seab2015

symposium on euroasian biodiversity

abstract book

01 - 05 June 2015, Baku, AZERBAIJAN

Editors

Assoc. Prof. Dr. Gurkan SEMIZ

Assist. Prof. Dr. Gurcay Kivanc AKYILDIZ

seab2015.pau.edu.tr

WELCOME ADDRESS

Dear Colleagues,

We are very glad to inform you that the Symposium on EuroAsian Biodiversity (SEAB-2015) will be organized by Institute of Dendrology Mardakan, Baku/Azerbaijan in collaboration with other universities and institutes from four different countries in the period June 01-05, 2015. This symposium will be held each subsequent year in different countries as Azerbaijan, Turkey, Belarus, Kazakhistan and Russia, respectively. The symposium on EuroAsian Biodiversity (SEAB-2015) will be organized following partners;

- Azerbaijan National Academy of Science, Institute of Dendrology Mardakan (Baku, Azerbaijan),
- Pamukkale University, Department of Biology and FAGUMER (Denizli, Turkey),
- Belarus State University, Faculty of Biology (Minsk, Belarus),
- Al-Farabi Kazakh National University, Faculty of Biology and Biotechnology; Institute of Plant Biology and Biotechnology; Science Committee of Ministry of Education and Science Republic of Kazakhstan (Almaty, Kazakhistan)
- Russian State Agrarian University, Faculty Agronomy and Biotechnology Department of Genetics, Biotechnology, Plant Breeding and Seed (Moscow, Russia).

SEAB-2015 is the largest get together of scientists, conservationists, environmentalists, civil society groups and local communities in Azerbaijan, an platform to discuss the current status of biodiversity in EuroAsia an inclusive colloquium to forward strategies and policies to conserve the rich biodiversity heritage of the area. Theme of the SEAB-2015 is “Protection of Gene Resources". It is expected that we will have colleagues from related countries for this conference that will represent more than 150 scientific presentations. SEAB-2015 will provide a scientific platform for conservation leaders, thinkers, and practitioners, scientists, natural resource managers, and environmental consultants to planners, environmental advocates, and corporate and public policy-makers around the EuroAsia to exchange knowledge, discuss issues, share innovations, and network. We look forward to your blessings, cooperation and support for this conference and hope to see you at Baku. In the SEAB-2015, we will have ceremonies, keynote addresses, paper and poster presentations, cultural programs and visit to Museums, Arboretum and Botanical Garden during the conference. We are also particularly interested in which approaches are applied to bring novel insight into biodiversity, the selected approaches will be published in IJSM on behalf of the Symposium of EuroAsian Biodiversity.

Warm regards to all,

Sincerely,

Organizing Chairs

Prof. Dr. Tofik MAMMADOV (Institute of Dendrology Mardakan, Azerbaijan)
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Prof. Dr. Zhambakin KABIL (Al-Farabi Kazakh National University, Kazakhistan)
Prof. Dr. Elena KALASHNIKOVA (Russian State Agrarian University, Russia)
Assoc. Prof. Dr. Igor SEMAK (Belarus State University, Belarus)

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- Assist. Prof. Dr. Mehmet ÇİÇEK
- Assist. Prof. Dr. Gürçay Kıvanç AKYILDIZ

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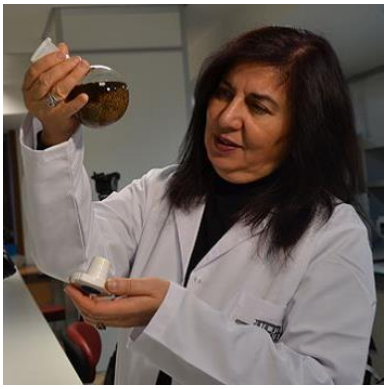
- Assist. Prof. Dr. Sevilay CENGIZ (Turkiye)
- Dr. Anna BULATOVA (Minsk, Belarus)

INVITED SPEAKERS



Prof. Dr. Gülaçtı TOPÇU

Bezmialem Vakif University
Faculty of Pharmacy

"Anatolia as a rich source of Lamiaceae family plants with bioactive molecules"

Prof. Dr. Mustafa IŞILOĞLU

Mugla Sıtkı Koçman University
Faculty of Science

"Focus on Macrofungus of Turkey"

Assoc. Prof. Dr. Mesut KIRMACI

Adnan Menderes University
Faculty of Science

"Bryophyte Biodiversity in EuroAsia"

POSTER PRESENTATION GUIDE

Posters will be on display in the Poster Area. This year we will have two full day poster sessions. Each poster session is divided into two time slots, as follows:

Afternoons:

Monday: First Group: 13:30 to 15:15, Second Group: 15:30-17:15

Thursday: 10:00 to 12: 00.

Authors must be present during BOTH TIME SLOTS. Posters must be posted in exact time, and they must be removed after time ended.

Poster Size and Instructions

• One poster board is allocated to each presentation. The recommended poster size is 100 cm high by 70 cm wide.

• Posters must be mounted using tapes/pins provided by the organizing committee.

• Please note that there will be two poster sessions for Monday, therefore two posters will use the same board in the day, one in the morning and one in the afternoon. For this reason, be considerate and remove your poster in the designated time after your session is over, to allow enough time to the next authors to place their posters.

• Each poster presenter is required to defend his/her poster during the respective poster session slot for the paper to be included in the conference proceedings.

• The title of your poster paper should be done in block letters which are AT LEAST 36-72 punto.

• All text must be easily readable from a distance of 1 to 2 meters. Make the lettering at least 1 cm high, smaller lettering will not be legible from a distance of 1 to 2 meters.

• All graphs and charts should be AT LEAST 15 X 20 cm or larger.

• It is a good idea to sequentially number your materials in the poster. This will indicate to the viewer a logical progression through your Poster Paper Presentation.

• Provide an introduction (outline) and a summary or conclusion for your Poster Paper Presentation.

• Prepare your Poster Paper Presentation carefully so that it can be used as the basis to explain and answer questions from the viewers.

• It is helpful to have copies of the written version of your paper available for those viewers who may want to study specifics of your work in more detail.

ORAL PRESENTATION GUIDE

Observing Your Allotted Time

• The total time allotted to each speaker is 20 minutes. You should plan to speak for 15 minutes and leave 5 minutes for questions.

• Invited speakers have twice this time, 40 minutes in total, and they should plan to speak for about 30 min, leaving 10 min. for questions.

• There is NO EXCUSE for using more than your allotted time. Rehearse your presentation several times; projecting slides and doing anything else you would otherwise expect to do at the meeting.

• It is a discourtesy to your audience, the Session Chair and the other speakers to exceed your allotted time.

• The Session Chairs are instructed to adhere to the printed schedule for the session. With parallel sessions this is critical to the overall success of the conference.

GENERAL INFORMATION

Main Venue
Azerbaijan National Academy of Sciences, Mardakan Dendrary
Sergei Yesenin 89 Mardakan
BAKU AZ1044 AZERBAIJAN

Symposium Rooms
Oral presentations: Salon A, B and C
Poster presentations: Building A

Language
English is the predominant language in symposium.

Currency and Banks
The manat (code: AZN) is the currency of Azerbaijan. It is subdivided into 100 *qəpik*.

Insurance
The meeting coordinators cannot accept any liability for personal injuries, loss or damage to properties belonging to participants, either during or as a result of the symposium. Participants are encouraged to take out their own personal travel insurance.

Name Badges and Materials
Name badges and meeting materials will be provided on-site at the registration desk. All participants are kindly requested to wear their name badge during all meeting functions and social events.

Shopping
Most shops and department stores are open from 10.00 – 20.00 (10 am – 8 pm) Monday through Thursday, 10.00 – 21.00 (10 am – 9 pm) Friday to Saturday, 11.00 – 19.00 (11 am – 6 pm) on Sunday. Major credit cards are widely accepted.

Weather
The climate in Baku during this time is variable with temperatures between 19-27°C.

Time
Indianapolis is currently on Eastern Daylight Time, 4 hours front on Greenwich Mean Time (GMT).

Power
In Azerbaijan the standard voltage is 220 V. The standard frequency is 50 Hz. The power sockets that are used are of type C / F.

	01.06.2015			
	MARDAKAN DENDROLOGY INSTITUTE – MARDAKAN / BAKU			
Salon A	11^{00}– 11^{25}	**Opening Ceremony**		
	11^{25}– 11^{40}	**Prof. Dr. Akif Alizade** – President of Azerbaijan National Academy of Science (ANAS)		
	11^{40}– 11^{55}	**Prof. Dr. Ahliman Amiraslanov** – Academician Secretary of ANAS, Rector of Med. Univ.		
	11^{55}– 12^{10}	**Prof. Dr. Hüseyin Bağcı** - Rector of Pamukkale University, Turkiye		
	12^{10}– 12^{25}	**Prof. Dr. Ramazan Mammadov** - Symposium Co-Chair, Pamukkale University, Turkiye		
	12^{25}– 12^{40}	**Prof. Dr. Tofik Mammadov** - Symposium Chair, Director of Dendrology Inst. of ANAS		
	12^{40}– 13^{30}	**Launch at Mardakan Institute**		
Salon A	**Chairs: Prof. Dr. Alaattin ŞEN & Assist. Prof. Dr. Aslı SEMIZ**			
	13^{30}– 14^{10}	**Prof. Dr. Gülaçtı TOPÇU**	**Anatolia as a rich source of Lamiaceae family plants with bioactive molecules**	**Poster Section No: 1 to 40**
	14^{15} – 14^{35}	Nazim Mamedov	Genetically selected Omega-3 rich chia is introduced to Ethiopia for the first time as a possible source of nutraceutical	
	14^{35} – 14^{55}	Gürkan Semiz	Diurnal and Seasonal Variation of Monoterpene Profiles of *Pinus brutia* Ten.	
	14^{55} – 15^{15}	Raşit Urhan	Systematic studies on zerconid mites (Acari, Zerconidae) in Inner Aegean Region of Turkey – I	
Salon B	**Chairs: Prof. Dr. Bolatkhan ZAYADAN & Assoc. Prof. Ali BİLGİN**			
	14^{15} – 14^{35}	Tubukhanim Gasimzade	Data About Ecological Condition of Shirvan Region of Azerbaijan	**Poster Section No: 1 to 40**
	14^{35} – 14^{55}	Ahmet Raif Eryaşar	Catch composition of demersal trawl fisheries in Mersin Bay, Turkey	
	14^{55} – 15^{15}	Meral Apaydın Yağcı	Food Composition and Prey Selection of Pikeperch, *Sander lucioperca* (Actinopterygii: Perciformes: Percidae), of Lake Eğirdir in the Mediterranean, Turkey	
Salon C	**Chairs: Prof. Dr. Taryel TALIBOV & Prof. Dr. Hilal GASIMOV**			
	14^{15} – 14^{35}	Altantsetseg Enkhtaivan	Effect of Different Light Led Lamp on Activity of Morphogenetic *Astragalus mongholicus* Bge. and *Astragalus adsurgens* Pall. in Conditions *in vitro*	**Poster Section No: 1 to 40**
	14^{35} – 14^{55}	Andrey Khromov	Modification of *Zingeria biebersteiniana* hydroxyurea antefixation treatment	
	14^{55} – 15^{15}	Zaur Hasanov	Pomegranate and Efficient Ways of Using The Gene Pool	
	15^{15} – 15^{30}	**Coffee break**		
Salon A	**Chairs: Prof. Dr. Kuddisi ERTUĞRUL & Prof. Dr. Tuna UYSAL**			
	15^{30} – 16^{10}	**Prof. Dr. Mustafa IŞILOĞLU**	**Focus on Macrofungus of Turkey**	**Poster Section No: 41 to 80**
	16^{15} – 16^{35}	Mustafa Duran	Benthic fauna assemblages of Alpine Lake Kartal in Denizli (Turkey)	
	16^{35} – 16^{55}	Ali Nafiz Ekiz	Diversity of Turkish leaf beetles (Coleoptera: Chrysomelidae): What do we know?	
	16^{55} – 17^{15}	Gürçay Kıvanç Akyıldız	Benthic Macroinvertebrate Fauna of The Kızılırmak Basin and Assessment The Water Quality By Using MMIF Index	
Salon B	**Chairs: Prof. Dr. Nusret AYYILDIZ & Prof. Dr. Vagif ATAMOV**			
	16^{15} – 16^{35}	İzzet Kara	Theoretical calculation of a compound formed by methyl alcohol and simmondsin	**Poster Sect. No: 41 to 80**
	16^{35} – 16^{55}	Begüm Parlak	The Allelopathic Effects of Fig plant (*Ficus carica*) and terebinth plant (*Pistacia terebinthus*) leaves extracts on seed germination of some weeds *Amarantus retroflexus* and *Convolvulus arvensis* L.	
	16^{55} – 17^{15}	Leyla Valiyeva	The influence abiotic factors on Coniferales in *ex-situ* conditions	
S	**Chairs: Prof. Dr. Suliko BERIDZE & Prof. Dr. Raşit URHAN**			

