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Benchmarking Effects of Organic and Conventional Farming Applicationsat Hazelnut Orchards in Dryland

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Abstract

In this study, it was proposed to investigate how hazelnut trees (*Corylusavellana L.*) were affected by organic and conventional farming application under dryland conditions. Therefore, it was studied to measure of leaf water potential (LWP), stomatal conductance (g_s) and photosynthetically active radiation (PAR) on hazelnut trees under organic and conventional managements in dryland conditions. To measure effects of organic and conventional farming applications, soil water content (SWC) and atmospheric stress (i.e. air vapor deficit – VPD) were analyzed against those parameters. Evapotranspiration (ET) and yield were slightly higher in organic application than conventional application but lower SWC. Moreover, conventional hazelnut trees had slightly higher LWP and $g_s$values but lower VPD values than organic application. Organic hazelnut trees were generally unnoticeable higher LWP, PAR, and g_s responses to SWC and VPD than conventional hazelnut trees. ET, yield, SWC, and VPD values were mostly parallel with the results obtained plant canopy measurements.Both hazelnut orchards were influenced by precipitation during the year. However it could be stated that hazelnut tress needed to be irrigated during dry days to have higher yields and to avoid summer water stress. In conclusion, it can be concluded that organic farming seemed a good alternative for hazelnut orchards in dryland.

Key words: Water consumption, Physiology, Vapor pressure,Hazelnut,Düzce

Some Physiological Responses of Hazelnut Trees under Dry Conditions

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Abstract

This study conducted to search some physiological responses such as leaf water potential (LWP), stomatal conductance (g_s) and photosynthetically active radiation (PAR) of hazelnut trees (*Corylus avellana L.*) under dry conditions in 2013 and 2014. At the same time, possible effects of those physiological responses on hazelnut trees *vs.* soil water content (SWC) was investigated. Results showed that yearly ET of hazelnut trees was higher in 2014 than 2013 while seasonal ET of hazelnut trees was higher in 2013 than 2014. Yield, LWP and g_s were higher in 2014 than 2013 while PAR and SWC were mostly higher in 2013 than 2014. The relationships of linear regression of LWP, g_s and PAR, and SWC effect on LWP, g_s and PAR were very slightly. These differences could be due to climate variability such as precipitation and temperature during the studied years. Therfore, it can be stated that hazelnut trees may be required supplement irrigation in dry summer such as in the year of 2013. As a result, it can be finalized that hazelnut trees can be grown well, even give normal yield, in areas where 950 mm precipitation have.

Keywords: Leaf water potential, Stomatal conductance, Dry conditions, Hazelnut, Black Sea

Effects of Partial Replacement of Fishmeal with Corn Distiller's Dried Grains with Solubles (DDGS) on Nutrient Digestibility Coefficients in Rainbow Trout (*Oncorhynchus mykiss* Walbaum, 1792)

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Abstract

The present study investigated the effects of partial replacement of fishmeal with corn distiller's dried grains with solubles (DDGS) on nutrient digestibility coefficients in rainbow trout (*Oncorhynchus mykiss*). Four isoproteic (45.47% CP) and isocaloric (3570 kcal DE/kg) diets were formulated: DDGS0 as a control group and DDGS10, DDGS20 and DDDGS30 which included 0%, 10%, 20% and 30% DDGS meal, respectively. The diets were extruded through a 3 mm diameter die in a twin-screw extrusion machine. 12 tanks were stocked each with 25 trouts with an average weight of 75.6 ± 5.0 g. Faeces were collected over a 15-day period using a settlement column and pooled within the tank. Chromic oxide was used as an inert marker for the evaluation of digestibility. Apparent digestibility of dry matter (76.2-77.3%), crude protein (91.6-92.5%), crude fat (94.1-%94.6) and energy (89.1-89.7%) of experimental diets were not affected by the inclusion level of DDGS protein ($p<0.05$). The ADCs of protein, lipid and energy in all treatments were above 89%. Results of this trial indicate that DDGS can replace 30% of fishmeal protein in diets with no negative effects in nutrient digestibility coefficients in rainbow trout.

Keywords: Feeding, DDGS, Feed ingredients, Rainbow trout, Digestibility

Antimicrobial activity of *Ulva rigida* extracts from Gulf of İzmir/Turkey

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Abstract

The present study was studied on the antimicrobial activity of *Ulva rigida* extracts. *U. rigida* was collected from the Coast of Inciraltı (Izmir, Turkey). In the laboratory, the samples were cleaned by rinsing with tap and distilled water, and then dried at 40 °C for 24 hours. Dried and pulverized seaweed samples (10 g) were weighed into an amber Erlenmeyer flask, and 100 ml of solvent was added. The mixture was shaken and extracted in a shaker at room temperatures for 24 hours. The extracts were filtered, and solvent was removed using a rotary evaporator to obtain extracts. *U. rigida* extracts were experimented with seven different solvents (chloroform, methanol, ethanol, ethyl acetate, aceton, diethyl ether and n-hexane) against six bacteria (*Bacillus subtilis*, *Staphylococcus aureus*, *Enterococcus faecalis*, *Listeria monocytogenes*, *Escherichia coli* and *Pseudomonas aeruginosa*) and two fungi (*Aspergillus brasiliensis* and *Candida albicans*) by using agar disc diffusion method. The maximum activity (14 mm) was observed against *B. subtilis* by using aceton as a solvent. Diethyl ether extracts were not showed antimicrobial activity against all of the microorganisms.

Keywords: *Ulva rigida*, seaweed, extract, solvent

The effect of different trap enterence funnel positions according to stream flow on freshwater shrimp (*Palaemonetes antennarius, H. Milne Erwards, 1837)* catch efficiency

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Abstract

Freshwater shrimp is used for aquarium fish feeding and bait in fishing. In freshwater shrimp fishing is usually used scoop net and tin traps. In the present study was used to traps constructing from chromium wire and net. Traps were designed for the study and prepared first time in that area. Experiment was conducted in the stream located in Konyaaltı, Antalya. Different trap entrance funnel positions according to stream flow were set up. Entrance funnel directions were take placed according to stream flow, laterally, and opposite stream flow. Chicken meat was used as an attractant in the traps. The aim of the study was to determine the effect of different trap enterence funnel positions according to stream flow on freshwater shrimp catch efficiency. According to results, the highest catch efficiency was obtained from opposite stream flow traps (56.56%), than laterally traps (30.39%). The lowest catch efficiency was of stream flow traps (13.05%). As a result, it was determined that opposite stream flow trap position was improved freshwater shrimp catch efficiency.

Key words: Freshwater shrimp, trap, Antalya, catch efficiency.

Evolution of Spring Barley Genotypes in Multi-Environments Trials by AMMI and GGE Biplot Analysis

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Abstract

The uniformity of genotypes is significant for crop breeding program decisions to selection and improves new varieties. The AMMI (Additive main effects and multiplicative interaction) analysis and Genotype x Environment Interaction (GEI) is make to estimation grain yield and understands GxE interaction patterns by researches as differential ranking of variety yields in multi-environment trials. Therefore, fifteen barley advanced line, six national cultivars and four foreign varieties (registered in abroad) were used in the study. The experiments were performed according to a complete randomized block design with four replications at five environments during two years. The stability and superiority of genotypes for yield and other traits were determined using AMMI and GGE Biplot analysis. Factors (G, GE, and GEI) were found to be highly significant ($P < 0.01$) for grain yield. AMMI analysis indicated that the major contributions to treatment sum of squares were environments (98.52%), GE (0.45%) and genotypes (1.02%), respectively, suggesting that grain yield of genotypes were affected environmental conditions. The GGE Biplot indicated that PCA 1 axes (Principal component) was significant as $P<0.01$ and supplied to 49.36% of complete GxE interaction. The AMMI indicated that G8 and G23 desirable and stable genotypes for grain yield in multi-environment. Moreover, E2 and E5 (irrigated environments) were high yielding, while E3 (drought stress) low yielding as forecast. On the other hand, GGE Biplot indicated that three group were occurred among traits, first group (GY: grain yield, CC: crude cellulose, CD: cold damage), second group(PC: , HW: hectolitre weight, TGW: thousand grain weight, SH: seed humidity), third group(LOD: lodging, PH: plant height, HT: heading time). Moreover: the study showed that G3, G6, G7, G8, G13 and G21 were the best genotypes both grain yield and other traits. The results of AMMI model and GGE Biplot indicated that G8 is suitable to recommend for release and G23 desirable origin for yield stability and G7 valuable source for quality to use in barley breeding program.

