *Lactobacillus brevis* (LB63) and isolated from yoghurt; *L. delbrueckii* ssp. *bulgaricus* (B3) strains to HT-29 cell line were investigated as adhesion indexes and per cent adhesion. According to our results, all lactobacilli strains showed good adhesion potential to HT-29 cell line. This results suggests that, LAB strains can adhere to intestinal epithelial cells which is where the probiotic action or colon cancer originates and confer beneficial effects for the host.

Keywords: Adhesion, exopolysaccharide, HT-29 cell line, lactic acid bacteria.**Acknowledgments:** This work was supported by TUBITAK, Project No: 115R282. In addition, we wish to thanks TUBITAK for providing fellowship to Ümmügülsüm TÜKENMEZ.

Relationship between Natriuretic Peptide Levels with Heart and Kidney Parameters in Rats with Chronic Renal Failure.**Yıldırım BAŞBUĞAN¹ Zahid T. AĞAOĞLU²**

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Abstract

In the present study, the relationship between heart and kidney parameters compared to natriuretic peptide levels in rats having experimentally induced chronic renal failure were aimed to investigate. For this purpose, 60 Wistar albino rats were used as animal material. These rats were divided into two groups as control (10 male and 10 female) and study group (20 male and 20 female). Adenin (1gr/L) were added to the drinking water of the study group during 28 days. On the last day of the experiment, the animals were sacrificed under anaesthesia and blood, kidney, heart and liver samples were collected from all animals. When hematologic parameters analysed, WBC ($p<0.05$) and PLT ($p<0.01$) values increased in study group compared to control group, but RBC, HGB HTC, MCV, MCH and MCHC values did not changed significantly in both groups. When biochemical parameters examined; Ca^{++} ($p<0.01$) and P ($p<0.01$) values increased in the study group compared to control group, but AST, ALT, LDH, CK, CK-MB and cTn I levels did not change significantly in both groups. Creatinin, urea and BUN, which all are diagnostic markers of kidney, levels increased in the study group as 1.55 ± 0.20 mg/dL, 239.34 ± 22.00 mg/dL and 123.05 ± 15.02 mg/dL respectively. The same values in the control group were 0.34 ± 0.24 mg/dL, 41.07 ± 1.39 mg/dL and 19.18 ± 0.6 mg/dL respectively. When natriuretic peptide parameters evaluated; BNP and NT-ProBNP levels increased significantly in the study group and the values were as 79.10 ± 12.64 pg/ml and 84.45 ± 17.31 pg/ml respectively and the same values in the control group were 37.93 ± 3.68 pg/ml and 40.01 ± 5.85 pg/ml respectively. In the necropsy, enlargement in kidneys, and fading in their colours were observed in macroscopic examination. But, macroscopic changes in liver and heart were not observed in both groups. In the microscopic examination; tubular dilatation, crystallisation in the intertubular space and giant cell formation, degenerations in the tubuloseptills and tubulointerstitial nephritis were observed in the study group. In contrast, in the control group no changes observed both macroscopically and microscopically. As a result; it was concluded that diagnostic parameters used in the chronic renal failure may have a linear relationship between natriuretic peptides (especially BNP and NT-proBNP).

Keywords: Chronic Renal Failure, Natriuretic peptide, Rat.

Investigation of the effects of pomegranate flowers on s-100B and NSE proteins in hippocampus in experimental diabetic rats

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Abstract

The goal of present study is to determine the effects of Pomegranate flower on S-100B and NSE proteins in the brains of experimental STZ-induced diabetic rats.

60 wistar-albino male rats (220 ± 40 gr) were used in the study. Rats were randomly separated into five groups contains control, diabet (STZ), STZ+ Pomegranate flower I, STZ+ Pomegranate flower II, STZ+ Pomegranate flower III. 60 mg/kg STZ were intraperitonally applied. 300 mg/kg/day Pomegranate flower were given in the STZ+ Pomegranate flower I group; 400 mg/kg/day Pomegranate flower were given in the STZ+ Pomegranate flower II group and 500 mg/kg/day Pomegranate flower were given in the STZ+ Pomegranate flower III group. Experimental applications were continued 6 weeks. Rats were sacrificed after the Morris water maze test and S-100B and NSE protein levels were determined in the hippocampus.

It was found that learning and memory functions of diabetic groups were damaged compared with other groups according to the Morris Water maze and Probe test results. There was no differences S-100B and NSE proteins between STZ+ pomegranate flower III and control groups after the pomegranate flower given. S100B and NSE expression were highest in the diabetic group ($p < 0.05$). Present result suggested that pomegranate flower reduced the neurodegenerative and cognitive function damages in the diabetes.

Keywords: Diabetes, S-100B, NSE, Pomegranate flower

Acknowledgement: This study supported by FUBAP (1574 number) and TUBA

Felidherpesvirus 1 Infection in Van Cats with Conjunctivitis

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Abstract

Felidherpesvirus 1 (FHV1) infecting in felidae can cause severe upper respiratory tract disease with clinical symptoms including nasal discharge, sneezing, inappetence, pyrexia and conjunctivitis. In this study, 20 ocular swab samples were obtained from Van cats, in age from 9 days to 1 year, presented signs of FHV1 infection. PCR method was used for the detection of virus. FHV1 spesific amplicon (737 bp) was detected in 9 (45%) cases. Sequence analysis releaved that there is no diversity between the amplicons detected in samples. In conclusion, the use of the appropriate type of vaccine, such as attenuated live vaccine may be important for preventing clinical case in cats vaccinated with inactive vaccine.

Keywords: Vancat, Conjunctivitis, Felid herpesvirus-1 (FeHV-1), PCR

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