	16^{15} – 16^{35}	Oxana Polivanova	About the importance of in vitro studying *Agastache* species	**Poster Section No: 41 to 80**
	16^{35} – 16^{55}	Olga Tsivileva	Cultural diversity of *Ganoderma* mushroom of Vietnamese and Russian Biogeography	
	16^{55} – 17^{15}	Natalya Osokina	The content of phenolic compounds in triticale seedlings in vitro under stressful conditions with growth regulators	
	02.06.2015			
	ROYAL HOTEL – BAKU			
Lecture Hall 1	**Chairs: Prof. Dr. Nazim MAMEDOV & Assist. Prof. Dr. Gürçay Kıvanç AKYILDIZ**			
	10^{00}– 10^{40}	**Assoc.Prof.Dr.Mesut KIRMACI**	**Bryophyte Biodiversity in EuroAsia**	
	10^{40}– 11^{00}	Zaur Humbatov	Conifer Species in Azerbaijan and Their Phylogenetic Analysis	
	11^{00}– 11^{20}	Ali Aydın	Magnetic susceptibility measurements of tree leaves and showing the effects of heavy traffic pollution sources	
	11^{20} – 11^{40}	Hacer Akyürek	Implementation of Nitrate Directive in Turkey with Regards to Sister Directives of EU Water Framework Directive	
	11^{40} – 12^{00}	Zakir Ibrahimov	Persian Walnut (*Juglans regia*) Biodiversity in Azerbaijan	
	12^{00}– 12^{20}	Rima Kirakosyan	Effect of plant extracts on gynogenesis *Brassica oleracea* L.	
	12^{20}– 13^{20}	**Launch at Royal Hotel**		
Lecture Hall 1	**Chairs: Prof. Dr. Latif ELÇİ & Prof. Dr. Yaşar GÖK**			
	13^{30}– 13^{50}	Yeşim Kara	The comparison of Effects of Gamma Radiation of Crude Oil Yield on Some Sunflower (*Helianthus annuus)* Seeds	
	13^{50}– 14^{10}	Begüm Parlak	The nectar efficiency of the nectar producing plants, the effect of bee populations on pollination and fruit efficiency	
	14^{10} – 14^{30}	Hüseyin Baykal	A Syntaxonomical Study on the High Mountain Vegetation of Başhemşin Part (Çamlıhemşin/Rize/TURKEY) of Kaçkar Mountains National Park	
	14^{30} – 14^{50}	Maria Kim	Introduction *in vitro* of the different *Salvia sclarea* varieties	
	14^{50}– 15^{10}	Maneea Moubarak	Using *in vitro* technique for induction of somatic organogenesis from different explants of pennyroyal (*Mentha pulegium* L.)	
	15^{10} – 15^{30}	**Coffee break**		
Lecture Hall 1	**Chairs: Prof. Dr. Mustafa DURAN & Assoc. Prof. Dr. Ali Nafiz EKİZ**			
	15^{30}– 15^{50}	Shalala Gulmammadova	Introduction Some of Ornamental Herbaceous Plants in Conditions of Absheron	
	15^{50}– 16^{10}	Begüm Parlak	Determining the allelopathic potentials of seed and leaf of the jojoba *(Simmondsia chinensis* L.*)* plant	
	16^{10}– 16^{30}	Maria Kim	Introduction of *Cladium mariscus* seeds *in vitro*	
	16^{30}– 16^{50}	Şengül Alpay Karaoğlu	Determination of soilborne *Bacillus* sp. 5O5Y11 strain's bioremediation features and effect on growth of *Zea Mays* in the presence of copper	
	16^{50}– 17^{10}	Mehmet Karaca	Zerconid mites (Acari, Zerconidae) diversity of Thrace region (Northwest Turkey) – I	
	20^{00} - 00^{00}	**Gala Dinner (Baku)**		
	03.06.2015			
	09^{00} - 20^{00}	**Social Events: Trip to Kuba City and Afurca Waterfall**		
	04.06.2015			
	MARDAKAN DENDROLOGY INSTITUTE – MARDAKAN/BAKU			
Salon A	10^{00}– 12^{00}	Poster Presentations (Numbers from 81 to 113)		
	12^{00}– 13^{00}	Closing Ceremony		
	13^{00}– 14^{00}	Launch: Barbeque party at Mardakan Institute		

ORAL PRESENTATIONS

OP-1

Genetically selected Omega 3 rich chia is introduced to Ethiopia for the first time as a possible source of nutraceutical

Wudeneh Letchamo[1], **Nazim Mamedov[2]**, Lyle Craker[2], Degefe Lechamo[3], Thomas Hartman[1]

[1]Center for advanced food technology, Rutgers University New Brunswick, NJ, USA
[2]Medicinal Plant Program, University of Massachusetts/Amherst, MA USA.
[3]Camelina International, P.O.Box 14159, Addis Ababa Ethiopia:
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Chia (*Salvia hispanica* L.), an annual in the Lamiaceae family, is an ancient crop cultivated for human consumption by the Aztecs of Central America. The seeds of chia are an abundant source of omega-3 polyunsaturated fatty acids (PUFA) that have desirable biological effects in humans, reducing the risk of cardiovascular disease, cognitive disorders, depression, and asthma, while also having a role in the development of brain cell membranes and eye tissues. Chia seeds contain ca 35% oil, an impressive 25% dietary soluble fiber, 20% protein (rich in lysine), and are a good source of antioxidants, vitamins, and minerals. The USDA has assigned a "specialty crop" status to chia, and chia has taken-over the "top super food" position in the world, leaving quinoa (*Chenopodium quinoa*), amaranth (*Amaranthus* spp.), and tef (*Eragrostis tef*) behind. Ethiopia has the fastest growing economy in Africa with dynamic human resources and diverse ecological conditions. No reliable supply of omega-3 rich nutraceuticals, however, is available in country. Chia has not been known or grown in Ethiopia and no attempts were made by any group to identify and introduce chia to Ethiopia until 2006. Imported edible oils were frequently adulterated, rancid, or contaminated. A multi-year (2006-2014) privately funded research team was developed to identify, select, and develop PUFA rich chia as a food source for Ethiopia. Development of chia as a crop in Ethiopia could help meet the needs for food to sustain the health, beauty, and fitness of Ethiopians. Our experiments were conducted in the Hadiya zone, Southern Ethiopia with eight chia seed accessions from various origins. Replicated field trials with chia were used to investigate variability in agronomic traits under four different ecological conditions over two growing seasons. Dramatic variations were observed among and within accessions. From emergence to seed maturity took 115 to154 days, depending on the selection and growing conditions. Mean seed yield varied from 420 kg/ha to 820 kg/ha. Of the promising cultivars, 'DUW-1' and 'DUW-2' showed desirable agronomic traits, uniformity in seed emergence, morphology, flowering time, seed yield, and seed retention. These cultivars are recommended for organic cultivation and nutraceutical processing in Ethiopia.

OP-2

Diurnal and Seasonal Variation of Monoterpene Profiles of *Pinus brutia* Ten.

Merve YILDIRIM[1], **Gürkan SEMİZ**[1]

[1]*Pamukkale University, Faculty of Arts & Sciences, Dept. of Biology, Denizli, Turkey*
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Plants protect themselves against herbivory by deploying a wide array of chemical defenses. Plant volatiles can serve as a chemical defense by recruiting beneficial insects that are natural enemies of the herbivore, thereby providing an indirect protection to the plant. The conifers develop strategies to adapt to changing environmental conditions and they use secreted terpenes against the biotic and abiotic parameters. The studies made on genetic variations of Turkish red pine (*Pinus brutia* Ten.) show that there was a high genetic variation. Turkish red pine's wood which is important for both economical and ecological in Turkey is used for building materials, package, mine post, cellulose, and paper industries. It is considered a fast growing conifer when compared to other native forest tree species in Turkey and it has been determined as one of the priority species. Therefore, in situ gene conservation areas needed to be set aside soon in addition to the existing ones. In this study, needle samples from six clones selected from different genetic origins were analyzed terpene analysis. Seasonal variations of certain compounds were analyzed and their relationships with environmental parameters of possible variations against biotic and abiotic environmental conditions were determined. Although daily temperatures fall, some terpene compounds (e.g, α-pinene, β-pinene) were found to be increased in needle leaves. The period in which an increase in the amount of the certain compounds overlapped with flight, oviposition and feeding of pine processionary moth (*Thaumetopoea wilkinsoni* Tams.). In conclusion, the certain monoterpenes showed seasonal-dependent variation and the results indicate that quality and quantity of terpenes were influenced insects behavior in synergic or antagonistic ways.

Keywords: *Pinus brutia*, terpene profile, GC-MS analysis, seasonal variation

Acknowledgement: This study was financially supported by TUBİTAK (110T976) and Pamukkale University Scientific Research Project Unit (PAUBAP), project number: 2012FBE068.

OP-3

Determination of soilborne *Bacillus* sp. 5O5Y11 strain's bioremediation features and effect on growth of *Zea Mays* in the presence of copper

Şengül Alpay Karaoğlu[1], Ülkü Zeynep Üreyen[1], Emel Uzunalioğlu[1], Şule Güzel[1], Arif Bozdeveci[1], Ali Bilgin[1]

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In this study, identification of 5O5Y11 isolate which is isolated from Ovit Plateau orchids root soil, determination of properties that promote plant growth, investigation of contribution of the germination and growth of maize plants in the presence of metal was planned. 5O5Y11 isolate was determined as *Bacillus* sp. by conventional and molecular methods. Nitrate production, strong lecithinase activity, gelatin hydrolysis, siderophore and ammonium production is between some characteristics features of *Bacillus* sp. 5O5Y11. Moreover, a good reproductive ability was observed in the range of pH 5.5-8.5, at 10-45 °C and in the presence of 15% NaCl. Reproductive ability in the presence of heavy metals (Ag, Fe, Pb, Zn and Cu) was investigated by agar method. Minimal inhibitory and minimal bactericidal concentrations of copper values were determined by microdilution method. MIC and MBC values were determined as 12.5 and 50 mM, respectively. Germination success in the presence of copper (1.5 mM) was tested in sterile petri dishes. In the first three days, germination success was determined as 93.3% in only copper, 75% in only bacteria, 87% in control, 100% in *Bacillus* sp. 5O5Y11 + copper. Activity on the development of maize plants was tested 16 h day, 8 h night, 70% relative humidity and at 23 °C temperature conditions in climate cabinets. *Bacillus* sp. 5O5Y11 strain, when used alone as rhizoid bacteria positively affected the development of the maize plants and increased yield. Cu 50-100 mM concentrations adversely affected the growth of maize plants. However, it was observed that yield was at higher level compared to control in bacteria+Cu (50-100 mM) combination. When evaluated statistically, there were significant differences at $p<0.01$ level between all groups.

***Keywords*:** Bioremediation, identification, maize, plant promoting factor

OP-4

Data About Ecological Condition of Shirvan Region of Azerbaijan

Tubkhanim E. Gasimzade

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The basic anthropogenous factors of biogeocenosis changes are drainage and flooding of territories, agricultural land development, set of agrotechnical actions for increase of soils fertility, cutting down of woods and bushes, building of roads and industrial targets of flat and mountain part of Shirvan regions of Azerbaijan have been studied. The region climate is non-uniform: climate is damp in high-mountainous and middle- mountainous parts, in foothill-hilly - droughty, warm, in low-flat – dry and warm. The mountain zone of area is rich by mineral waters of medical and resort value. 7 basic rivers proceeding in region: Kur, Goycaychay, Turyanchay, Girdimanchay, Agsuchay, Pirsakhatchay, Gozluchay, their chemical, bacteriological structure influences an ecological condition of a soil-vegetative cover of Shirvan. Pollution of the rivers occurs both superficial and sewage where get a waste and products of live ability of the person. The mountain part is located at height of 700-3000 m over level of s.l. Soil resources of region differ by variety. It inseparably linked with a soil erosion, salification, chemical pollution and as a whole soil degradation. Development of degradation processes of the soils depends on an overexploitation, unstable agriculture and irrigation, destruction of woods, biodiversity pauperization.The basic industries of region are food-processing industry, processing local agricultural production (winemaking, fruit growing) and light industry (sewing, carpet weaving). Besides, wood-working enterprises functions in Ismayilli district, stone open-cast mines, brick-works, the enterprises for agricultural machinery repair in Shamakhi and Gobustan districts of region. Instability of Shirvan ecosystems negatively affects on it biogeocenose and there is actual a working out of measures on its preservation. Constant monitoring of a soil and vegetative cover gives the chance monitoring of an ecological condition of region. The full and all-round information is necessary for decision-making on protection of Shirvan environment.

Keywords: Biogeocenosis, soil, plant cover, ecosystems

OP-5

Catch composition of demersal trawl fisheries in Mersin Bay, Turkey

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This study presents catch composition and biodiversity, investigated during TUBITAK project 109O684, in Mersin Bay, north-eastern Mediterranean which is an important fishing ground for demersal trawls. A total of 177 hauls were performed onboard a commercial trawler on the commercial fishing grounds between 15 September 2009 and 15 April 2013. The monthly change of species composition was evaluated using Principal Component Analysis (PCA) to Catch Per Unit Effort (*CPUE*) values. Shannon-Wiener index (*H'*) and its evenness (*J'*) component, Pielou evenness index, were calculated to clarify temporal changes of the diversity. One hundred and thirty-five species belonging to 10 orders, 26 classes, and 71 families were identified. For all hauls, the results showed that *CPUE* indices by number (N) and weight (W, kg) were 1572.63 and 23.83, respectively. While the most abundant species was *Mullus barbatus* in terms of *%IRI* and *CPUE (W/h)*, *Equulites klunzingeri* had the highest *CPUE (N/h)*. Four clear groups of months were appeared on the PCA space. The highest diversity was observed in November with the *H'* = 3.1415 and *J'* = 0.7071 index values. The results highlighted differences of catch composition and biodiversity between fishing months.