Keywords: Barley; GEI; AMMI; GGE biplot; Grain yield; Stability

Identifying of Relationship Between Traits and Grain Yield in Spring Barley by GGE Biplot Analysis

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Abstract

Grain yield is very important and complicated trait in spring barley breeding and rely upon combination varied plant traits (agronomic and quality). For this reason, a real barley breeding program necessaries an appropriate mentality of the relationships between grain yield and traits. The aim of study was evaluate the relationship of grain yield and other traits of 25 spring barley genotypes in one location during two years by GGE Biplot analysis. The experiments were performed according to a complete randomized block design with three replications. Factors (G, GE, and GEI) were found to be highly significant ($P < 0.01$) for grain yield. GGE Biplot indicated that three group were occurred among traits, first group (thousand grain weight, protein content, crude cellulose and cold damage), second group (hectolitre weight, lodging,plant height and heading time), third group(grain yield and seed humidity). Moreover, the study showed that negative correlation was found between grain yield and traits without seed humidity. The results of AMMI model and GGE Biplot indicated that G12, G13, G16 and G18 is proper for grain yield, G2, G6, G19 and G1 desirable origin for quality and other agronomic traits to select for advanced stage and use in barley breeding program.

Keywords: Spring Barley; GGE biplot; Yield; Traits, Correlation.

Different Pruning Systems in Plum (*Prunus domestica* L.) CultivarsTraining Effects on Fruit Yield and Quality

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Abstract

The study was carried out at the experimental area of Pozanti Agricultural Research and Application Center in Adana at 2013-2015 period (two year). Pruning has been used in ordet to controlling tree size and to maintain a balance between leaf/fruit ratio, fruit size, fruit colour and other quality parameters. Two plum cultivars (Black Daimond, Angeleno) and friar as pollinizer grafted on Myrobolan29C rootstock were used as experimental material. The trees produced commercial yields beginning in 2014, the 3rd growing season. The aim of the present study was compared four training systems (spindle, Quad-V, central leader and open vase) trees and different planting distance (80 -100-120-160-200-400cm, standard inter rows 5m) in terms of yield (kg/cm^2) and fruit qualıty factors such as (fruit weight, coloration, firmness, seed weight, TSS, acidity, fruit sunburn percentage). Also, morphological, phenological observations and chill accumulation of experimental area were detected during the research. Sufficient chilling accumulation was calculated in both year for crop load. The best high density training system has been found as Spindel (120cm) in terms of all parameters for both cultivars. In other systems the best results were found respectively, central leader system (160cm), Quad V and Open Vase system (200cm).

Keywords: Plums (*Prunus domestica L.*), Pruning, fruit quality, yield

PCR-Based Detection of *Alternaria burnsii* Causing Blight Disease in Cumin

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Abstract

Cumin (*Cuminum cyminum* L.) is an important spice and medicinal plant that is widely cultivated in Turkey, accounting for about 6% of world cumin production. Cumin blight caused by *Alternaria burnsii* is one of the most important diseases in cumin cultivation. The disease has been reported from all cumin growing regions of Turkey and causes yield losses up to 100% under favorable environmental conditions. The pathogen overwinters in naturally infected seed and crop debris. Thus, the use of pathogen-free seed is indispensable for the efficiency of disease control measures. In this study, we developed species-specific PCR assays for rapid and accurate detection of the pathogenic fungi *A. burnsii* based on differences in major allergen Alt a1 gene sequences of *A. burnsii*. Ab35/Ab326 primers amplified only a single PCR band of approximately 291 bp from *A. burnsii*. The specificity of the primer pairs designed was verified by PCR analysis of DNA from another fungal species associated with cumin. The primers could confirm the presence of the pathogen DNA in infected cumin seed. The PCR assay described in this study can be used for routine detection and identification of *A. burnsii*.

**This work was supported by TÜBİTAK Project 116O036 (Turkey)*

Keywords: *Alternaria burnsii*, Cumin blight, PCR detection, Specific primer

Determination of Resistance to Powdery mildew (*Podosphaera pannosa*) of Genotypes in the Early Selection Stage of Outdoor Rose Breeding

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Abstract

Roses are economically important ornamental plants used outdoors, as cut flowers and in pots. The disease resistance of rose varieties used in landscaping areas is important. Powdery mildew is one of the most common diseases in roses. With a long duration of 8-10 years for garden rose breeding, determining individuals susceptible to disease in the early selection stage is very important in terms of labor and cost. This study was completed within the auspices of the rose breeding project "Development of New Outdoor Rose Varieties through Hybridization", aiming to obtain new rose varieties required by rose growers in Turkey. Within the study, controlled hybridization was performed on 21 combinations of appropriate genotypes for breeding within the gene pool and 2360 hybrid individuals were obtained. Hybrid individuals were assessed in an unheated greenhouse under natural infection conditions. At the early selection stage with assessment on a scale of 0 to 3, 147 individuals were resistant, 59 individuals were tolerant and 2154 individuals were identified as being susceptible.

** This work was supported by TAGEM (TAGEM/BBAD/14/A09/P08/01) (Turkey)*

Keywords: Rosa x hybrida, Rose breeding, Disease resistance, *Podosphaera pannosa*, Early selection

Detection of Host Susceptibility of Some Chickpea Genotypes to *Ascochyta rabiei* by Real-Time PCR

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Abstract

Ascochyta blight, caused by *Ascochyta rabiei* is one of the most important foliar diseases of chickpea in the worldwide. The use of host plant resistance has been suggested as an efficient means to control this disease. This study evaluated the possibility of using Real-time PCR technique in the determination of susceptibility of some chickpea genotypes to Ascochyta blight. Eighty-eight chickpea genotypes selected from yield trials in 2014 were inoculated with detached leaflet method. Eight days after inoculation, inoculated leaflets were evaluated for disease severity, and then used for DNA extraction. Disease severity in chickpea genotypes ranged from 0 to 100%. Disease development in infected plant materials was also quantified by Real-time PCR using the standard curves constructed with known concentrations of pathogen DNA. The amount of pathogen DNA in the affected leaflet samples changed from 0.004-134.9 ng, which correlated with disease severity values of leaflets. Tüb-14, Tüb-16, Tüb-26, Tüb-35, Tüb-47, Tüb-65, Tüb-69, and Tüb-82 genotypes were classified as resistant to Ascochyta blight based on the quantification of pathogen DNA in infected plant tissues. This assay could be used for selection of resistant breeding material in the early stages of pathogen infection as an alternative to the visual disease assessments by quantifying the pathogen presence in host plant.

**This work was supported by TÜBİTAK Project 113O074 (Turkey)*

Keywords: *Ascochyta rabiei*, Disease severity, Host resistance, Pathogen quantification

First Report of *Neofusicoccum parvum* on Kiwifruit in Turkey

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Abstract

Kiwifruit (*Actinidia deliciosa*) is an important crop that is widely grown in Marmara and Black sea regions of Turkey. Yalova province accounts for about 39% of Turkey's kiwifruit production. In 2014-2016, surveys were made in old orchards located in Yalova province, and disease symptoms such as dieback of shoots and branches, and internal necrosis and browning on stems were observed on kiwifruit trees. Based on the morphological and cultural properties of the pathogen fungi isolated from diseased samples, it was identified as *Neofusicoccum parvum*. Koch's postulates were performed by inoculating 15 cm long segments of 1 year-old kiwifruit branches. The pathogen caused similar disease symptoms, and was reisolated from inoculated branches. The pathogen identification was also confirmed by analysis of nucleotide sequences of the rDNA-internal transcribed spacer (ITS) region of a representative fungal isolate using primers ITS4 and ITS5. The resulting sequence showed 99% identity with ITS sequences of other *Neofusicoccum parvum* isolates from Genbank. This study is the first report of *N. parvum* on kiwifruit in Turkey.

Keywords: Kiwifruit, *Neofusicoccum parvum*, Fungal disease

WheatPlantation in TigrisBasinand Analysis of Changein (1991-2015)

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Abstract

South-eastern Anatolia Region consists of two basins, Dicle (Tigris) Basin and Lower Fırat (Euphrates) Basin. In the provinces within the research object Dicle Basin (Diyarbakır, Mardin, Siirt, Batman and Sırnak), 9,5% of the wheat produced in Turkey was obtained in this region according to the data of 2015. Whether the geographical constraints or the drought due to global warming brings wheat production into the forefront in the agricultural production of the region.

With this study, it was aimed to determine the change in the wheat plantations of Dicle Basin provinces' in the last 25 years, the condition and adequacy of existing lands to meet the requirement. Making use of the values of efficiency and capability ratings of the wheat plantations in Dicle Basin between the years 1991-2015, a mapping was obtained by using the program ArcGIS. By demonstrating the change of wheat plantations within the basin through years by colouring them with 5 different colours for each 5 years' time period, it was addressed towhether the wheat plantations meet the need and which criteria the increase or decrease in the efficiency values and plantations depend on, and suggestions were made with the aim of providing an insight into regional agriculture policy.

Keywords: Wheat, GIS, Tigris Basin, Climate Change.

Regression Tree Analysis of Factors Affecting First Lactation Milk Yield of Dairy Cattle

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Abstract

The objective of this study were to examine the effects of management and environmental effects on first lactation milk yield (factors such as farm, breed, year of calving, season of calving, age at calving and days in milk) by means of regression tree method. Regression tree method is useful to determine effects of several factors on specified depended variable.

Data used in this study were obtained from three state farms. The resulting data set consisted of 754 records from 1st farm, 1120 records from 2nd farm and 324 records from 3rd farm. The average total milk yield and days in milk were 5.413 ± 2.033 kg and 324 ± 64 days, respectively. Calving year and days in milk were important variables affecting first lactation milk yield of dairy cattle.

Keywords: Regression tree, First lactation milk yield, Dairy cattle

Determination of Epigenetic Effects of Fiprinol and β-estradiol on *Vicia faba*

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Abstract

Herbicides are defined as crop-protecting chemical compounds used to kill or inhibit the growth of undesirable plants, which may cause significant damage in agriculture. Fipronil is a member of the phenyl pyrazole class of pesticides, which are chemicals with a herbicidal effect. Beta estradiol (β-estradiol) is similar in structural to phytoestrogens. Therefore, the present study was aimed at investigating DNA methylation changes in *Vicia faba* subjected to Fipronil and determines whether β-estradiol has any effect on these changes. The assays five fipronil (0.5, 1, 2, 3 and 4 ppm) and three β-estradiol concentrations (10^{-6}, 10^{-7} and 10^{-8}M) were used. CRED-RAs (Coupled Restriction Enzyme Digestion-Random Amplification) were used to define the changes in the pattern of DNA methylation. The results showed that Fipronil led to DNA hypo- methylation. The effects caused by Fipronil were decreased after application with different concentrations of β-estradiol. The results of this study clearly show that β-estradiol could be used effectively to protect bean seedlings from the epigenetic effects of Fipronil, and demethylation positively contributed to Fipronil tolerance.

Keywords: β-estradiol, DNA methylation, Fipronil, *Vicia faba*

Study of Iron Genotoxicity Using RAPD in *Phaseolus vulgaris*

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Abstract

Heavy metals pose a major threat for most plant species in the environment. Iron (Fe^{+2}) is one of these metals and after prolonged Fe^{+2} exposure, some sensitive and important agricultural crops such as bean, corn and wheat demonstrate abnormal developments in nucleic acid biosynthesis, lipid metabolism, photosynthesis and yield. This study proved that increasing concentrations of Fe^{+2} caused DNA damages using Random Amplified Polymorphic DNA (RAPD) technique in *Phaseolus vulgaris* seedlings. The results showed that all doses of $FeSO_4$ (50, 100, 200 and 300 mg/l) caused a decrease in Genomic Template Stability (GTS) which is a quantitative measurement reflects changes in RAPD patterns and an increase in RAPD patterns changes (DNA damage). The results of this experiment have clearly shown that Fe^{+2} has genotoxic effect in *Phaseolus vulgaris* seedlings.

Keywords: İron, *Phaseolus vulgaris*, RAPD

Somatic Embryogenesis Applications in Orcharding and Recent Developments

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Abstract

Generally the use of biotechnological methods in fruit growing area in the world as well as in Turkey is relatively new. Using these methods with conventional methods in fruit growing has made a significant contribution to the national economy. Furthermore biotechnology applications have great importance on the development and conservation of fruit genetic resources. *In vitro* techniques approached in the concept of biotechnology, in many issues especially breeding and reproduction in plants have solved the problems to find a solution being difficult or impossible via classical methods. In this study, researches done on somatic embryogenesis is one of the biotechnological methods on orcharding area had been investigated. The informations related to the aims, application methods and findings of somatic embryogenesis studies done in different fruit species have been presented.

Keywords: Somatic embryogenesis, *In vitro*, Orcharding, Fruit.

Women Entrepreneurs and Analysis of Business Problems

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Abstract

Today importance is given to effective entrepreneurship in developing countries. It is known that Turkey was developed the entrepreneurial culture in the individual and institutional levels. Therefore, to support Turkish entrepreneurs, entrepreneurship programs have been developed in recent years. Due to technological developments and economic prospects, women entrepreneurship has become even more important. Today there is an increase in the number of women participating in working life with the result of developing technology and industrialization. The desire for financial independence and decision making factors that impact women's decision to become self-entrepreneurs. Women participating in the business world but they face problems in entrepreneurial activities. In terms of providing a permanent life of self-employed women, it is important to identify business problems.

The purpose of the research is to evaluate the problems of women in business activities; such as capital supply, market situation, benefit from support, business creation, business executive, etc. Research is based on a study of 111 women entrepreneurs operating their businesses in 7 different sectors (agriculture, food, manufacture, engineering, retail, tourism, transportation) in Tekirdag, Turkey. In this context, determination of the problems of women owned businesses and comparison between sectors is important in terms of economic sustainability.

Key words: Entrepreneurship, woman entrepreneur, women business, Tekirdag.

DeterminationofBrucellosis in CollectedRawMilkfromKırşehir Villages

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Abstract

Brucellosis is an infectiousdiseaseleadtobydifferentspecies of Brucella. Thisis known as Malta feverorMediterraneanfever. Inourcountrythedisease is generallyprevalent in Central Anatolia andSoutheast Anatolia. Inthisworkwastodeterminetheprevalence of Brucella in rawmilk in Kırşehir villages.Forthispurpose, a total of 51 rawmilksampleswerecollectedfromvillagesfromtoAugust 2016. Rawmilksampleswerecollectedfromsteriletubeandweretransferredtothelaboratoryforanalysisprovidingcoldchainconditions. AllsamplesweretestedwithWhey-AT (1/40 andabove), Milk Ring Test (MRT), Brucellaagarrespectively.Fiftyonerawmilksampleswerecollectedfromvillagesandweretested in thelaboratory. Accordingtoresults, 7,84% samplesweresuspiciousforbrucella.

Keywords: Brucellosis, Unpasteurizedmilk, Zoonosis

Anıt Ceviz Ağacı Yapraklarının Bazı Kimyasal Bileşenlerinin Yaşa Bağlı Olarak Değişimi