***Keywords*:** Bottom Trawl Fisheries, Species Composition, Catch Biodiversity, Catch Per Unit Effort, North-Eastern Mediterranean

OP-6

Food Composition and Prey Selection of Pikeperch, *Sander lucioperca* (Actinopterygii: Perciformes: Percidae), of Lake Eğirdir in the Mediterranean, Turkey

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Food composition and prey selection of pikeperch in Lake Eğirdir were evaluated. The total stomach contents of 241 pikeperch with a fork length of 21.6-77.0 cm were analysed between January 2010 and December 2010. The index of relative importance (IRI %) and Pearre's selectivity index (V_a) were used fort he definition of pikeperch food. The most frequent prey fish was the sand smelt (*Atherina boyeri*), followed by the caucasian dwarf goby (*Knipowitschia caucasica*) and killifish (*Aphanius anatoliae*). The food composition of pikeperch varied seasonally. *A.boyeri* was an important prey only in winter in terms of relative importance (IRI=33.43 %). And, *A.anatoliae, K.caucasica, Pseudophoxinus egridiri* and *Pseudorasbora parva* were also absent in the autumn and winter foods. Pikeperch positively preferred *A.boyeri* despite their similar abundance in the environment and was not statistically significant ($p > 0.05$). *A.anatoliae* and *Chironomus* sp. were the most abundant prey fish in the environment, however the species were a negatively selected food item by pikeperch and they were statistically significant ($p<0.01$). According to the Schoener Overlap Index (C), food composition of pikeperch in March, May, June, November were similar ($C>0.8$). Cannibalism was not observed during a decade for pikeperch in the lake.

Keywords: Food composition, pikeperch, Lake Eğirdir, prey selection, *Sander lucioperca*

OP-7

Effect of Different Light Led Lamp on Activity of Morphogenetic *Astragalus mongholicus* Bge. and *Astragalus adsurgens* Pall. in Conditions *in vitro*

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Morphogenesis processes depend on a number of interrelated factors, such as hormonal and mineral composition of the culture medium, as well as the physical nature of the factors, among which the light - regulating not only the process of morphogenesis, but also the synthesis of secondary metabolites.In this paper we studied the effect of LED lamps white light, red light, red and blue light on the morphogenetic activity of cultured microshoots Mongolian Astragalus (*Astragalus mongholicus* Bge.) and Astragalus lifts (*Astragalus adsurgens* Pall.) In in vitro conditions in media containing various hormones (BAP, 2ip, Dropp, NAA), as well as hormone-free medium. As a control, was taken fluorescent lighting. The studies led to the conclusion that the Mongolian Astragalus (*Astragalus mongholicus* Bge.) The use of technology in micropropagation of different LED lamps (white, red, red and blue light) is not effective. This is due to the fact that these lamps do not have a material impact on such an important indicator as a multiplication factor (number of shoots formed on one of explants for one passage). Best results for this type were prepared using standard culture conditions - the use of fluorescent lamps. However, a complete denial of the application of LED lamps with micropropagation Mongolian Astragalus (*Astragalus mongholicus* Bge.) Is not entirely correct, since the conditions of use of LED lamps red and blue light to observe the formation of the root system in microshoots that was not typical for standard culturing conditions. As for Astragalus lifts (*Astragalus adsurgens* Pall.), The results obtained show that LED lamps have an impact on the morphogenetic potential of cultured tissues. Moreover, this process correlates with the hormonal composition of the nutrient medium. Best performance by induction of adventitious buds formation and growth microshoots were obtained using LED lamps red and blue light. Moreover, these indicators are not taken into account under study depended on the composition of the culture medium. Furthermore, in the embodiment, and red light was observed blue light forming a strong, extensive root system, that was not observed in other embodiments.

Keywords: *Astragalus mongholicus* Bge., *Astragalus adsurgens* Pall., in vitro., explants., micropropagation., LED lamps

OP-8

Modification of *Zingeria biebersteiniana* hydroxyurea antefixation treatment

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Catching of the right cell phase, when chromosomes are in metaphase is big deal in cytology. There are number of methods to do it, nevertheless exists much more to discover. One of the examples of plant with some blank spots is *Zingeria* genus – annual grassy ephemer from *Poacea* family. *Zingeria biebersteiniana* (Claus) P.A.Smirn. is SE of Russia and Ciscaucasia endemic. Zest of this little grass is its diploid chromosome number – 2n = 4 which is very extremely small chromosome number in *Plantae* kingdom – only few species have the same. Aim of this study is optimization of *Zingeria biebersteiniana* metaphase mitotic chromosome slide preparation by hydroxyurea-mediated cell cycle synchronization and its stopping at metaphase with colchicine help. Seed was germinated on nonstrile filter paper on +3 °C for 3 days and +25°C for 2 days. Temperature treatment followed by hydroxyureal treatment 1,5mM solution during 20 hours, later washed off by distilled water and fixing in ethanol : acetic acid mixture (3:1) every hour (from 2 to 7 h after washing). Pressed slides were colored by acetocarmin with warming during 10 seconds. Best time of fixing criteria was the MI (mitotic index). Experiment was repeated for 3 times. There are 300 cells in every variant of MI recording. Control variant was without hydroxyurea treatment. There are no significant dependences of MI and fixation times, but in odd hours MI is significantly bigger then in even hours.

***Keywords*:** Zingeria, cytology, metaphase, hydroxyurea, colchicine

OP-9

Pomegranate and Efficient Ways of Using the Gene Pool

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Azerbaijan has rich natural conditions, many plants, including fruit crops in the formation of the first and second domestication center. One of the plants crops is pomegranate plant. More than 500 varieties of pomegranates are grown in most regions of Azerbaijan. However, the commodity nature of the products produced at the plant, such as pomegranate, Shirvan, Aran Karabakh, Ganjabasar are cultivated. In Azerbaijan have menu folk selection varieties, along with a wide range of new areas, the varieties imported from abroad and spread in numerous varieties. Recently, the expansions of pomegranate orchards, the cultivars of cultivated plants require special attention. It is primarily a mixture of varieties ligaments prevention should focus on increasing the share of national varieties. Goal of our research recently brought preferred shorts, along with a selection of new varieties of people and the comparative study of biotechnology and economic indicators. We received the results, according to a number of selected varieties of imported varieties of the people, not above them on the back and in some cases did not show that.

Keywords: Pomegranate, varieties, cultivars, gen pool, cultivated, selections.

OP-10

Benthic fauna assemblages of Alpine Lake Kartal in Denizli (Turkey)

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The decline of detect scarce species might dramatically underestimate the local species richness. Estimating species richness for local communities is an important step for investigations in ecology and conservation. Anatolia has noticeable much different kind of microhabitats because of a bridge between Europe and Asia. Therefore, all available microhabitats must be documented urgently, because of disappearing and threatened microhabitats affected by global warming and urbanization. Despite a general research interest of this alpine lake, however, not any published data are available up to now. To some extent this was due to the difficulties in sampling because this lake remains snow covered for most months of the years, is situated in remote areas and is difficult to reach the site. Also, compared to the larger research interest on the lakes and on running waters, relatively little is known about lakes at high altitude. A total of 968 specimens were identified and 85 species/taxa belonging to eight higher taxonomic groups and all of them are new record for the lake fauna. Diptera was the most abundant group with a total of 85 taxa, Mollusca (1 taxa), Ephemeroptera (3), Plecoptera (4), Odanata (11), Hemiptera (1), Trichoptera (12), Chironomid (50 – 26 of them subfossils) and Coleoptera (3). The present study showed that the biggest part of benthic macroinvertebrates consists of larval chironomids comprising 58% abundance of the total specimens. It is followed by Trichoptera and Odanata 14% and 13% abundance, respectively. The most commonly encountered species were *Epeorus sp*., *Baetis rhodani*, *Orthetrum cancellatum*, *Hydropsyche sitalai*, *Hydropsyche instabilis*, *Macropelopia sp*., and *Hydrobius sp*.

***Keywords*:** Remote lake, Chironomidae, macroinvertebrate, subfossils

OP-11

Diversity of Turkish leaf beetles (Coleoptera: Chrysomelidae): What do we know?

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Turkey has a unique geographical location in the center of three continents (Asia, Europe and Africa) constituting a land bridge between them, and also linking to the Ethiopian Region via the Arabian Peninsula. This unique geographic position makes Turkey one of the most diverse areas of the west Palaearctic region. According to Conservation International, Turkey partly includes three of four hotspots of Europe and Central Asia. Thus, a rich flora and fauna, and a considerable number of endemic taxa harbor in the boundary of Turkey. The leaf beetles comprise one of the richest insect families with over 37.000 described species from all over the world, of which about 3500 species inhabiting the west Palaearctic Region. Chrysomelids are the center of interest for many years because of their phytophagous habits, as well as their agricultural and economic importance. Studies on Turkish leaf beetles have increased considerably in recent years. Many taxonomic and faunistik papers have been published in the last few decades. Recently, Ekiz et al. (2013) published a comprehensive checklist of Turkish leaf beetles including 776 species with geographical distribution records. Later, several papers are published describing new leaf beetle species and reporting new records from Turkey. According to the latest knowledge, Turkish chrysomelids are represented by about 782 species (Megalopodidae and Orsodacnidae included, Bruchinae excluded) within 93 genera. More than 10% of these species (82 species) are endemic. However, further field surveys, especially in the eastern and south-eastern parts, are still needed and it is most likely that these numbers do not represent the exact leaf beetle diversity of Turkey.

***Keywords*:** Coleoptera, Chrysomelidae, Leaf beetles, Turkey.

OP-12

Benthic Macroinvertebrate Fauna of The Kızılırmak Basin and Assessment The Water Quality By Using MMIF Index

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In this study, 41 sampling sites were collected in three different periods (April 2014, July 2014 and October 2014) to reveal the benthic macroinvertebrate fauna of the Kızılırmak Basin. Typology and different water budgets were considered while selecting the sampling sites on the basin. From each sampling site 3 min. kick sampling, depending on the abundance of macroinvertebrates, are conducted. It is the first time for the Kızılırmak Basin that the Multimetric Macroinvertebrate Index Flanders (MMIF) was used to reveal to water quality. The index calculation is a type-specific multimetric system based on five equally weighted metrics, which are taxa richness, number of Ephemeroptera, Plecoptera and Trichoptera taxa, number of other sensitive taxa, the Shannon–Wiener diversity index and the mean tolerance score. The final index value is expressed as an Ecological Quality Ratio ranging from zero for very bad ecological quality to one for very good ecological quality. As a result of this study, 150 benthic macro invertebrate taxon (mostly in species level) was identified from 28550 individuals. *Ephemerella ignita*, *Heptagenia longicauda*, *Heptagenia sulphurea*, *Ecdyonurus insignis*, *Ecdyonurus submontanus*, *Oligoneuriella rhenana*, *Ephoron virgo*, *Potamanthus luteus*, *Epeorus* sp., *Rhyacophila* sp. and *Perla* sp. were the most abundant species found in clean fresh water.

Keywords: Type-specific multimetric system, Shannon-Weiner index, EPT, EQR

OP-13

Theoretical calculation of a compound formed by methyl alcohol and simmondsin

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Etheric oil results from the esterification reactions of oil acids with alcohols. In these reactions, one molecule water (H_2O) is composed of $H^{\cdot}$ protons from oil acids and OH^{-} groups which separated from alcohol. Etheric oil is commonly used in food industry, perfume industry and medicine. From this perspective, we need to know physical properties of etheric oil as well as chemical properties. In this study, geometric parameters (bond lengths and bond angles), harmonic vibrational wavenumbers, the highest occupied molecular orbital (HOMO) energies, the lowest unoccupied molecular orbital (LUMO) energies, the electronic properties (total energy, dipole moment, electronegativity, chemical hardness and softness), Mulliken atomic charges, NBO analysis and thermodynamic parameters of a compound formed by methyl alcohol and simmondsin have been performed by using Gaussian 09W program. The structural and spectroscopic data of the molecule in the ground state have been calculated by using density functional method (DFT/B3LYP) with the 6-31++G(d,p) basis set.

Keywords: Simmondsin, DFT, HOMO, LUMO, NBO

OP-14

The Allelopathic Effects of Fig plant (*Ficus carica*) and terebinth plant (*Pistacia terebinthus*) leaves extracts on seed germination of some weeds *Amarantus retroflexus* and *Convolvulus arvensis L*.

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Allelopathy: the chemicals secreted by plants that effect the neighboring plants as positive and negative effects are called allelopathy. The studies about allelopathy in our country are not enough. There are few studies on annual and grassy plants but woody plants are not studied adequately. In this study, aqueous extracts of fig (*Ficus carica*) plant and terebinth (*Pistacia terebinthus*) are used. Obtained aqueous extracts of the leaves are prepared as concentration of 100%, 50%, 20% and 10% by dilution with distilled water. Allelopathic affects of these solutions are observed by applying on seeds of amaranth (*Amarantus retroflexus*) and field bindweed (*Convolvulus arvensis*. Leaves of the Fig plant and turpentine plant are collected in foliage season (late August) and dried in the shade at room temperature. Then, dried leaves are ground with the help of the blender. 50 g of each ground leaf sample is mixed with 500 ml of distilled water (The obtained extract was accepted as pure or 100%). Experimental solutions were prepared at different concentrations by adding distilled water. Distilled water was used as control group. The highest germination ratio was achieved in the control group inwhich pure water was used. The inhibitory effects have been shown that germination ratio, plumule and radicle growth are delayed according to concentration rate of the solutions.