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Özet: Anıt ağaçlar, doğal ömürlerinin üst sınırına gelmiş bireyleri ile hem ilgili ağaç türleri için birer gen havuzu işlevi gördüğü gibi hem de orman kaynaklarının planlanması sırasında gerekli olan fiziksel idare süreleri hakkında planlamacıya fikir vermektedir. Ayrıca dendroklimatolojik araştırmalar için doğal materyal sağlayarak, geriye dönük iklim tahminlerine ışık tutarlar.Anıt ağaçlar ulusal kültür, yöresel tarih ve folklorik açıdan da büyük önem taşıdığından, önemi her geçen gün artmaktadır. Burada sunulan çalışmada, Kastamonu merkez Eşen köyünde bulunan 700 yaşındaki anıt ceviz ağacının (*Juglansregia* L.) gelişim fizyolojisi araştırılmıştır. Bu amaçla anıt ağaç (500 yaş üzeri) ve çevresinde bulunan farklı yaş gruplarındaki ceviz ağaçlarından (100 yaş ve üzeri, 50 yaş üzeri ve 25 yaş ve üzeri) toplanan yaprak örneklerinde fotosentetik pigmentler, prolin, toplam çözünür protein, toplam amino asit, glikoz, sakkaroz, toplam çözünür şekerler, nişasta, toplam fenolik bileşikler, flavonoit miktarı ve malondialdehit, hidrojen peroksit konsantrasyonu ölçülmüştür. Bulgular incelendiğinde,fotosentetik pigmentler ve prolin miktarları en düşük 50 ile500 yaş üzeri ceviz ağaçlarında, en yüksek ise 100 ile 25 yaş üzeri ceviz ağaçlarında belirlenmiştir. Toplam çözünür protein, glikoz, sakkaroz ve toplam çözünür karbohidrat en yüksek 25 ve 500 yaş üzeri ceviz ağaçlarında, en yüksek amino asit ise 50 ve 500 yaş üzeri ceviz ağaçlarında tespit edilmiştir. En yüksek MDA 50 ve25 yaş üzeri ceviz ağaçlarında belirlenirken, 100 ve 25 yaş üzeri ceviz ağaçlarında en yüksek H_2O_2 belirlenmiştir. Nişasta, toplam fenolik bileşik ve flavonoitmiktarları ise en yüksek25 yaş üzeri ceviz ağaçlarında bulunmuştur.Sonuçlar genel olarak değerlendirildiğinde, gelişmekte olan genç ceviz ağaçlarında fotosentetik pigmentler, prolin, toplam protein, MDA, fenolik bileşiklerin yüksek, gelişiminin ileri seviyelerinde iseceviz ağaçlarındaki glikoz, toplam çözünür karbohidratmiktarlarının yüksek, fakat MDA ve H_2O_2miktarlarının düşük olduğu tespit edilmiştir. Anıt ağacın uzun ömürlü olmasında yüksek toplam çözünür protein, amino asit, karbohidrat ve fenolik bileşik ve ayrıca düşük MDA içeriğinin etkili olduğu sonucuna varılmıştır.

Anahtar Kelime: Anıt Ağaçlar, Ceviz, Kimyasal Bileşenler, Kastamonu

Effect of Salty Irrigation Water on Plant Leaf Water Potential

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Abstract

Various methods can be used to determine timing of irrigation. In recent years, a significant portion of the methods developed for this purpose uses indicators against plant monitoring. Leaf water potential measurements are also becoming one of the widely used indicators. In this study, the effects of different irrigation water salinity levels on leaf water potentials as a physiological characteristic of tomato plant grown under partial root drying irrigation technique were investigated. In the study, irrigations were realized as a weekly basis until the mid-season and twice a week after the mid-season to harvest. Throughout the study period, a vast number of observations and measurements were performed. In this article, however, it is aimed to evaluate the possible changes in leaf water potential due to different salinity levels of irrigation water. Leaf water potential can be measured before and after watering and in the mid-day. In addition, it can be measured before sun rises and in the range of certain period in a day (i.e. 2 hours). As a result of this research, it was determined that varying levels of irrigation water salinity and irrigation practices affect leaf water potential of tomato plants at different levels.

Keywords: Leaf water potential, tomato plant, salinity, limited water, irrigation schedule

*The research is funded by The Scientific and Technological Research Council of Turkey (TUBITAK) as Project: 115R046.

Effect of Different Techniques on the Soil Water Storage

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Abstract

To prevent the loss of water in soil through evaporation, mulching is a common technique in agriculture. A mulching layer with enough thickness without any weeds or organisms decreases the risk of weed growth in the soil. Mulching and a layer of dry plant decrease the amount of evaporation and increase the soil water content. With this regard, this study aims to investigate alternative ways of keeping water content longer in the soil under different techniques. In this study, four different treatment techniques were examined. In the first treatment two different mulching at different times were implemented; in the second treatment, no mulching was done, in the third treatment only raking was done and in the fourth treatment, nothing was done, which is the control group in this study. The soil water content was measured through the neutronmeter. Ten different measurements were done in certain intervals and the amount of stored and lost water was found out and scores were graphed for evaluation. It was found with this study that the amounts of stored and lost water within the soil were found to be different when the four treatments were considered.

Keywords: Infiltration, Mulch, Water saving

Does Growing Cycle Affect Grafted Watermelon

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Abstract

It has often been demonstrated that grafting increases plant growth, fruit size and yield in watermelon however, reports on fruit quality such as rind thickness, color, fruit firmness, total soluble solids, and sugar are rather conflicting being increasing, decreasing or remaining unaffected. Farmers in many watermelon producing countries, especially in the Mediterranean region such as Spain, Italy, and Turkey sometimes prefer to grow watermelons in one of the two main production cycles, namely early season or late season. Early season production starts under low plastic tunnels in April and continues as open field production when temperatures increase. Late season production, on the other hand, starts directly in open fields in end June to beginning of July and continues till autumn. This work aims to evaluate the results of the two different experiments based on the use of growing cycles. Field trials were set up in the experimental fields of Ödemiş Vocational Training School at Ege University, Izmir, Turkey. Different watermelon (*Citrillus lanatus* (Thunb.) Matsum&Nakai) cultivars (cv. 'Crispy F_1', cv. 'Anthem F_1', cv. 'Crimstar F_1',) praised by regional farmers were chosen as scion material in experiments. Different commercial rootstocks were also selected, four of which were hybrids of *C. maxima* × *C. moschata*, namely cv. 'Shintoza F90', cv. 'Obez', 'TZ-148' and 'RS-841' and two being *Lagenaria siceraria*, cv. '64-18' and cv. 'Macis'. Our results show that there may also be variability and inconsistency in plant growth and fruit quality parameters of watermelons when different scion/rootstock combinations are grow in two subsequent growing cycles in the summer. Late growing season may be taken more seriously since this cycle seems more sensitive, since it creates a better environment for the expression of different traits as compared to early season production.

Keywords: *Citrullus lanatus*, growing season, plant growth, fruit quality, healt-related compounds

Allelopathic Effects of Olive Mill Wastewater (OMW) on Sainfoin (*Onobrychis viciifolia* Scop.) Germination

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Abstract

In this study, the olive mill wastewater at different concentrations (control, 1/1, 1/2, 1/ 3, 1/4 (OMW / distilled water) and undiluted OMW) was used to determine the impact to the sainfoin seed germination. In the study, the germination ratio and mean germination time showed statistically significant differences in terms of levels according to treatments, sainfoin populations and sainfoin populations x treatments interaction ($p<0.01$), germination ratio varied at 5-70 % and the highest value (70 %) was obtained from 1/2 (OMW/distilled water) application in true sainfoin seeds. In general, the OMW (added distilled water) treatments were increased germination ratio. The lowest germination ratio (11.67 %) was determined in sainfoin seeds collected from Eğirdir location. According to application, the highest germination ratio was obtained from 1/1 and 1/2 (OMW/distilled water) applications. In experiment, mean germination time varied in 5.0-11.0 days. Generally, high OMW concentrations (except undiluted OMW) extended mean germination time in sainfoin seeds. In all OMW applications, it shortened in ES seeds, but not in TS seeds. Additionally, germination time weren't effected as positive from OMW applications (except undiluted OMW) in TS seeds. The longest mean germination time (9.0 day) was in ES seeds. According to treatments, germination in the shortest time occurred in 1/4 (OWM / distilled water) treatment. As a result, olive oil wastewater (OMW) mixed to irrigation water in certain dozes may increase seed germination and can be used as fertilizer in agriculture.

Keywords: Allelopathic, Germination, Olive Mill Wastewater, Sainfoin

The Effects of Plant Growth-Promoting Rhizobacteria (PGPR) Applications on 1103 Paulsen American Grapevine Rootstock Under The Different Lime Levels

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Abstract

PGPR (plant growth promoting bacteria) have gained world wide importance and acceptance. Strains of the genera such as *Aeromonas, Azoarcus, Azospirillum, Azotobacter, Arthobacter, Bacillus, Clostridium, Enterobacter, Gluconacetobacter, Klebsiella, Pseudomonas* and *Serratia*, have been identified as PGPR, while the search for additional strains continues.

PGPR are the soil bacteria inhabiting around/on the root surface and are directly or indirectly involved in promoting plant growth and development. It has documented the increased health and productivity of plants by the application of PGPR under both normal and stressed conditions. In this study, it was aimed to determine the effects of PGPR applications on 1103 P in different lime($CaCO_3$) levels. $CaCO_3$ were applied to plant on %0, 10 and 25 concentrations. Content of chlorophyll, leaf number, shoot length, shoot weight, degree of membrane injurity, proline, total phenolic compound and lipid peroxidation (MDA) were determined in the plants. All criterias were affected by different $CaCO_3$ concentrations. As a conclusion, injurity symptoms result from $CaCO_3$ generally reduced with the PGPR treatment.

Keywords: Calcium, PGPR, American Grapevine Rootstock, Proline, Total Phenolic Compound.

Determination of The Effects of Plant Growth-Promoting Rhizobacteria (PGPR) Applications on Kober 5 BB American Grapevine Rootstock in Lead Stress

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Abstract

Plant growth-promoting rhizobacteria bacteria are free-living soil bacteria that can either directly or indirectly facilitate rooting and growth of plants. PGPR can affect plant growth directly by the synthesis of phytohormones and vitamins, inhibiting plant ethylene synthesis, enhancing stress resistance, improving nutrient uptake and mineralising organic phosphate. In this study, it was aimed to determine the effects of PGPR application on grapevine under the lead stress.

Different lead concenrations (0; 10; 25 and 50 ppm $PbNO_3$) were applied to plants. Some morphological characteristics (leaf number, shoot length, shoot weight,) and biochemical characteristics (chlorophyll, degree of membrane injurity, proline, total phenolic compound and lipid peroxidation (MDA)) were tested in the study. As a conclusion, the damage by lead stress generally reduced with the PGPR treatment.

Keywords: Lead, PGPR, American Grapevine Rootstock, Proline, Total Phenolic Compound.

Current Situation of Livestock in Siirt ProvinceandEnvironmentalImpacts

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Abstract

In this study, the current conditions of cattle manure, manure storage units, problems of manure storage and interaction with the water resources around Siirt Province was examined.For this purpose,128 animal enterprises were chosen. 86 percent of these enterprises did not have manure storage and also uncontrolled manure accumulations were observed. These manure accumulations were limiting animal movement and they were risk the animal health. Siirt province, agricultural businesses can be group as the number of cattle they have 35 percent of businesses had 1-7 cattle and 36 percent of the businesses had 8-14 cattle,19 percent of the businesses had 15-21 and 10 percent of the businesses had >21 cattle. To determine the environmental pollution caused by the animal barnsmanure and their possible solutions in Siirt province, a survey was conducted.The results were compared with literature and necessary suggestions were made. In this study we have examined the present conditions of solid and liquid manure storages found in the barns of stockbreeding companies, storage problems, utilization of manure and environmental pollution. According to the questionnaire results supplied from the study area, %92 of the companies do not have manure storage and the present manure storages are not sufficient for the company.

Keywords: Livestocks, Manure Storage, Environmental Pollution,Siirt, Botan River

Effect of Boron Applications On Some Biochemical Characteristics Of Strawberry Plant In Yozgat, TURKEY

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Abstract

Yozgat, located in Centre Anatolia, is in ecology that dominated terrestrial climate where summer is hot and dry; winter is cold and rainy. The organic matter content of the soil is quite low and soil has calcareous and high pH and average temperature is 8.8 ºC. Considering these values, damaged is due to the cold are involved in this area, therefore this mineral nutrition is very important for plants. In these conditions, the occurrence of winter injury is the major factor limiting strawberry cultivation. Winter injury carried out various cultural practices to minimize. One of them is to make the boron fertilization.Boron (B) is an essential micronutrient required for normal plant growth and development. Boron management is challenging because the optimum B application range is narrow and the application rates vary from one soil to another.

In this study was aimed to determine the effects of boron application at different time and concentrations on strawberry plants. Biochemical changes (lipid peroxidation (MDA), total soluble protein, SOD and APX) were tested in roots, stems and leaves. As a conclusion, boron applicationgenerally reduced with the cold stress in strawberry plants.

Keywords: Strawberry, boron fertilization, biochemical characteristics, enzyme activity, Yozgat.

The Use of Wetland Areas WithinThe Scope of Eco-Tourism:Uluabat Lake Sample

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Abstract

Natural spaces bare touristic attractions with the natural and cultural landscape components they provide such as climate characteristics, wildlife, flora, water resources, rural lifestyle and the scenery. This type of tourism which is carried out within natural environmental aspects and which is sensitive to natural spaces, local cultural characteristics and to the preservation of traditional authenticity is called Eco-Tourism. Besides their ecological importance, the wetland areas, which are of the most important natural environments around the world, are used tourism and recreational purposes.

One of the most important wetland areas in Turkey that attract both domestic and foreign tourists is Uluabat Lake, which is the subject matter of this study. The lake is assigned as protected area and included in Ramsar Sites and Living Lakes Network. The regulations on protection of the biodiversity of the lake and its surrounding are insufficient. Therefore, this study aims to associate the natural and cultural environmental characteristics of the lake with tourism. Moreover, the study targets to specify criteria for the tourism activities to be carried out around the lake and to determine tourism types that adopt preservation culture. Study methods consist of data gathering, analysis, synthesis and evaluation.Uluabat Lake, which lies within the borders of the provinces Bursa, Kütahya, Balıkesir and Bilecik, forms the main material of the study.

Keywords: Eco-Tourism, Wetland Areas, Natural Landscape, Uluabat Lake

Determination of Morphological Characteristics of Local Corn (*Zea mays* l.) Genotypes in Ordu.

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Abstract

In this study, 159 local genotypes were used. Nine morphological characteristics of 159 local corn genotypes were examined. Local corn genotypes were collected from in The Black Sea Region in 2013 and field and laboratuary studies were completed in 2015. Variance analysis showed that there were high variations in most of the morphological characteristics.

In the study, plant height, ear eight, leaf number, ear length, ear diameter, row numbers in ear, seed number in row, days to silking, anthesis-silking interval ranged between 29-306 cm, 12-195 cm, 7-14 number/plant, 4-26 cm, 6.25-45.6 mm, 4-16 number, 4-46 number, 48-79 day and 57-85 day respectively.

It was concluded that local corn genotypes collected from The Black Sea Region in Ordu could form a rich genetic base in improvement.

Keywords: Corn, local genotypes, agronomical characteristics, cluster analysis.

The Importance of Cultural Environmental Resources in Using of the Rural Area: The Case of Çanakkale (Turkey)

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Abstract

The term of cultural landscape involves the diversity created in the landscape of the region in time as a result of the interrelations between the humanity and his natural environment, and studies in that direction. Therefore, the most important cultural landscape elements are "Agriculture". In this context, in any environmental study to be held, agricultural activity of the region should be taken into consideration.

In this study, some villages, attached to Çanakkale taking place in the close neighborhood of Troy, were taken into consideration, types of agricultural production and cultural landscape inventory of these regions were determined and were evaluated with a map. The chosen region was found to be significant because they witnessed various civilizations for centuries and it was aimed to use them by protecting agriculture production and using land. For this purpose, first of all, the progression of accommodation units in that region through the historical process was examined and inventory of historical archeological elements which reflected on the present day and their present conditions were determined. In conclusion, cultural landscape map of the region which was found significant in terms of agriculture and tourism potential was formed and agricultural and non-agriculture productions were made table and evaluated.

Keywords:Çanakkale, Agriculture, Cultural Landscape, Environment, Rural Area

The Reproduction And Cloning of The Candidate Effector Gene Belonging to Yellow Rust Disease With Polymerase Chain Reaction

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Abstract

Yellow rust disease in wheat is a serious fungal disease which threatens wheat fields.Itsfactor is*Pucciniastriiformis f. sp. tritici*(Pst) obligatbiotrophic fungus. In this study, by benefiting from biotechnological methods, it has been aimed at silencing the candidate effector gene PstHa12j12 with VIGS method which we believe that it has a role in the plant resistance mechanism between pathogen forming disease and host plant. For this, the part of the candidate effector gene belonging to Pst which is 342 base length has been synthesised. PstHa12j12 gene fragment reproduction has been carried out with polymerase chain reaction. By cutting this gene fragment and pSL039B-1PDS vector with PacIveNotI enzymes, adhesive tips have been obtained. T4 DNA has been cloned to vector with ligase enzyme. Ligation product E. coli has been transferred to Dh5α cells and clones have obtained as a result of transformation. According to analysis results from clones sent to sequencing, it has been seen that cloning process has failed.Therefore, VIGS silencing experiments haven't been initiated. It is believed that there are various factors in the failure of cloning process. It is believed that it has failed because vector couldn't have been cut properly with PacIveNotI enzymes or because molarconcentrations of the amount of vector-insert at the stage of ligation haven't been adjusted correctly.