Keywords: Allelopathy, weeds, fig, terebinth

OP-15

The influence abiotic factors on Coniferales in *ex-situ* conditions

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All living things including plants exposed different factors in their environment. These may be living (biotic) or non-living (abiotic). The abiotic factors that affect plant growth and development include topography, soil and climatic factors. The article provides analysis results of the abiotic factors influence on coniferales in ex-situ conditions in Absheron. The investigations revealed that the study of coniferales in relation to light are divided into 66 species of photophilous, 3 species of shade-tolerant plants. At research plants requirements of water from studied species 3 concern to mesophytic, 63 to xerophytic. These plants are cold-resistans. In dry-subtropical conditions of Absheron on planting selection and cultivation of new sustainable species are very important. From this point of view the coniferales one of the perspective plants.

Keywords: Coniferales, abiotic, light, temperature, ex-situ

OP-16
About the importance of *in vitro* studying *Agastache* species

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Plants of the genus *Agastache* Gronov. have valuable pharmaceutical, essential-oil, ornamental properties and they are good nectariferous plants. According to biochemical studies there are 77 components in *Agastache* essential oil and methyl chavicol is the main one. Flavonoid content of *Agastache* essential oil was investigated. It was reported that the group of flavonoids specific only for *Agastache* species, such as acacetin, tilianin, agastachoside and acacetin 7-o-rutinoside were indentificated and isolated from *A. rugosa*. There are data about antihypertensive effect of tilianin from *A. mexicana* extract, which has antimicrobial and anti-inflammatory features as well. Terpenoids isolated from *Agastache* have anesthetic, anti-inflammatory, anticancerogenic, antimicrobial and other pharmacological properties. Among tannins presented in *Agastache* rosemarinic acid is especially valuable due to its good antioxidant effect. Perspectives of *Agastache* essential oil utilization as a natural insecticide were estimated. Fungicidal activity of *Agastache* essential oil compounds was determined. There is information about an influence of *Agastache* essential oil compounds on some lines of human cancer cells. The main substance reducing cancer cells proliferation is limonene. However anticancerogenic effect of *Agastache* essential oil is complex. Essential oil of *A. rugosa* has antiatherogenic effect. Data of chemical composition and usefulness of particular secondary metabolites contained in plants included in *Agastache* genus explain the meaning of maintenance of *Agastache* species *in vitro*. The wide intraspecific variability and indefinite systematic position of some species of *Agastache* genus also show the significance of *Agastache* maintenance as *in vitro* culture. Our studies are devoted to *in vitro* cultivation of *Agastache* species, including seeds sterilization and morphogenesis induction in callus culture.

***Keywords*:** Agastache, Lamiaceae, medicinal herb, essential oil

OP-17

Cultural diversity of *Ganoderma* mushroom of Vietnamese and Russian Biogeography

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Ganoderma species can thrive under hot and humid conditions of subtropical and tropical regions, as well as moderate climate zones. There are numerous *Ganoderma* species that are native to Vietnam. We isolated the starter cultures from the fruiting bodies of mushrooms picked up in the National Parks of Vietnam, the rich and valuable biodiversity of which has been facing challenges. Vietnamese *Ganoderma* contains not only similar substances to this genus mushrooms isolated elsewhere, but also several unusual or even unique secondary metabolites. There is a strong consensus about the true identity of *G. lucidum* among European mycologists, that is *G. lucidum* is probably restricted to western parts of Europe. *G. valesiacum* Boud. distribution range includes the areas of Siberia along with Europe, China and Japan. Three additional herbarium strains of *Ganoderma*, among which two species are from European region (*lucidum* and *applanatum*) and one is from Siberian region (*valesiacum*), have been implemented in the present framework for the purposes of comparison with the Vietnamese-origin data. The key objective of the present study was to generate the base-line information on *Ganoderma* species of the largest protection areas in Vietnam, and to compare those with the species or strains of distinct geographical sampling. Cultural characterization on solid and liquid fermentation, scanning electron microscopy of morphology along with chemical analysis served as the supporting identification and comparison factors. We have studied micromorphological, cultural and selected biochemical characteristics that might provide a routine basis for identifying the most promising strains as biotechnological subjects. The representative voucher specimens were deposited at the Herbarium of Southern Institute of Ecology (Vietnam) and were assigned accession numbers. The species above are for first time under the comparative study in respect to *Ganoderma* strains from European and Siberian regions' mushroom collections.

***Keywords*:** *Ganoderma*, biodiversity, mushroom collections, cultural characteristics, physicochemical analysis

OP-18

The content of phenolic compounds in triticale seedlings in vitro under stressful conditions with growth regulators

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The genus *Fusarium* fungus brings great harm to agriculture, causing illness valuable crops. Infected plants and grains are not suitable for use and harmful to human and animal health. Study of fungi of the genus *Fusarium*, carried out on a global scale, but despite the enormous efforts of the scientific community, many of the problems in this area is still not resolved. Nowadays, to combat fungal diseases of agricultural crops significant widely used chemicals. They are harmful to human and animal health. In certain concentrations, growth regulators are able to inhibit fungal growth, an alternative solution. The paper provides an analysis of the effect of growth regulators on the development of *Fusarium* triticale, to change the content of phenolic compounds in triticale seedlings *in vitro*. The study used a species of fungi *Fusarium*, which most often are on our field crops*: F. culmorum, F. sporotrichioides, F. oxysporum*, and *F. avenacium*, study their correlation with the addition of the nutrient medium of different concentrations of environmentally friendly growth regulators. As the plant material was chosen for the research valuable cereal – triticale. The conducted experiments showed that at concentrations of 7.5 mg/l studied drugs exert an inhibitory effect on the development of *Fusarium*. Biochemical analysis revealed that the weevil is a synergist of drugs due to the synthesis of secondary metabolites, a protective function in intact plants In stressful conditions, the amount of phenolic compounds increased in all variants with the presence of both the fungus and the drug exceeds the control (without fungi and regulator). As seen by the difference between the syntheses of phenolic compounds cultivars for resistance to various diseasesSo, the more susceptible to fusarium variety Doublet content of phenolic compounds is less than that of grade Ukro (resistant to fusarium). Thus, growth regulators in stress concentrations in certain plants to conditions of the protective mechanisms are activated, thereby improving resistance to disease or infection. Because of this, there is a possibility of partial fight or prevent infection by *Fusarium* plants using these drugs.

***Keywords*:** Growth regulators, phenolics, triticale, *Fusarium*, *in vitro*.

OP-19

Conifer Species in Azerbaijan and their Phylogenetic Analysis

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Conifers have been preserved up to now as relict and endemic species in natural refidiums of the territories of Azerbaijan where contrast climate and soil condition dominates. 10 conifer species from 3 families are spread in different geographical areas and ecological zones. Conifers have presently 0,2% share in the flora of Azerbaijan. These species are *Pinus eldarica. P.hamata., Juniperus pugmaea., J.poluycarpos., J.foetidisma., J.rufescens., J.sabina., J.depressa., Taxus baccata., T. taluschensis.* These plants have not only grown in different botanical and geographical areas of Azerbaijan with ancient geomorphological history, but also created new subspecies, natural varieties and hybrids. The species of *Taxus taluschensis* has been preserved so far in MSL 2000m of Talysh Mountains for the amount of approximately 90 plants. Conifers have been a major plant formation of Azerbaijan in the Third (Tertiary) Period and afterwards. Paleobotanical and other researches proved that distribution areas of conifers were fragmentary and disjunctive. Generally, conifers have been developed by microphyll progress line and widely spread with the influence of ecological factors. Presently, in the systematics of Conifers or Pinophyta (*Coniferae s. L*) main group of Gymnosperms (*Gymnospérmae*) dominates Embryophytes concepts and views (Jussieu, 1789; Endlicher, 1836, 1840, 1842,1847; Blume, 1847; Lindley, 1853; Parlatore in DeCandollü, 1868; A.Richard, 1826; Thunberg, 1794; Zuccarini, 1846; Engler, 1909; etc.) created in natural systems period. In different periods the systematics of Conifers was based on determination according to different structural elements of vegetative organs. Firstly they were included to the special class - *Gymnospermae*, (attached to the division *Spermatophyta*, 1882—1952). Later, they were included to the Vascular plants *Tracheophyta* division (1950-1981). This class also implies conifers became extinct and found in archeological excavations. Although conifers absolutely differs from other groups (*Polypodiopsida* and *Angiospermae*) of higher plants, but for a long time the conception of *Angiospermae* derivation from *Gymnospermae* prevailed according to the archeological remains. Thus, the taxon of *Gymnospermae* was considered as paraphyletic. Monophyletic taxa (groups that include all the descendants of a common ancestor) are tried to be determined according to the modern cladistical taxonomy. Besides that some DNA researches note that gymnosperms are included to the monophyletic group.

***Keywords**:* Refidium, hybrid, disjunctive, paraphyletic, monophyletic

OP-20

Magnetic susceptibility measurements of tree leaves and showing the effects of heavy traffic pollution sources

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A hundred and ten tree leaves and soil under the tree were sampled and collected near of the heavy traffic roads and in the urban and residential area, for the purpose of a magnetic susceptibility study on pollution in Denizli City, Turkiye. Measurements of volume-specific magnetic susceptibility (κ) and mass-specific magnetic susceptibility (χ) show a significant variation range both of soil and tree leaves samples. In this study, we did a first and primary magnetic study near the high heavy traffic pollution in a part of Denizli city, Turkiye which was said the most polluted city in Agean Region of Turkey. The magnetic susceptibility measurements increase from the garden area to residential area and reached the high levels near the traffic road. Magnetic particle concentration and grain size sourced exhaust gasses and other pollution sources increase with the increasing distance from residential area, indicating the high traffic road area.

Keywords: Tree leaves; environmental magnetism; heavy traffic; environmental pollution

OP-21

Implementation of Nitrate Directive in Turkey with regards to Sister Directives of EU Water Framework Directive

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Prepared by European Union, Water Framework Directive was published in the Official Gazette of Turkey on December 22nd, 2000. The idea was primarily initiated as a result of the increasing concerns of Member Countries regarding the state of freshwater resources. It is also an outcome of integrated water management approach highlighted during several global conferences. This framework primarily focuses on preventing and reducing pollution, promoting sustainable water use, protecting aquatic ecosystems, rehabilitation of aquatic and terrestrial ecosystems and mitigating the effects of floods and droughts. The Water Framework Directive implement inland surface waters, transitional waters, coastal waters and ground waters. Member States should aim to achieve good status in all bodies of water ecosystems by 2015. In addition, Turkey aims to achieve “good water status” in terms of quantity and quality until 2027.Directive (91/676/EEC) Nitrates Directive (91/676/EEC) It is aimed with Nitrates Directive that reducing pollution caused by nitrates from agricultural sources into the water and Prevention of similar pollution that may occur in the future.the water, exposed to pollution or possible exposed to pollution, have been determined. After notification, The indentification of nitrate vulnerable zones is made in the entire area.

Keywords: Nitrates Directive, aquatic ecosystems, sensitive area, water pollution

OP-22

Persian Walnut (*Juglans regia*) Biodiversity in Azerbaijan

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In Azerbaijan Persian walnut (*Juglans regia* L.) occur in many natural forest formations through out the country in a wide range of climatic zones such as mountain slopes, pure forests stand, and in some of the country's nature reserves. Rich gene pools of Persian walnut exist in mixed and pure forests communities and in cultivation. As everywhere in the world, Azerbaijan is also experiencing pressure of walnut genetic resources leading to over exploration of natural forest communities where of this species exist. Many indigenous and folk cultivars under cultivation for a long period of human history are undergoing replacement by high yielding clonal cultivars. Although Azerbaijan has taken steps to deal with this crisis by establishing protected areas for *in - situ* conservation of plant diversity and *ex - situ* collections in botanical gardens and gene banks, much need to be done to preserve the rich heritage of Persian walnut diversity and germplasm for the future generations to come. There is an urgent need for exploration, collection, and conservation of walnut germplasm that are native to Azerbaijan before they are lost due to replacement with genetically uniform modern clonal cultivars.

Keywords: Walnut forest, wild relatives, polymorphism, varieties, cultivars, gen pools.

OP-23

Effect of plant extracts on gynogenesis *Brassica oleracea* L.

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Another biotechnological approach to improve plants and accelerate the breeding process is the culture of unfertilized ovaries and ovules. However, in this direction many empiricists and don't have deep theoretical knowledge of the essence of biological processes inherent in cultured female gametophyte. In particular, the lack of knowledge about the patterns of morphogenesis in culture of isolated ovaries significantly inhibits the development of the method. In a number of other issues most relevant is the study of factors, the "switching" of the female gametophyte in unprogrammed path of development. This question remains open for such important crops as cabbage. Therefore, the aim of our work was to investigate the effect of plant extracts obtained from the reproductive organs, gynogenesis *Brassica oleracea* L. *in vitro* .As a result of the conducted research it was found that the addition in the medium extracts with the use of the solvent DMSO improves the process of morphogenesis in culture unfertilized ovaries of cabbage by 2.4% compared to the control variant. It is experimentally proved that a plant extract obtained from the reproductive organs of a certain genotype increases the morphogenetic potential of isolated organs only of the same genotype.