Keywords: PCR, gene, cloning, plant resistance mechanism

ESSENTIAL OIL CONTENT AND COMPOSITION OF ANISE (*Pimpinella anisum* L.) FRUIT COLLECTED FROM DIFFERENT CULTİVATED REGION OF TURKEY

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Abstract

Aniseed is an important agricultural crop of Turkey. Turkish anise is known as their cultivated region name like Çeşme Anise, Burdur Anise, Fethiye Anise and Denizli Anise. In this study it was aimed to determine the essential oil content and components of anise fruits was collected from different regions. It was also aimed to reveal that the differences in different populations. The essential oil content of the anise fruits was determined with hydra distillation method and the components of the essential oil were analysed by the GC-MS analysis. The highest essential oil content obtained from Denizli population varied from 0.13% to 3.02%. Trans-anethole was detected as a main component and it varied between 90.43-96.64%. Other main component of the essential oil was obtained as an estragole with changed between 1.3-2.96 %..

Key words: Anise, *Pimpinella anisum* L., cultivation, essential oil, trans-anethole.

The Determination of Gibberellic Acid and Salinity on Germination in Sunflower (*Helianthus annuus* L.)

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Abstract

This study was carried out in laboratory conditions of Ordu University to determinate responses of oil-sunflower germination to different salt stress and GA_3 at germination time in University of Ordu. The laboratuary experiment was set up completely randomized design with 3 replications in 2016. In the study, four NaCl doses (0, 25, 50 and 100 mM) and five GA_3 doses (0, 50, 100, 150 and 200 ppm) were used to sunflower plumula length, radicula lenght, germination time and percentage of germination. At this study; plumule length of sunflower seeds at different NaCl and GA_3 ranged between 3.31-5.70 cm and 3.33-5.63 cm respectively. By increasing NaCl concentration, seed germination delayed and decreased. Radicula lenght of sunflower seeds at different NaCl ranged between 2.29-5.54 cm. In the study, a significant effect on the properties of sunflower seeds to germinate is unprecedented dose of NaCl and GA3.

Keywords: Sunflower, Salt, Gibberellic acid, germination.

Seed Transmission of Some Cucurbit Viruses in Turkey

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Abstract

Seed is one of the most important factors which provides increasing of yield and growing quality of crop in plant production. Good quality seeds must be genetically and physically pure, healthy and high in germination. There are nearly 231 plant virus and viroid diseases which are reported to be seed transmitted from different parts of the world. Because, approximately 20% of plant viruses are transmitted from generation to generation by the seed, seed transmission has an important role in epidemics. Therefore, using of non-infected and healthy crop seeds is tremendously important in plant production and control of virus diseases. In this study, it's aimed to determine seed infections of some viruses in major cucurbit growing areas in Konya, Karaman and Aksaray provinces of Turkey. In total, 92 seed samples were collected during 2009 and 2010. The viruses were identified by DAS-ELISA procedure. The results showed that 8,7% of seed samples were infected with *Zucchini yellow mosaic Potyvirus* (ZYMV), *Watermelon mosaic Potyvirus-2* (WMV-2), *Cucumber mosaic Cucumovirus* (CMV). Predominant virus infection in cucurbit seeds were ZYMV (4,3%), WMV-2 (3,3%) and CMV (1,1%) . Mixed infections were not determined in the samples. *Papaya ringspot Potyvirus*-watermelon strain (PRSV-W), *Squash mosaic Comovirus* (SqMV) and *Cucumber green mottle mosaic Tobamovirus* (CGMMV) were not determined in any of the tested samples and were not present in the tested cucurbit seeds lots.

Keywords: CMV, Cucurbit, Seed transmission, Turkey, WMV-2, ZYMV.

The Effect of Different Inrow Spacings on Yield and Yield Components in Soybean (*Glycine max* L.)

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Abstract

This study was carried out in experimental field of Field Crops Department, Faculty of Agriculture of Ordu University. The objective of the present study is to determine the effects of three different inrow spacings on yield and yield components in four soybean varieties. In the study, "Hendricks, HP203, Savoy and NE3297" soybean varieties were used and the seeds were planted in rows 60 cm apart using 5, 10 and 15 cm inrow spaces.

According to the results, high plant densities resulted in both higher plant and first pod height in all soybean varieties. In all soybean varieties used in the study, the lowest values for the number of lateral branches and the number of pods were obtained inrow spacing of 5 cm, whereas inrow spacing of 15 cm resulted in the highest values. The number of seeds per pod, 100 grain weight and protein ratio were not affected by plant density, but differed in soybean varieties. There were no clear differences in oil ratio in terms of plant densities and cultivars.

The seed yield ranged from 186 kg/da to 347 kg/da based on the cultivars and plant densities. While the highest seed yield was recorded in cultivar Savoy planted 10 cm inrow spacing, the lowest seed yield was obtained in cultivar Hendricks planted 15 cm inrow spacing.

Keywords: Soybean, *Glycine max*., plant density, soybean cultivars

DeterminationSeedandTechnologicalCharacteristics of SomeDryBeans (*Phaseolusvulgaris* L.) VarietiesAndGenotypes in EcologicalConditions of Ordu

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Abstract

Thisresearchwascarriedouttodeterminetechnologicalcharacteristics of somedrybeansvarietiesandgenotypes in ecologicalconditions of Ordu. Inthisresearch, as a trialmaterial 27 drybeansgenotypesand 5 certifiedseeds (Önceler, Karacaşehir-90, Bulduk, Zülbiye, Yunus-90) wereused. Fieldtrial in Ordu in ecologicalconditions of Ordu was set upaccordingto "RandomizedBlock Design" as 3 repeats.

At theend of thethisstudy, trialseedlengthbetween 0.62-1.77 mm in thebeans, measured as seedwidthbetween 0.392-1.21 mm. Seedshape of thekidney-shapedeggs, cone, sphere has beenobserved as angular. Seedshell has beenobserved as a flatsurfaceandmixed. Beanswallthicknesswasobserved in themiddle. Bulkgrainobserved.

Accordingtotheresults as technologicalvalues, it wasdetermined 0.146-0.809 g/seedforhydrationcapacity, %0.323-%1.780 forhydrationindex, 0.104-0.574 ml/seedforswellingcapacity, %0.468-%2.581 forswellingindex, 27.00-56.40 min. forcooking time, %0.33-12.00 seedfordegradabilitydegreesand %18.50-26.64 protein rate.

As a result of research, regardtotechnologicalproperties (hydrationcapacity, hydrationindex, swellingcapacity, swellingindex) Gürgentepe-1 genotypewasforwardoutandwithregardtocooking time Akkuş Şeker genotypewasforwardout.

Keywords: Drybean,seed,technologicalproperties, Ordu

ESSENTIAL OIL COMPOSITION OF *SCANDIX IBERICA* BIEB. AND *SCANDIX STELLATA* BANKS & SOL (APIACEAE) FROM DIFFERENT PARTS FROM TURKEY: A CHEMOTAXONOMIC APPROACH

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To investigate and compare, the essential oil composition of different parts of two *Scandix* species (Apiaceae). The essential oil of the aerial parts of two species was obtained by hydrodistillation and analyzed by gas chromatography (GC) and gas chromatography - mass spectrometry (GC-MS). The essential oil yields of *S. stellata* were determined as 0.3(v/w) in aerial part, 0.2 (v/w) in leaf and fruits. 51 constituents were identified and comprised 85.1 percentage of the total essential oil from *S. stellata* aerial parts, and identified thirty constituents in leaf and 27 constituents in fruits and also comprised 98.1 % in leaf and 88.9 % in fruit total essential oil. 42 constituents were identified and comprised 96.6% of the total essential oil from *S. iberica* aerial parts. The predominant compounds of the aerial part oils of *S. stellata* were n-hexadecanoic (15.9%) and oleic acids (10.0%), spathulenol (9.4%) and also n- hexadecanoic (27.5%), oleic acids (14.2%), spathulenol (12.1%) and stearic acid (8.2%) were the major compounds in fruit. In *S.stellata* leaf oil, n-hexadecanoic acid (12.5%), spathulenol (12.1%) and germacrene-D (6.2%) were the major compounds. The predominant compounds of *S. iberica* oil were n-hexadecanoic acid (23.1%), 1-Octadecane-sterol (31.1%) in aerial parts; pentadecane (28.1%) caryophyllene oxide (10.2%) and heptadecane (9.1%) in leafs; β−monolein(18.1%), n-hexadecanoic acid (12.5%), 1-Octadecane-sterol (11.4%), spathulenol (9.1%) were determined as main compounds in oil of *S. iberica* fruits. Fatty acid, sesquiterpene and saturated hydrocarbons were determined as significant compounds for the characterization of *S. stellata* and *S. iberica* essential oil.

Keywords: *Scandix stellata* and *Scandix iberica*, Essential oil, n- hexadecanoic acid, spathulenol, oleic acid, Chemotaxonomy.

Virus Transmission by Aphids

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Abstract

Various biological agents which introduce the virus into plant tissue are called vectors. Most plant viruses depend on insect vectors for their survival, transmission and spread. Approximately, more than 400 species can transmit plant viruses. Aphids are major vectors of plant viruses. Up to date, 200 different aphid species have been known as virus vector and they can transmit about 300 plant viruses. Due to their rapid development and explosive rate of reproduction, aphids are among the most important pests. They extract phloem sap from host plants and excrete the excess in the form of honeydew. In addition, many aphid species damage their hosts by transmitting viruses: aphids are virus vectors. Yield losses due to viral diseases are often more serious than the direct damage due to sap extraction. The probability of a virus being transmitted from any one individual plant to another depends on many factors other than the taxonomic position of the two plants concerned and that of the potential vector. The proximity of the plants, the feeding sites, activity and other behavior of the aphid, environmental conditions such as weather, and the presence of other organisms including other viruses, other aphids, ants, and natural enemies may all affect transmission. Many of these factors interact continuously with one another. In this study, mechanisms of virus transmission by aphids and researches on the detection of some aphid-borne viruses and control and epidemiology of them in Turkey were briefly summarized.

Keywords: Aphid, Vector, Virus transmission.

A Molecular Phylogeny Of *Anthriscus* (Apiaceae) Species From Turkey Inferred From "*trn*" Regions Of Chloroplast Genome

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The genus *Anthriscus* Pers. (Apiaceae/Umbelliferae) species belongs to the family Apiaceae and is represented by 16 species on the world and by 8 species in our country.

Just as the majority of species of the family Apiaceae, chemicals found in members of the genus *Anthriscus* Pers. are used in medicine. Especially the decoction prepared from *A. cerefolium* (L.) Hoffm. species is used in asthma treatment, volatile oils obtained from *A. nemorosa* species is used in treatment of Alzheimer disease while various extracts and volatile oils obtained from other *Anthriscus* species demonstrate anti-tumoral, anti-microbial, antioxidant features and are used as support in the treatment of various diseases.

Anthriscus species were defined by examining insufficient quantity of samples in the Flora of Turkey (Davis, 1972). Besides, no detailed study was found in our country after flora study. For this reason a revision study was made with the aim of solving some systematical problems in 2013 by Tekin. The result of the study provided important contribution to the systematic of the species in Turkey. However a molecular study was also required for building the obtained results on a more solid ground.

In this study, the aim is to determine the genetic proximity or remoteness of *Anthriscus* species in Turkey, to reveal the lines of descent with evolutions, systematics and phylogenetic relations among species by using the series analysis information of uncodified transfer ribonucleic acid section (*trn*L-F) in chloroplast genome. DNA was isolated from the leaves of 48 individuals belonging to the species of the genus *Anthriscus* in Turkey by CTAB method and isolated genomic DNA was multiplied in PCR by using e-f primaries of *trn*L-F section. The obtained data was evaluated by Mega 5.1 program and phylogenetic tree was prepared by using Maximum Parsimony method.

According to the phylogenetic tree that we prepared by using the sequence line up of *trn*L-F section, it was observed that *A. cerefolium* (L.) Hoffm., *A. caucalis* M.-Bieb. and *A. tenerrima* Boiss. & Spruner species completed their speciation and an isolation with other species in terms of speciation was provided. It was also observed that the taxa *A. sylvestris* subsp. *nemorosa* (M.-Bieb.) Koso-Pol., *A. lamprocarpa* Boiss. subsp. *lamprocarpa* and *A.lamprocarpa* Boiss. subsp. *chelikii* Tekin & Civelek provided gene flow probably due to hybridization that is one way of vertical gene transfer among themselves but they did not complete their speciation. It was determined that *A. lamprocarpa* Boiss. subsp. *chelikii* Tekin & Civelek which is endemic for Turkey and one of the two different subspecies of *A. lamprocarpa* is actually a new subspecies. This fact was supported by molecular data obtained from the study we made after morphologic data.

Key Words: Apiaceae, *Anthriscus*, PCR, Phylogeny, *trn*L3'-*trn*F

Biotechnology in Aquaculture Practice

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Biotechnology is a term that corresponds to every effort used the applied biology-based technology. Many aspects of aquaculture are related to biotechnology. Aquaculture is multi-disciplinary work concerning with many fields such as food, pharmaceutical, fertilizers.Since marine resources are reduced due to over fishing and environmental degradation whereas world population increases rapidly, these essential protein sources have gained importance more and more. As in other practices, the solution of many problems in aquaculture also lies in the wide application of biotechnology. One of the technique used in aquaculture is a chromosome manipulations which consist of mainly meiotic gynogenesis, mitotic gynogenesis, androgenesis, polyploidy such as triploid and tetraploid.

Keywords: Biotechnology, aquaculture, gynogenesis.

Essential Oil Composition Oil of Endemic *Scandix balansae* Reuter ex Boiss. (Apiaceae) from Turkey

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Abstract

This study, reports the essential oil composition of the aerial parts of *Scandix balansae* Reuter ex Boiss.. The essential oil were obtained by using Clevenger apparatus and analysed by GC and GC/MS system. The analysis has led to the identification of 64 components comprising 85.5% of the oils. The essential oil yield was determined as 0.2 (v/w) and the main constituents of the essential oil were 9,12-Octadecanoic acid (26.6%), 9-Octadecanoic acid (15.3%), phytol (12.6 %) and n- Hexadecanoic acid-(palmitic) (10.7%). The essential oil of *S. balansae* has comprised 3.7% sesquiterpene compound, 13.8 % aldehyde, 39.4 % alkene and fatty acid groups as major. The results were evaluated in means of natural products and chemotaxonomy.

Keywords: *Scandix balansae***,** Apiaceae, 9,12-Octadecanoic acid, n- Hexadecanoic acid, Natural Product.

The Effect of Salt and Gibberellic Acid Concentrations on Barley (*Hordeum vulgare* L.) Germination

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Abstract

This study aims to document the reactions, Barley Larende type will exhibit in germination tests done under various salt and gibberellic acid hormone concentrations.. In the study, 4 different salt (NaCl) concentrations (0 – 0,8 – 0,16 – 0,24 Nm), 2 different gibberellic acid concentrations (500 ppm – 1000 ppm) and distilled water were employed. Barley seeds were soaked in gibberellic acid doses for 12 – 24 -36 hours. The research was set up with 3 repetitions in randomized design according to factorial arrangements. In the study, Germination rate (%), Average germination time (day), Fresh and dry weights of germinated seeds (gr), Fresh Coleoptile weight (gr), Dry Coleoptile weight (gr), Fresh Radicula weight (gr), dry Radicula weight (gr), Coleoptile length (cm) and radicula length (cm) were determined. As a result of the analysis, germination rate of barley seeds exhibited a decrease in parallel to increasing salt concentrations. In other words, there was negative correlation between salt concentration and germination rate. The highest germination rate occurred in the lowest salt concentration while the lowest germination occurred in the highest salt concentration. The situation in Gibberellic acid application is the exact opposite. In other words, there is a positive correlation between germination rate and the rising rates of gibberellic acid doses. While the lowest germination rate was observed in 0 ppm, the germination rate peaked in 1000 ppm. Germination rate increases as the gibberellic acid doses increase.