***Keywords*:** Plant extracts, gynogenesis, *in vitro*

OP-24

The comparison of Effects of Gamma Radiation of Crude Oil Yield on Some Sunflower (*Helianthus annuus)* Seeds

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This study compares the effects of different doses gamma radiation on crude oil yield and moisture of different six variety sunflower (*Helianthus annuus* L.) seeds. As materials, sunflower variety Ege-2001, Turay, AS-508, Tunca, TR-3080 and Tarsan-1018 seeds were used and irradiated with doses of 0 (control), 100, 200, 300, 400 and 500 Gy gamma radiation. Irradiation was performed in a cesium (Ce^{137}) Gammacell 3000 Elan source, dose rate about 9.75 Gy/min (2900 Ci) in the Pamukkale University Faculty of Medicine in the department of the radiological. Moisture amount of seeds were also measured by AOCS standarts. Extraction of the seeds was done with soxhlet apparatus using petroleum ether by hot continuous extraction for 6 hours. It was found that the highest moisture rate in 100 Gy for all seeds variety. The moisture rate ranged between 3.00 and 9.68% in TR-3080 and Ege-2001, respectively. According to the our results, seed moisture content was affected by gamma radiation in a significant negative one-way. The significant reduction in seed moisture content (9,68%) began at 100 Gy of gamma rays and continued to decline to up to 4,04% at 500 Gy. The crude oil yield showed not a important increase in 100 and 200 Gy doses. The result showed that the highest crude oil yield was also obtained from 400 Gy and 33.49% in Ege-2001 seeds.

***Keywords*:** Gamma Radiation, sunflower (*Helianthus annuus* L.), extraction, crude oil yield

OP-25

The nectar efficiency of the nectar producing plants, the effect of bee populations on pollination and fruit efficiency

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This study was carried out between the 2005-2007 years in the department of Botanic and Plant Physiology of Ganja State Agrar University(ADAU) in Azerbaijan. In this research, we benefited from laboratory and environmental research facilities of the university. Flowering period of plants was observed by following the flowering times; samples of flowering plants were collected on which bees settle mostly. Collected samples were investigated in Botanic and Plant Physiology department of AKTA (ADAU) and Botany Institute of MEA (National Academy of Sciences). Utilized from main sources as"The Flora of Caucasian", "The Flora of CCCP", "The Flora of Azerbaijan", and "The Flora of Turkey" for determination of species and morphological analysis of plants. More than 600 plant herbarium specimens were prepared. Approximately 20 bee varieties were studied with MBS-9 ocular microscope. According to the our search; Azerbaijan's flora is extremely rich in nectar and pollen producing plants. More than 17% of this flora is nectar and pollen producing plants. Nectar secreting degrees of these plants is considerably relevant with the ecological status of the area where these plants grow. Sugar content in the nectar can vary from 1% to 70%. But, bees were more working on the sugar contents between 55-60% of plants. Nearby beehives in the flowering period of the plants (depending on pollination) increase the efficiency. At the flowering period of nectar prucing plants, beehives which are left around the plants according to the rate of population have shown serious effect on honey productivity. Bees visit flowers to collect the nectar and pollens. Bees use the nectar as the source of carbohydrate while pollens as protein sources.

Keywords: Nectar plants, honey bees, nectar, pollen, pollination.

OP-26

A Syntaxonomical Study on the High Mountain Vegetation of Başhemşin Part (Çamlıhemşin/Rize/TURKEY) of Kaçkar Mountains National Park

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In this study the high mountain meadow vegetation of Başhemşin (Çamlıhemşin/Rize/TURKEY), which forms the Noth-East borders of protecting area Kaçkar Mountains National Park, was investigated based on the traditional Braun-Blanquet method and associations were identified and classified as follows:

Alchemillo retinervis-Sibbaldietea parviflorae Vural
Alchemillo retinervis-Sibbaldietalia parviflorae Vural
Agrostio lazicae-Sibbaldion parviflorae Vural
1-*Agrostio lazicae-Sibbaldietum parviflorae* Vural
2- *Carduo lanuginosi-Thalicretum foetidae* ass. nova
Lilio pontici-Anemonion narcissiflorae Vural
3-*Stachyo macranthae-Polygonetum carnei* Vural
4-*Talictro foetidi-Epilobetum angustifolii* ass. Nova
5-*Junipero sabini-Rhododendretum luteae* ass. nova
Centaureo appendigigerae-Senecion taraxcifolii Vural
6-*Festucetum lazistanico-woronowii* Vural
Vaccinio myrtilli-Rhododendrion caucasici Vural
7-*Vaccinio myrtilli-Rhododendretum caucasici* Vural
Swertio ibericae-Nardetalia strictae Vural
Swertio ibericae-Nardion strictae Vural
8- *Gentiano pyrenicae-Nardetum strictae* Vural
9- *Veronico serpyliifolii-Barbaretum plantigineae* ass. nova
Querco-Fagetea Braun-Blanquet
Pino-Piceetalia orientalis Quezel, Barbero & Akman
Geranio-Pinion Quezel, Barbero & Akman
10-*Sedo stoloniferi-Picetum orientalis* Vural

Keywords: Başhemşin, Kaçkar Mountains National Park, Rize, Syntaxonomy

OP-27

Introduction *in vitro* of the different *Salvia sclarea* varieties

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Clary sage (*Salvia sclarea* L.) is a subshrub from the genus of Lamiaceae. Its natural habitat is the south of Europe, but it is cultivated all over the world. It is closely related to the garden sage (*S. officinalis*) and the spanish sage (*S. lavandulifolia*). Its aromatic oil contains linalyl acetate (up to 75 %), pinenes, linalool, mikrin, and phellandrene, with the composition depending largely on where the subshrub grows. Sage is one of the officinal species, they use it in medicine as an antibacterial and astringent agent. Using is extrinsic in case of purulent ulcers, wounds, burns and frostbites (in soft patches) and for gargling and toothbrushing during stomatitis. In case of chronic bronchitis, tonsillitis and laryngitis the using is internally. Essential oil of sage is used for toothpastes and powders aromatization, in perfumery, soap making and cosmetics. The purpose of the research was introduction *in vitro* of the different *Salvia sclarea* varieties and finding out optimal conditions for the seedlings growth. In the experiment there were 3 varieties of seeds: Voznesensky 24, Vkus Gribov and Klassica. To evaluate the effect of sterilization regime on the effectiveness of *S. sclarea* seeds germination we used: 5 % solution of sodium hypochlorite, 0,1 % solution of mercury (II) chloride and 5 % solution of lysoformin. The seeds were placed on the sterile nutrient Murashige and Skoog medium. As a control group we used non-sterile germination of seeds on a wet filter paper in Petri dishes. After examining germination of received seedlings they were replanted onto nutritious media containing auxins (IAA, IBA, NAA). Now we observe the dynamics of growing of the derived aseptic plants.

Keywords: *Salvia sclarea*, germination, essential oil, secondary metabolites, *in vitro*

OP-28

Using *in vitro* technique for induction of somatic organogenesis from different explants of pennyroyal (*Mentha pulegium* L.)

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In the last years, plant tissue culture techniques have appeared as a strong tool for the micropropagation and plant breeding of many species such as European pennyroyal (*Mentha pulegium* L.) which is source of essential oils and natural antioxidants. Essential oil of *M. pulegium* and components used in the pharmaceutical, cosmetic industry, and in feeding farm animals (especially poultry). All aerial parts of the plant have medicinal properties; the main component of pennyroyal plant is the volatile oil pulegone. The aim of this research was to develop technology of *in vitro* cultivation of two varieties of *M. pulegium* (Pennyroyal and Sonia) and the possibility of callus induction and somatic shoot organogenesis from different explants. The results showed that best response for seeds sterilization was to treatment with 5 % sodium hypochlorite for 15 minutes. Murashige & Skoog (MS) medium was used for morphogenesis induction. The highest frequency of callus formation showed on ½ MS media containing BAP (0.5 - 1.0 mg/l) with NAA (0.5 - 1.0 mg/l). The callus tissues from stem and leaf segments were histologically studied. For shoot organogenesis ½ MS medium is better. Furthermore, nodes showed very high shoot organogenesis efficiency (61.8 – 100 %). Also, for the induction of root organogenesis showed the ½ MS nutrient medium supplemented with kinetin (0.5 - 1.0 mg/l) and NAA (0.5 - 1.0 mg/l).

***Keywords*:** *Mentha pulegium L., in vitro,* essential oils, morphogenesis, callusogenesis, somatic shoot organogenesis

OP-29

Introduction Some of Ornamental Herbaceous Plants in Conditions of Absheron

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In Azerbaijan in the independency years has carried out along with the economic development extensive landscaping works towards to the protection of the Genefond, increasing of biodiversity and maintaining of the ecological balances. Parks, and gardens, avenues in Baku are the one of the main factors of improvement of live natural conditions for urban population and enrichment of the architectural appearance of the city while in absence of natural greenings of Apsheron. Gardens and parks in Azerbaijan are the greatest social wealth of the Azerbaijan people. Many ornamental designs of previous years are not suited to new forms of planning of our cities and buildings. There is a need for new ornamental plants in landscaping style of landscape architecture compositions. There is conducted in the laboratory of "Landscaping" research works on the study of biological and ecological features of some ornamental herbaceous plants introduced from different countries and the local flora in Apsheron conditions and their use in landscape architecture for this purpose in Institute of Dendrology National Academy of Sciences of Azerbaijan. We have used 2 styles of composition structures: regular in form of geometric shapes or landscape. In compositions of the regular style are created different geometrical shapes, such as "Square", "Rhomb", "Circle", "Star", "Rectangle», but in landscape style - the original form of the compositions, such as "Flowers", "Buta", "Map of Azerbaijan", "Tulip", etc. Time of flowering, color and flower shapes, their quality, their size, height of different sorts and species is while you create compositions during the time of flowering, it depends on color and shape of flowers, their quality, their size, their height of the various species and varieties of plants. By making compositions are taken into account the biological and ecological characteristics and decorative qualities of plants.

Keywords: *Landscape architecture,* flowers, gardens, parks

OP-30

Determining the allelopathic potentials of seed and leaf of the jojoba *(Simmondsia chinensis L.)* plant

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In this study, the n-Hekzan extracts of the seeds and leafs of industrially grown jojoba (*Simmondsia chinensis L.)* plant was used. After completing the mandatory pre conditioning phases, the applications were initiated in order to determine their effects on the germination physiology on corn (*Zea mays L.)* and lentil (*Lens culinaris*) by diluting the plant extracts by 5,10 and 15 folds. After day 3, by measuring the germination rate and the length of the radicula and plumula it was determined that the yield was alleopathically increased for the corn by a %10 extract belonging to jojoba leaf while it was revealed that a %15 extract belonging to jojoba seed inhibited the yield. Regarding the lentil seed, while the %10 jojoba leaf extract showed germination rates, close to the control levels, %15 jojoba leaf extract inhibits the germination. It was observed that the plant extracts had significant effects on the germination of the seeds. As the result, the fact that the extracts of those plants show different allelopathic effects on the germination of the corn and lentil seeds indicates that such extracts may be utilized towards different goals in terms of agricultural, ecologic and physiologic aims

***Keywords*:** Allelopathy, allelochemical, jojoba (*Simmondsia chinensis L.*), germination, root length

OP-31

Introduction of *Cladium mariscus* seeds *in vitro*

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Conservation of biological species is an important task for the humanity. Novel methods in biotechnology continue to strength our ability to completing this task. A clonal *in vitro* micropropagation method is one of them. This method allows for growing, in a relatively short period of time, a diverse set of plants, including rare and endangered species. This is of great importance, particularly for species having limited ability for seed breeding like Saw grass. Saw grass (*Cladium mariscus* (L.) Pohl) is a genus of large sedges. Its natural habitat is Sankt-Petersburg, Tula, Pskov, Vladimir and Samara regions as well as Bashkortostan, the Baltic countries, Belarus and the west of Ukraine. Also it can be found in the south of Scandinavia and in the Middle and Atlantic Europe. It is endangered due to agricultural use of the land and registered in the Red Book of Russia, Ukraine and Estonia. It needs calcium, which means that even a small depletion of calcium content in its habitat can be fatal. Our purpose was to introduce *Cladium mariscus* seeds *in vitro*. Seeds were collected by Alla Koptseva with her pupils (Center of children's and junior's tourism and excursions, Sobinka city, Vladimir region) on the lakes in the Vladimir region. To evaluate the efficiency of the sterilization mode of germination, saw grass seeds were sterilized in a solution of 5 % sodium hypochlorite, 0,1 % mercury (II) chloride and 5 % solution of lysoformin. After this seeds were placed on a sterile growth Murashige and Skoog medium. As benchmarks we determined germination of non-sterile seeds on wet filter paper placed inside Petri dishes. The experiments proved extremely weak germination of the Sawgrass seeds, including germination on nonsterile filter paper.

Keywords: Cladium mariscus, Red Book, species conservation, germination

OP-32

Systematic studies on zerconid mites (Acari, Zerconidae) in Inner Aegean Region of Turkey – I

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This study is based on material of the family Zerconidae Canestrini, 1891 collected from different localities in Inner Aegean region (Turkey) between February 2014 and February 2015. In this study, 16 species of belonging to 2 genera from the family Zerconidae were recorded from Turkey. Among them, *Zercon colligans* Berlese, 1920 has been found to be the most abundant and widespread species. Litter, soil, lichen and moss pad samples with mites were placed into plastic bags, labelled and transferred to the laboratory. Samples were placed into combined Berlese funnels, and mites were extracted for 5–7 days according to their humidity. At the end of this process, the contents of bottles were transferred into Petri dishes and mites were separated under a stereo-microscope. They were placed in 60% lactic acid for clearing and mounted onto permanent microscope slides using a glycerin medium. The examination and drawing of mites were done using an Olympus CX41 microscope with DP25 camera. After the analysed and identified of samples were photographed with a microscope and their shapes were drawn and different body parts were measured. Then, the samples were put in stock bottles containing 70 % alcohol and 1- 3 drops glycine and labelled. The present paper provides an updated taxonomic list of zerconid species known from Inner Aegean region of Turkey. A total of 16 species belonging to 2 genera of the family Zerconidae have been reported from the region. Of these, 12 species belonging to the genus *Zercon* (*Z. anatolicus, Z. burdurensis, Z. cabylus, Z. carpathicus, Z. cokelezicus, Z. colligans, Z. domanicensis, Z. hispanicus*, *Z. huseyini, Z. inonuensis, Z. magdae, Z. yusufi*) and 4 species belonging to genus *Prozercon* (*P. banazensis, P. erdogani, P. morazae, P. tragardhi*). On this basis of drawings made from the collected specimens, the descriptions and measurements of 16 species have been given and their geographic distribution have been discussed.

Keywords: Acari, Zerconidae, Systematic, Inner Aegean region, Turkey.

Acknowledgement: This research was financially supported by the Scientific and Technological Research Council of Turkey (TUBİTAK), Project number: 113Z717

OP-33

Zerconid mites (Acari, Zerconidae) diversity of Thrace region (Northwest Turkey) – I

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This study is based on material of the family Zerconidae Canestrini, 1891 collected from different localities in Thrace region (Turkey) between November 2012 and April 2014. In this study, 33 species of belonging to 2 genera from the family Zerconidae were recorded from Turkey. Among them, *Zercon marinae* Ivan & Călugăr, 2004 has been found to be the most abundant and widespread species. Litter, soil, lichen and moss pad samples with mites were placed into plastic bags, labelled and transferred to the laboratory. Samples were placed into combined Berlese funnels, and mites were extracted for 5–7 days according to their humidity. At the end of this process, the contents of bottles were transferred into Petri dishes and mites were separated under a stereo-microscope. They were placed in 60% lactic acid for clearing and mounted onto permanent microscope slides using a glycerin medium. The examination and drawing of mites were done using an Olympus CX41 microscope with DP25 camera. After the analysed and identified of samples were photographed with a microscope and their shapes were drawn and different body parts were measured. Then, the samples were put in stock bottles containing 70 % alcohol and 1- 3 drops glycine and labelled. The present paper provides an updated taxonomic list of zerconid species known from Thrace region of Turkey. A total of 33 species belonging to 2 genera of the family Zerconidae have been reported from the region. Of these, 19 species belonging to the genus *Zercon* (*Z. anatolicus, Z. bulgaricus, Z. cabylus, Z. carpathicus, Z. colligans, Z. cretensis, Z. foveolatus*, *Z. inonuensis, Z. istanbulensis, Z. juvarae, Z. laczii, Z. lepurus, Z. magdae, Z. marinae, Z. nemoralis, Z. osmaneliensis, Z. similifoveolatus, Z. sklari, Z. turcicus*) and 14 species belonging to genus *Prozercon* (*P. balikesirensis, P. banazensis, P. bulbiferus, P. buraki, P. carpathofimbriatus, P. demirsoyi, P. fimbriatus, P. graecus, P. martae, P. morazae, P. satapliae, P. sultani, P. tragardhi, P. yavuzi*). On this basis of drawings made from the collected specimens, the descriptions and measurements of 33 species have been given and their geographic distribution have been discussed.

Keywords: Acari, Zerconidae, systematic, Thrace region, Turkey.

Acknowledgement: This study was financially supported by Pamukkale University Scientific Research Project Unit (PAUBAP), project number: 2012FBE067.

POSTER PRESENTATIONS

PP-01

Receiving pharmacological phytoraw materials of *Taxus baccata* valuable to Belarus

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Taxanes – group of diterpene alkaloids that include paclitaxel (Taxol) and docetaxel (Taxotere) which are used in the treatment of different kinds of cancer. And also baccatin III which is key compound in semi-synthesis of a taxol. Taxol is naturally present in small amounts in the bark of the species of *Taxus genus* which are very slow growing plants. In recent years, plant tissue culture techniques have become a powerful tool for the receiving phytomass of many pharmacological the valuable plant species. In this work callus and suspension cell cultures of *Taxus baccata* were induced on Murashige and Skoog (MS) medium supplemented with different concentrations of 2,4 D (2,4-dichlorophenoxyacetic) and kinetin (Kn). MS medium with 2,4-D (2 mg/L) +Kn (0.1 mg/L) and ascorbic acid (10 mg/L) was favorable for callus growth rate and higher production of taxol in cell cultures of *Taxus baccata*. Time of subcultivation of callus and suspension cultures was 21 and 16 days respectively.

Keywords: *Taxanes, callus culture, suspension culture, Taxus baccata*

PP-02

LC-MS- analys of extracts of bark and callus cultures of *Taxus baccata for determination of taxanes*

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A rapid and sensitive liquid chromatography – mass spectrometry (LC-MS) method for determination taxanes was carried out. Diterpene alkaloids were extracted with MeOH from bark and callus cultures of *Taxus baccata* by ultrasonic method. Four standard substances such as paclitaxel, cefalomannin, docetaxel, baccatin III (Sigma-Aldrich) and Taxus methanolic extracts were analyzed with liquid chromatography using the Shimadzu LCMS 2020. The mass - spectrometry analysis passed in the mode of positive ionization. Resitration was seen off with use of a diode matrix at 230 nanometers and with use of the mass - spectrometry detector with ionization in electrospray (ESI). Speed of elution is 0,4 ml/min.; temperature of the thermostat 40 ^{0}C. The mobile phase consisted of an acetonitrile (In) and 1% of the formiat-ammoniyny buffer, pH (C). Elution was carried out in the mode of a linear gradient: within 30 minutes from 50% to 70% of an acetonitrile use column EC 150/4 Nucleodur PFP, 3 mkm. The carried-out analysis showed presence of four compounds identical on the weight and a spectrum with standards in bark, and three compounds, except for a docetaxol, in callus culture. Possibly further it is necessary to optimize conditions of extraction and choice of solvent or system of solvents for maximal extraction the diterpene alkaloids from cell cultures of *Taxus baccata*.

Keywords: *LCMS-analys, diterpene alkaloids, callus culture, Taxus baccata*

PP-03

Seasonal and Annual Variation of Some Physico-Chemical Characteristics of the Urban Groundwater in Denizli, Turkey

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The quality of groundwater depends on the composition of the recharge water, the interactions between the water and the soil, soil-gas and rocks with which it comes into contact in the unsaturated zone, and the residence time and reactions that take place within the aquifer. Therefore, considerable variation can be found, even in the same general area, especially where rocks of different compositions and solubility occur. The principal processes influencing water quality in aquifers are physical (dispersion/dilution, filtration and gas movement), geochemical (complexation, acid-base reactions, oxidation-reduction, precipitation-solution, and adsorption-desorption) and biochemical (microbial respiration and decay, cell synthesis). The nature and concentration of chemical elements and compounds in a groundwater system are subject to change by various types of natural process, i.e. physical, chemical, hydrological and biological. The effects on water quality of the processes will depend to a large extent on environmental factors brought about by climatic, geographical and geological conditions. The major environmental factors are Na^+, Mg^{2+}, SO_4^{2-}, and other ions; Climate and vegetation; Rock composition (lithology); Terrestrial vegetation; Aquatic vegetation. Under the influence of these major environmental factors, the concentrations of many chemicals in urban groundwater are liable to change from season to season. Therefore, the present investigation has been carried out with the objectives to assess the seasonal and annual variation as well as water quality status based on some physico-chemical characteristics of the urban groundwater of Denizli, Turkey. According to the current mites through the chemical and physical properties of months and year, flow rate and found place, they were examined. In this study, geological movements and it is important to determine the similarity origine of the current groundwater. All data were analyzed statistically by ANOVA.

Keywords: *Groundwater, physico-chemıcal characterıstıcs, environment*

PP-04

Researches of Cultivated Naphthoquinones Roots *Ceratostigma piumbaginodes* Bunge in Absheron

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From natural substances, many compounds quinoid structure, 1,4-naphthoquinone, possess antibiotic activity. In this regard, these substances, in particular 2-methyl, 5-hydroxy, 1,4-naphthoquinone piumbagin finds application in the fields of biochemistry, medical practice for scientific research as well as in the food industry as preservatives to prevent microbial spoilage. The growing interest in natural, antibacterial, antiviral substance contributed to the development of the optimal mode of obtaining piumbagin. This method is based on the ability of piumbagins, distilled with steam at a certain temperature. The proposed method also is simple technology and a high yield of the desired product. There are obtained patents. In recent years greatly expanded research conducted in the field of production and application of bio-active compositions based on piumbagin s. We have developed technology of obtaining funds on the basis of piumbagin s, essential oils and other ingredients. Aqueous distillates biocompositions offered as a means to strengthen and restore the hair roots for the prevention and treatment of oral diseases, as well as for the prevention and treatment of diseases of the lungs and upper respiratory tract. For these funds received local and Eurasian patents. There are obtaining amount containing extraction of waste process from naphthoquinone substances bioactive compositions. By thin layer except piumbagin allocated two substances, one of which is a yellow crystalline solid with like 157-158°, identified as 2-methyl, 8-hydroxy, 1,4-naphthoquinone plumbagol. The second - liquid yellow solid identified as 2-methyl, 3-phytyl, 1,4 naphthoquinone - phylloquinone. It should be noted that they are first found in the roots of these substances of *Ceratostigma piumbaginodes*.

Keywords*:* 1,4-naphthoquinone, distillation, bioactive composition, chromatography, piumbagin, phylloquinone

PP-05

Antioxidant and Total Phenolic Contents of *Cyclamen hederifolium* Tuber and Leaves From Turkey

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In this study, antioxidant activities and phenolic content of ethanol extracts obtained from tubers and leaves of *Cyclamen hederifolium* (Primulaceae) were investigated. The solvent (ethanol) extracts were prepared from *C. hederifolium* tuber and leaves. Antioxidant properties of *C. hederifolium* were evaluated by using 2,2-diphenyl-1-picrylhydrazyl (DPPH) and β-carotene-linoleic acid assays. The total phenolic content of extracts was determined using to the Folin-Ciocalteu method as gallic acid equivalents. Leaves extracts of *C. hederifolium* exhibited higher antioxidant activity than tuber extracts. The DPPH free radical scavenging activity of *C. hederifolium* leaf-ethanol extract (51.3 ± 0.55%) was found more effective than tuber (40.96 ± 0.35%). The highest phenolic content was found in leaves extract. A positive correlation was observed between antioxidant activity and amount of phenolic contents of the extracts. In this study, ethanol extracts obtained from *C. hederifolium* have showed strong antioxidant activity. Therefore, this species can be used as a natural antioxidant in food processing and pharmaceutical industries.

Keywords*: Cyclamen hederifolium,* antioxidant activity, DPPH assay, total phenolic content

PP-06

Investigation of the *In Vitro* Anti-diabetic Effects of the Diterpenoid Alysine A and Alysine B Compounds Isolated from *Teucrium alyssifolium*

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Teucrium alyssifolium STAFP belongs to one of the the large genera of perennial plants in the family Lamiaceae. It is endemic to a narrow ophiolite area in SW Anatolia. It presents a number of characters such as the low, suffruticose habit and the large flowers, the adpressed-tomentose indumentum on leaves and stem, and the exannulate corolla tube that make it new taxon. In this study, we are aimed to investigate the potential anti- diabetic effects of two pure neoclerodane diterpenoids Alysine A and Alysine B isolated from *Teucrium alyssifolium* extract, using *in vitro* cell culture models. For this purpose, the anti-diabetic action mechanisms are investigated by applying model cell lines that are being used in diabetic studies (3T3-L1 preadipocytes and adipocytes, C2C12 skeletal muscle myoblast, and Chang liver cells). The effect of the pure compounds isolated from *T. alyssifolium* on the expression level of INSR (insulin receptor), IRS-1 (insulin receptor substrate 1) and IRS-2, PI3K (phosphatidylinositol-3-kinase), GLUT4, (glucose Transporter 4), AKR (aldose reductase), HK (hexokinase), PK (pyruvate kinase), G6Pase (glucose 6-phosphatase), PEPCK (phosphoenolpyruvate carboxykinase) in 3T3-L1, C2C12 and Chang liver cells were determined. The data were compared with the results obtained using positive controls as insulin. The preliminary results have depicted that neither alysine A nor alysine B present any anti-diabetic actions. Studies are still underway and further studies are required to clarify these preliminary results. This work is supported by TUBITAK 114T640.

Keywords: Teucrium alyssifolium, anti-diabetic, endemic, alysine A, alysine B

PP-07

About the importance of the species diversity preservation within the genus *Plectranthus* L'Hér.

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Plectranthus L'Hér. (syn. *Coleus* Lour.) is widely known plant of family Lamiaceae. Now there are about 150 species of this genus. Among them there are decorative (*P. scutellarioides* (L.) R.Br.), medicinal (*P. barbatus* Andrews) and edible (*P. rotundifolius* Spreng.) species. As decorative *P. scutellarioides* is most actively used. Now there is huge set of varieties and every year new varieties are brought. All varieties are now demanded as decor elements on (border) bed compositions with different design of diverse leaves coloring. Due to wide range of colors and big diversity of leaves design the *Plectranthus* can fit practically into any composition. Except decorative varieties of *Plectranthus* also medicinal species exists. In *P. barbatus* there is medicinal substance forskolin (coleonol) used in medicine as antihypertensive remedy, has positive inotropic effect, is platelets aggregation inhibitor and increases adenylate cyclase level that in turn increases concentration of cAMP which is valuable element of living cell. Despite useful properties, forskolin is still poorly studied and it is practically not tested that makes it very perspective object for research. In addition to medicinal and decorative species of *Plectranthus* exist as well species which tubers are eaten. There are few such species, they can be interesting to agriculture because of their unpretentiousness and rapidly growing. The most important edible *Plectranthus* is *P. rotundifolius*, called by also Madagascar potatoes. It has practical value as replacement to potatoes in the Western Africa, and also at dysentery and eye's diseases. Diversity of *Plectranthus* application methods shows us the importance of preservation and enhancement of its potential.