Key Words: Gibberellic Acid, Barley, Salt concentration

Karyological Notes on Three Buprestid Species (Coleoptera: Buprestidae) with Emphasis on Chromosome Number Variation in the Family

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Abstract

Buprestidae is one of the largely represented families of Coleoptera. The Buprestidae family is of great importance among the Coleopteran families because of their striking variations in chromosome number. Hence this beetle family has shown to be a very interesting and favourable group to study from a chromosomal viewpoint. But buprestid beetles have not been well-studied karyotypically up to now. A perusal of literature shows that karyological studies are limited for these beetles. Karyotypic data are available for 0.60% of all described buprestid species, namely about 15.000 species. The few taxa karyotyped are inadequate to indicate great chromosomal diversity in the family. Herein this study was aimed to contribute to the karyology of the family. Since, many have been erroneously combining taxonomically due to misperceptions about convergent adult morphologies. So, karyological analysis may provide important information in buprestid systematic studies. For this purpose, we carried out karyological studies in males of three buprestid species from three subfamilies. The following numbers of chromosomes were found in individual species: 2n=18 in *Acmaeoderella flavofasciata* Pill. & Mitt. (Polycestinae); 2n=22 in *Coraebus rubi* L. (Agrilinae); 2n=14 in *Capnodis tenebrionis* L. (Buprestinae). Moreover, this work summarizes current knowledge in chromosome count variation and karyological research in the family Buprestidae.

Keywords: Coleoptera, Buprestidae, Karyology, Chromosome, Taxonomy

Acknowledgment: This work was supported by the Ahi Evran University Scientific Research Projects Coordination Unit. Project Number: MMF.E2.16.010.

DETERMINATION of THE NUTRIENT COMPOSITION of ALFALFA DIFFERENT GROWTH PERIODS

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This study, which is crop alfalfa in different cutting and growth stages of vegetation was organized with the aim of determining the nutrient content. Alfalfa hay, beginning of flowering, full flowering and pod mount, and each including three different vegetation period by maintaining vegetation period has been harvested in the fifth form. Alfalfa samples used in this study, DM, CP, CF, FAT, ADF, NDF, ADL values for detection of chemical analysis as applied to the producer and dried alfalfa grown in nutrient content were determined. As a result, alfalfa samples of KM 93,97 to 88.70% of the content, the HP of 19,34 with 9,71% of the content, change of HS 41,86 to 28,39% of the content was observed. According to the results obtained in terms of animal feding alfalfa seed harvested in the beginning of floweringis concluded that to obtain high-quality roughage.

Keywords: Alfalfa, harvest time, vegetation period, the nutritional composition

The importance of the Cultural Environmental Resources in Landscape Architecture; The Case of Lapseki(Çanakkale/Turkey)

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Abstract

Settlements gain their identity from their cultural resources. To ensure continuity of these resources is possible by using them in line with the requirements and saving. The floor area of country Lapseki(Lampsakos) is 955km^2 and it is located between Marmara and Aegean regions. It is a settlement of strategic importance with its location and historical background dates back to before Common Era.

The aim of this article is to determinate; historical and archaeological resources, domestic architecture, regional modes of living, space usage, folklore, taking inventory of agricultural activity, and the importance of the settlement from the stand point of living of historical places that have cultural values. The cautiously usage of these resources by public enterprises will provide to create identity of country Lapseki.

Keywords: Çanakkale, Lapseki, Cultural Environmental Resources, Landscape, Design.

FightTheVisual Pollution

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Abstract

Transformation of industry, rapidurbanizationandpopulationgrowthincreasesenvironmentalproblems of citieswiththeaffectcitiesnegatively.Some of theseenvironmentalproblems can be stated as airpollution, waterpollution, noisepollutionandvisualpollution. Thisstudyfocuses on visualpollutionissues in urban parks in Bursa city, whichareimporteffects on visualpollution. Negativevisualimpactcould be defined as visualpollutionandvisualpollutiondisturbsthevisualareas of peoplebycreatingnegativechanges in cities.Arbitraryusage of the urban furnitures, withoutparticularprincipleplansandpracticalswithoutstandartscausevisualpollution.

Visual pollution is an aestheticandweightyissueandreferstotheimpacts of pollutionthatimpairone'sabilitytoenjoy a vistaorview, sothisphenomenonmust be identified, assessedandregulated.

Theaim of thisstudy is; tomakethesurvey of theurban parks in Bursa cityandgeneral viewtourban parksvisualaffairs; todeterminethevisualpollution, examineandbringforwardproposalsforcitiestodecreasevisualpollution in urban parks.

Keywords: Environmental Problems, Visual Pollution, Urban Park, Bursa

Chemical Analysis of the Metathoracic Scent Gland of *Eurygaster maura* (L.) (Heteroptera: Scutelleridae)

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Abstract

Eurygaster maura (L.) (Heteroptera: Scutelleridae) is one of the most devastating pest of wheat in Turkey. The metathoracic scent gland (MTG) secretions of males and females of *E. maura* were analyzed separately by gas chromatography-mass spectrometry (GC-MS). Both in males and females 12 chemical compounds; Octane, n-Undecane, n-Dodecane, n-Tridecane, (E)-2-Hexenal , (E)-2-Hexen-1-ol, acetate, Cyclopropane, 1-ethyl-2-heptyl, Hexadecane, (E)-3-Octen-1-ol, acetate, (E)-5-Decen-1-ol, acetate, 2-Hexenoic acid, Butyric acid, tridecyl ester were detected. However, these compounds differed in quantity in both sexes. In both females and males, n-Tridecane and (E)-2-Hexanal were the most abundant compounds and constitute approximately 90% of the total content. Octane in males and Hexadecane in females were detected in minimum amount.

Keywords: *Eurygaster maura*, GC-MS, Heteroptera, metathoracic scent gland, n-Tridecane, (E)-2-Hexenal

[1] This study was summarized from PhD thesis which entitled “Effects of metathoracic scent gland secretion and egg quality of *Eurygaster maura* (L.) (Heteroptera: Scutelleridae) and some weed extracts in wheat fields on egg parasitoid, *Trissolcus semistriatus* (Nees) (Hymenoptera: Scelionidae)” of Ekrem ÖGÜR.

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An Investigation of Agricultural Tractor Related Injuries in Konya, Turkey

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Abstract

Tractors are the most vital machine to increase production and effectiveness in agriculture. They have been identified as being associated with more injuries than any other piece of machinery in agriculture; however, very little information is available about the type and nature of tractor related injuries in Turkey. This study was performed to describe the factors associated with tractor related injuries in Konya, Turkey. The data sources were the work accident, accident investigation, and traffic accident reports. Results of the study show that accidents occurred significantly more frequent during the crash or collision with a motor vehicle, being caught by moving or rotating machine parts, fall from the tractor or its attached implements, runover, and rollover. The vast majority of tractor injuries involved males. The highest numbers of fatalities occurred in August. Despite considerable efforts agriculture continues to be a problematic sector to ensure desirable and required levels of safety standards. National awareness of existing risks and occupational safety and health in agriculture should be raised. The alarming fact is that tractor related accidents will probably continue to be one of the most common causes of fatal and nonfatal injuries due to lack of an adequate safety culture..

Keywords: Accident, Occupational Health and Safety, Tractor

Evaluation of the Genetic Improvement Project for Morkaraman Sheep in Low Input Production Systems

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Abstract

The aim of this study was to evaluate the genetic improvement studies commenced in Erzurum, Turkey in 2006 within the context of National Genetic improvement Scheme for Small Ruminants in Low Input Production Systems (Halk Elinde Küçükbaş Hayvan Islahı Ülkesel Projesi-in Turkish). Study data was obtained with questionnaires completed through face-to-face interviews with all Morkaraman sheep breeders in the scheme and those out of the scheme equally in number. Descriptive statistical methods were employed in analysis of the data as student t-tests for independent and paired samples were employed in comparisons. As a result of the study, it was found that significant live weight gains were achieved at birth and subsequent weighing dates. It was also determined that twin rates increased as infertility rates and lamb death rates declined. It was calculated that Morkaraman sheep breeders of the scheme gained 55,6 TRY more gross profit per production unit (PU) than the breeders out of the scheme. It was also calculated that support payments paid in 2014 were 31,0 TRY per PU. It can be concluded that positive gross profit surplus, achieved as the result of the cumulative advancements since the beginning of the scheme in 2006, is 1,79 (=55,6/31,0) fold of the support payments made in 2014.

Keywords: Genetic improvement of Morkaraman sheep, smallholder low input systems, gross profit, production unit

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