***Keywords*:** *Plectranthus*, forskolin, edible species, bed composition, Lamiaceae

PP-08

Macroelement changes in *Carpinus betulus* L. (Hornbeam) along altitudinal gradient

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Determination of nitrogen, carbon, sulphur and phosphorus levels in forest ecosystems is very important. For this purpose, nutrient contents and levels of phosphorus (P), nitrogen (N), carbon (C) and sulphur (S) about forest ecosystem were researched in *Carpinus betulus* L. (hornbeam). Fırtına Valley in Rize was selected as a study area and the leaves collected along an elevation gradient from 340 m to 1069 m. From these chosen localities, leaves were regularly collected in May, June, July, August, September and October. N, C, S concentrations by Dumas method and P concentration by the stannous chloride method were determined. According to the obtained data, in terms of sampling intervals, N, P and S (%) concentrations showed statistically important differences ($p<0.01$) while there were no significant differences in terms of altitudes. The foliar N, C, S and P (g/dm^2) contents of plants depending on the altitude gradient were statistically significant ($p<0.05$). Also, N, C, S and P (g/dm^2) contents were significantly ($p<0.01$) differences during the growing season. The highest and lowest C and S (%) concentrations were measured in August and October, respectively. The highest N and P (%) concentrations were in June and September, individually. The lowest N and P (%) were in October and July, respectively. While the highest N-S and C-P (g/dm^2) contents were observed in August and October, the lowest N-C-P and S (g/dm^2) contents were found in May and October, respectively. The highest N and C (%) were at 340 m. The lowest N, C and P (%) were at 1069 m. The highest P and S (%) were at 686 and 1069 m, respectively. The lowest S (%) was at 686 m. N, C, S and P (g/dm^2) was high at 1069 m and was low at 340 m. While N, C, S and P (%) concentrations increased along with increasing altitude, N, C, S and P (g/dm^2) decreased.

***Keywords*:** Altitude, *Carpinus betulus* L., growing period, macroelements, Rize.

PP-09

Biological Features of Spiraea L. in Absheron

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Institute of Dendrology in Mardakan gained fame as a scientific center of gardening semi-desert areas not only in Apsheron also in entire Azerbaijan land. Climatic features of Apsheron peninsula is near to the dry subtropical areas. Nowadays in Institute of Dendrology has given to the introduction of valuable and promising species of subtropical trees and shrubs, flowers, aromatic, medicinal and other plants from local and foreign flora. To the Institute of Dendrology has been brought from different regions of the globe various plant seeds and conducted extensive works in the area of cultivation in Absheron. In recent years in Institute of Dendrology have conducted research works and received a lot of results. Institute of Dendrology plays an important role in the country for protection of the genefond for increasing of biodiversity and restoration of ecological balances. The most ornamental, exotical types of all these requirements is a species of the genus Spiraea L. Previously, this plant is called the name of Tavolga. The genus includes 80 species but 1 species from them grows in Institute Dendrology. The species of Spiraea vanhouttei L. is a hybrid between Spiraea catoniensis and Spiraea trilobata. Spiraea L. is a perennial shrub with woody branches. Spiraea L. is belonging to the Rosaceae family. Depending on the species and varieties they may differ in size and shapes of the bushes. They are widespreaded in Russia, Western Europe and North America. Spiraea vanhouttei L. has excited height and diameter of his crown which reaches 2 sm. Spiraea vanhouttei L. has propagated by seeds, cuttings and layering. Spiraea vanhouttei L. has value for its profuse and regular flowering, for densely leaves, not require special soil and climatic conditions when growing. Recently perennial shrubs of Spiraea L. has used in landscape design.

Keywords: Introduction, *Spiraea* L. species, landscape

PP-10

Food security of vegetables while contaminating it by bacteria *Pseudomonas*

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In recent years, interest in the problem of foodborne infections is increasing, due primarily to the globalization of the economy and movement of huge volumes of vegetables, fruits and other products. Thus, there are conditions conducive to the spread of causative agents of foodborne infections not only in developed but also developing countries. When all types of vegetable growing in open field and in greenhouses there is a potential risk of contamination of vegetable crops, as environmental conditions (temperature, high humidity, pH, organic content, use of humic solutions) are optimal for reproduction of many pathogenic and conditionally pathogenic bacteria. *Ps. aeruginosa* is free-living, gram-negative bacilli, is not demanding in terms of cultivation, not fermenting glucose. It has a high virulence associated with the presence of a number of factors, such as drinking, mucoid polysaccharide capsule, the ability to form biofilms on all surfaces, pigmentation(protection against UV radiation, cytotoxic properties), Exotoxins and endotoxins, extracellular enzymes, etc. With the existence of microbes in the environment pathogenicity factors not synthesized. The expression of pathogenicity factors *Ps. aeruginosa* occurs when injected into the internal environment, i.e. the human body and animals. Microorganisms can cause Pseudomonas infection, mortality which for 20 years remains high up to 48%. One of the most effective strategies of colonization by pseudomonads is the formation of biofilm. Exopolysaccharide matrix protects the bacteria from the action of antimicrobial agents, drying out and mechanical damage. *Ps .fluorescens* is a gram-negative, rod-shaped, and non-pathogenic bacterium that is known to inhabit primarily the soil, plants, and water surfaces. It derives its name from its ability to produce fluorescent pigments under iron-limiting conditions. This microbe has simple nutritional requirements. Bacteria *Ps. fluorescens* play a significant role in the spoilage of food raw materials and food products, in particular dairy and fish products.

***Keywords*:** Ps. aeruginosa, biofilm, vegetable crops, foodborne infection, Ps. fluorescens

PP-11

The Effect of Mycorrhiza Inoculation on the Macronutrient Contents in Different Organs of *Narcissus tazetta* (L.) Grown Under Saline Conditions

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In this study, the effect of mycorrhiza (*Glomus intraradices* N.C. Schenck & G.S. Sm.) inoculation on the macronutrient contents in different organs of daffodil (*Narcissus tazetta* L.) grown under saline conditions is examined. For this purpose, *Narcissus tazetta* plant grown in the climate chamber was treated with sodium chloride (NaCl) at three different concentrations such as salt-free (S0), 34 mmol (S1) and 68 mmol (S2) in mediums with mycorrhiza (M+) and without mycorrhiza (M-). At the end of the experiment, the contents of nitrogen (N), phosphorus (P), potassium (K), calcium (Ca) and magnesium (Mg) contents in the bulb, root and leaves of the plant were analysed. The highest N and P contents in the roots are observed as 1.85% and 0.24% in S0M- and S0M+ treatments, while the highest K, Ca and Mg contents are determined as 4.26%, 4.54% and 1.34% in S1M+ treatment respectively. The highest N concentration in the leaves is found in S1M+ treatment as 2.94%, while the highest K content is determined in S1M+ and S2M- treatments as 3.40%. The highest P content in the leaves is obtained in S2M+ treatment as 0.28%, while the highest Ca and Mg contents are determined in S1M- treatment as 1.55% and 0.42% respectively. The highest N and Ca contents in the bulbs are found in S2M- treatment as 2.51% and Ca 0.97%; the highest P and K contents are found in S2M+ treatment as 0.46% and 1.44% respectively; while the highest Mg content is obtained as 0.27% in S0M+ and S2M- treatments.

***Keywords*:** *Narcissus tazetta*, mycorrhiza, salinity, macronutrients

PP-12

The Effect of Mycorrhiza Inoculation on the Micronutrient Contents in Different Organs of *Narcissus tazetta* (L.) Grown Under Saline Conditions

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In this study, the effect of mycorrhiza (*Glomus intraradices* N.C. Schenck & G.S. Sm.) inoculation on the micronutrient contents in different organs of daffodil (*Narcissus tazetta* L.) grown under saline conditions is examined. For this purpose, *Narcissus tazetta* plant grown in the climate chamber was treated with sodium chloride (NaCl) at three different concentrations such as salt-free (S0), 34 mmol (S1) and 68 mmol (S2) in mediums with mycorrhiza (M+) and without mycorrhiza (M-). At the end of the experiment, the contents of sodium (Na), iron (Fe), manganese (Mn), zinc (Zn) and copper (Cu) contents in the bulb, root and leaves of the plant were analysed. The highest Na and Fe contents in the roots are observed as 4.14 µg/mg and 3239.70 ppm in S2M- treatment, while the highest Mn, Zn and Cu contents are determined as 230.68 ppm, 38.67 ppm and 71.92 ppm in S1M+ treatment respectively. The highest Na concentration in the leaves is found in S0M+ treatment as 0.88 µg/mg, while the highest Fe content is determined in S2M+ treatment as 138.92 ppm. The highest Mn content in the leaves is obtained in S1M- treatment as 22.55 ppm; the highest Zn content is determined in S2M- treatment as 56.15 ppm, while the highest Cu concentration is analysed as 30.45 ppm in S0M- treatment. The highest Na, Fe and Mn contents in the bulbs are found in S2M- treatment as 0.81 µg/mg, 34.10 ppm and 15.15 ppm respectively, while the highest Zn and Cu contents are found in S0M- treatment as 44.00 ppm and 17.72 ppm.

***Keywords*:** *Narcissus tazetta*, mycorrhiza, salinity, micronutrients

PP-13

Antioxidant activity and total phenolic content of *Teucrium alyssifolium* Staph. (Lamiaceae)

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Teucrium species are commonly used in traditional folk medicine for various types of pathological conditions as anti-diabetic, anti-inflammatory, anti-ulcer, anti-bacterial, and insect feeding deterrent. The importance of this genus and family patterns in food industries lies also on the fact that many species show antimicrobial, antioxidant and antifungal activities, rendering them useful as natural preservative ingredients. Teucrium comprises 34 species (with 46 taxa) in Turkey, and 16 of these taxa are endemic. *Teucrium alyssifolium* Staph. is a narrowly distributed endemic species classified as “Conservation Dependent (LR/cd)” category of IUCN. It has potential health-promoting benefits and antioxidant properties from phenolic contents. The present study estimated total phenolic content, concentration of flavonoids and *in vitro* antioxidant activity of water extracts from leaf parts of *Teucrium alyssifolium*. Total phenolic and flavonoid contents were determined by Folin-Ciocalteu and aluminium chloride methods, respectively. The total phenolic content was found 41.54 mg of GAE/g of extract. The concentration of flavonoids was determined 49.52 mg of Ru/g of extract. Antioxidant activity was determined *in vitro* using DPPH reagent and expressed as concentration of each extract required to inhibit radical by 50% (IC_{50}) values. Our results have indicated that water extract of *Teucrium alyssifolium* (part leaf) with a total content of polyphenols (41.54 mg of GAE/g of extract) and an IC_{50} of 13.52 µg/ml was more antioxidant.

***Keywords*:** Antioxidant activity, total phenolic content, flavonoids, *Teucrium alyssifolium*

PP-14

The Anthropogenic Dynamics and Genofund Protection of the Vegetation of the West Region of Azerbaijan

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The west region of Azerbaijan is one of the richest regions of our republic. Desert, semi desert, steppe, forest and meadow floristic complexes characterize this area. In these complexes there are 1585 species of the flower plants, which are related to 93 families, 531 kinds; 375 lichen species, related to 57 families, 72 kinds; 102 moss species, related to 24 families, 37 kinds; 20 of these species are endemic, about 50 are ancient relicts. From ancient times the economic ties between Azerbaijan, Turkey, Georgia, Russia and other countries, have been implemented by Baku-Ganja-Gazakh-Tbilisi caravan way. Later, due to the expansion of economic ties, a number of large-scale projects (such as building of railways and highways, conducting of the gas, water, oil pipelines) has been conducted and showed the negative influence to the ecological conditions of the territory. As a result of building of the hydroelectric power stations in Mingechevir, Yenikend, Shamkir and Kirzan, which play the exceptional role in the energy system of Azerbaijan, 30 thousand hectares of tugay forests have been left under the water and destroyed. At present time at the coast of Kura river there are only 24 thousand hectares of tugay forests left. In last 50 years the tugay forests most of all have exposed to anthropogenic deformations. Typical for this territory wormwood, wormwood-cereal, wormwood-ephemeral, wormwood-saltmarsh, meadow plant formation have been replaced with cultivated plants. Many rare landscapes, plant formations, dominants and edificators, including rare endems and relicts, have been destroyed as a result of human activity. The initial vegetation of the territory has completely changed, and such processes as the soil improvement, urbanization have accelerated these changes. The results of these negative processes are the water erosion, defoliation, and degradations.

Keywords: Azerbaijan plants, species, genus, greening

PP-15

Solubility study of the interaction between PAMAM G3 dendrimer and 6-mercaptopurine in aqueous solution

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Poly(amidoamine) dendrimers (PAMAM) are polymeric macromolecules that can find their use as carriers of small ligand molecules such as cosmetics and drugs. 6-Mercaptopurine is a potent oncological drug, whose usage is limited because of its relatively high toxicity. The surface and internal groups in PAMAM dendrimer belonging to the third (G3) generation create an open-type structure, which facilitate small ligand molecules to bind with them. The formation equilibrium of PAMAM G3 dendrimer complex with an oncologic drug such as 6-mercaptopurine (MP) in water at room temperature was examined. Using the results of the drug solubility in dendrimer solutions, the maximal number of drug molecules in the dendrimer-drug complex was evaluated. Solubility results show that PAMAM G3 dendrimer can transfer several 6-mercaptopurine molecules in aqueous solution. This research work was funded from the Polish budget appropriations for science in the years 2013-2015, project number IP2012 022372.

***Keywords*:** Dendrimer, PAMAM, 6-mercaptopurine, solubility measurements.

PP-16

Solubility study of the interaction between PAMAM G4-OH dendrimer and fludarabine in aqueous solution

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Poly(amidoamine) dendrimers (PAMAM) are polymeric macromolecules that can find their use as carriers of drugs both for animals as well as humans. Fludarabine is a potent oncological drug, whose usage is limited because of its relatively high toxicity. The surface groups in PAMAM dendrimers belonging to the forth (G4) generation allow ligand molecules to bind with terminal dendrimer groups and to penetrate the dendrimer interior. More and more frequently tested polymers of this kind include dendrimers of the PAMAM class, which surface groups are substituted by hydroxyl groups, among others PAMAM G4-OH. Such modified dendrimers are better tolerated by organism than their cationic equivalent. That is why the macromolecules of PAMAM dendrimers might be used reduce toxicity of highly toxic drugs. The aim of our study was to evaluate the number of fludarabine molecules combined by PAMAM G4-OH macromolecule in aqueous solution. Using the results of the drug solubility in dendrimer solutions (UV spectrometry), the maximal number of drug molecules in the dendrimer-drug complex was evaluated. Project was funded by the National Science Centre of Poland according to the grant decision OPUS DEC-2012/07/B/ST4/00509.

Keywords: dendrimer, PAMAM, fludarabine, solubility measurements

PP-17

Investigation of the inclusion complexes of β- cyclodextrin and tebuconazole

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Pesticides are substances meant for attracting, seducing, and then destroying, or mitigating any weeds. These compounds are necessary in closed cultures where high favorable temperatures and humidity cause rapid growth of many species of fungi. Most of the currently used biologically active substances as components of commercially used fungicides is hardly soluble in water. These products contains biologically active compounds dissolved in non-polar toxic organic solvents that are hazardous to the environment, human and animal health. The main goal of our research was study how the solubility of fungicide in water increases in the presence of β-cyclodextrin. These compounds, due to their characteristic structure, hydrophobic interior and external polar part of molecule, includes hydrophobic ligands. It seems appropriate to examine the interactions of β-cyclodextrin with selected fungicide such as tebuconazole. To examine the complex formation between β-cyclodextrins and tebuconazole we used isothermal titration calorimetry. Solutions of tebuconazole were titrated with β-cyclodextrin in a VP-ITC calorimeter. For the determination of concentration of fungicide we used UV-VIS spectrophotometer Specord 50. The set of parameters of interaction given by these methods brings information about the strength and the energetic aspects of complex formation between β-CDs and fungicide. The stechiometry of the tebuconazole –β-cyclodextrin inclusion complex formed and the physical and chemical parameters describing the complex were determined. The effect of fungicide included inside the macromolecule of β-cyclodextrin on the fungal culture (hyphae) was also assessed *Aspergillus fumigatus.*

Keywords: Cyclodextrins, tebuconazole, *Aspergillus fumigatus*, solubility measurements

PP-18

An assessment of geological occurrences, disturbance and mesothelioma risk of asbestos deposits in Turkey

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Asbestos and zeolite (erionite) are fibrous hydrated silicates which are hazardous to human health and naturally occurred in the rock formations throughout the world. Asbestos occurrences in Turkey are originated from the metamorphisms of the carbonates, ophiolitic rocks, and metasomatic/metamorphic effects of the acidic magmatic rocks intruded in the carbonates. In addition, fibrous erionite occurrences are located in the volcano sedimentary rocks in Turkey. The most common fibrous minerals are chrysotile and tremolite. Actinolite occurs as fewer amounts than tremolite. Other fiber minerals such as antigorite, anthophylite and riebeckite, are found as less amounts (volume %) of their paragenesis. Potentially, asbestos containing ophiolitic rocks occupy 21% of the acreage of Turkey. The rural population settling on the ophiolitic series is known as 3.9-4 million. The environmental and domestic effects as mesothelioma risk can be counted as: the use of soils including serpentine type asbestos as the infrastructure material in the roads of villages, towns, and plateaus; conversion of ophiolitic areas to the housing zones; and the use of peridotites (crushed stones) as concrete aggregates. In addition, in the small residential areas like villages, the use of white soil (including asbestos) as coating material and roof covers inside and outside of the houses and the use of asbestos and fibrous erionite structure material are still being observed. In Turkey, the lung disease incidences are most widely detected in southeast Anatolia and middle Anatolia regions. In the middle Anatolia, most frequent incidences are seen in Nevşehir- Cappadocian province related to the presence of fibrous erionite mineral.

Keywords: Geoscience and health, asbestos, erionite, mesothelioma, Turkey.

PP-19
Tulipa-L in Kazakhstan

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There are 68 types of woods, 266 types of bushes, 433 types of shrubs and grasses, 2598 types of perennial herbs and 849 types of annual grasses in Kazakhstan flora. All in all in Kazakhstan there are more than 6000 types of plants, 515 types out of them are endemic species. Traveling around Kazakhstan in early spring in steppe and desserts, in the Tian Shan and Altai mountains one cannot but notice different types of blooming tulips. Among 6000 types of wild Kazakh flora representatives tulips occupy a very special place attracting attention of scientists, painters and poets. Қызғалдақ (Кызгалдак, Kyzgaldak) is a name of tulip in the Kazakh language. In the East tulips are called Lola, Lale. European people called it Tulip (Tulipa) after a persian word Turban (toliban) - it is an oriental type of hat that looks like a tulip bud. The origin of tulips is associated by many with Holland. But it is not absolutely true. In reality to Europe the first decorative tulips were shipped only at the end of the XVI century from Turkey where they were grown by specialists in the sultans gardens. The majority of dutch species were developed much later but they also had asian roots, mainly kazakh. One of the brightest images of Kazakh spring steppe is the view of blooming tulips. That is why Kazakhstan and the Middle East are the real motherland of these wonderful flowers. The authentic wild tulip is Kazakh pride while Kazakh steppe is one of the key territories where these flowers are spread. April and May is a blooming season for tulips, and in this very time the steppe becomes incredibly beautiful, millions of blossoming flowers turn the steppe into a wonderful carpet. The south capital of Kazakhstan Almaty is a tulip city. The tulip has become the symbol of the city. In 2009 half a million of tulips of 50 various shades and forms were planted in Almaty. There are 35 species of tulips, 18 of them are listed as endangered. "Tulip Regel" which endangered only widespread on Ili mountains of Kazakhstan in the World.

Keywords: Tulipa-L, Kazakhstan, type

PP-20

The effect on some soil properties of different organic materials

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In this study, determined the effects of different organic materials in the soil properties. The research was conducted in six different organic materials, two different doses (% 5 and 10) and different of the incubation period (0, 2 and 4 week). As the organic material, sewage sludge, sheep manure, vermicompost, tea waste, tea waste compost and processed seaweed is used. As a result of the application of some soil properties were examined and the organic material from algae ,vermicompost and sheep manure fertilizer use has created significant differences. Soil organic matter has been directly proportional to the rise of micro-nutrients increase the incubation period.

Keywords: **:** Organic material, soil properties, reclamation

PP-21

Cytotoxic Activity of Hacihaliloglu Apricot Variety from Turkey

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Apricot is an important source of nutrition for human nourishment in terms of nutritional value and ingredients of it. In this context, we were determinated cytotoxic activity of sulphurous and non-sulphur diffrent part of apricot sample with this study. This underresearched, utilised cytotoxic effect of apricot fruit and seed. This investigation was conducted to examine the cytotoxicity [Brine Shrimp (Artemia salina L.) Lethality Test], the antioxidant activity (free radical 2,2-diphenyl-1-picrylhydrazyl = DPPH) of Apricot which is *Hacıhaliloğlu* variety. A. salina eggs were incubated in 500 ml of seawater under artificial light at 28 ◦C, pH 7-8. After incubation for 24 h, ten nauplii were collected with a pasteur pipette. In each experiment, 0.5 ml of the plant extract was added to 4.5 ml of brine solution and maintained at room temperature for 24 h under the light and surviving nauplii were counted by using overhead projector. Experiments were conducted along with control, five different concentrations (10, 50, 100, 500, and 1000 ppm) of the test extracts in a set of three seeds per dose. LC_{50} values were calculated by EPA Probit Analysis Program. According to studies in seed and fruit, the LC_{50} value of non-sulphur is higher from sulphurous. Thus, sulphurous seed and fruit has reached the conclusion that more toxic than non-sulphur.

Keywords: Apricot, cytotoxic activity, fruit, seed, Turkey

PP-22

Lichens of Honaz Mountain National Park (Denizli/Turkey) – Preliminary results

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The aim of this study is that the lichens of the Honaz Mountain National Park was determined in southwestern of Denizli, Turkey. It is the first extensive research in this area which is the highest (2571m) mountain of Aegean Region of Turkey. Totally, 438 lichen samples were collected between November 2013 and September 2014. Of these total samples, 75 species, 2 subspecies and 4 varieties were identified belong to 38 genus until now. From these taxa, 15 taxa for Denizli and 3 lichen taxa for Turkey were recorded firstly.

***Keywords*:** Denizli, Honaz Mountain National Park, lichens, Turkey

PP-23

Avifauna of Didim (Aydın, Turkey) with special emphasis on urgent conservation needs

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In this study, bird counts and species determinations are made between April 2013-April 2015 by using transect, point counting and random observation methods in 10 stations and their vicinity in Didim (Aydın, Turkey). Guide books and IUCN Redlist criterias are benefited for species determinations and species observed in the area are photographed. At a result of this study, it is detected that area is used by 178 species belonging to 49 families and 16 orders. Besides the area shelters 2 vulnerable and 4 near theratened species due to IUCN (International Union for the Conservation of Nature) criterias. *Pelecanus crispus* and *Puffinus yelkouan* are vulnerable, *Aythya nyroca*, *Larus audouinii*, *Coracias garrulus* and *Sitta krueperi* are having near threatened statues. In addition, the area is detected to be used by summer and winter migrators and breeders intensely. Problems such as overhunting, increasing pollution levels in Great Meandres River and Bafa Lake, unauthorized reed cutting in breeding areas of shorebirds and recreational utilization in fragile shores are detected in the area and during two years survey and the urgent requisite for conservation is emphasised in this study.

Keywords: Avifauna, Didim, Aydın, Turkey, conservation

PP-24

Antioxidant and Cytotoxic Activities of Two *Alyssum* L. species (Brassicaceae) on Brine Shrimps and Human Tumor Cell Lines

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Genus *Alyssum* L. has been known with up to 230 species in the world with major distribution in Eastern Europe and Turkey. In Turkey, this genus is represented with about 100 taxa. In this research antioxidant and cytotoxic activities of methanolic extracts obtained from aerial parts of *Alyssum minutum* Schltdl. ex DC. and *Alyssum hirsutum* M.Bieb. were firstly investigated. Antioxidant properties were evaluated by using DPPH (2,2-diphenyl-1-picrylhydrazyl), β-carotene-linoleic acid test system and reducing power. In addition, total phenolic and flavonoid contents in the plant extracts were determined. The extracts were screened for their possible cytotoxic activities by brine shrimp (*Artemia salina* L.) lethality assay. *Artemia* nauplii have been extensively used as a tool to monitor the cytotoxicity of samples under study. This is a rapid, inexpensive, in-house, general bioassay which has been developed for screening, fractionation and monitoring of physiologically active natural products and plant extracts. Additionally, the methanolic extracts of the plants were investigated for its *in vitro* cytotoxic activities against human breast cancer cell line MCF-7 and cervical cancer cell line HeLa cells. The test were carried out as dose-dependent assay starting from 100 µg/mL to 1000 µg/mL. In this investigation, our results indicate that the crude extract of two *Alyssum* L. species have antioxidant properties and cytotoxic effects on Brine Shrimps and two human cancer cell lines.

***Keywords*:** *Alyssum*, cytotoxic, antioxidant activity, cancer

PP-25

The Dynamics of Growth and Development of Wild Plum Absheron Conditions

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In the article have been completely studied the seasonal growth characteristics, compatible period of seed planting; while generation sprouts; morphological structure sprouts growth and development of wild plum in Absheron conditions. Phenological observations shown that the leaf and flower buds of wild plum produse during the are year in Absheron conditions. So the completely formation of leaf and flower buds from apical meristem expires for 244 day in vegetation period. The production of pollens in individuals wild plum of vegetative origin begin in 3rd year of ontogenesis; but in seed generations it begins in 5th year. It causes high percent of fructification. As a result, the seasonal growth of wild plum goes normal in Absheron conditions. To be sustainable against climatic factors, as a decorative and fruit plant introduction of wild plum enables it for successfully using in Absheron.

Keywords: Introduction, wild plum, leaf bud, apical meristem, vegetation period.

PP-26

Radical Scavenging, Antioxidant and Cytotoxic Activity of Ethanolic and Acetoneic Leaf Extract of *Adiantum capillus-veneris* Medik. from Turkey

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Adiantum capillus-veneris is belonging to the family Pteridaceae. This investigation was conducted to examine the cytotoxicity [Brine Shrimp (*Artemia salina* L.) Lethality Test] and the antioxidant activity (free radical 2,2-diphenyl-1-picrylhydrazyl = DPPH) of *Adiantum capillus-veneris*. Antioxidant activity of *A. capillus-veneris* were tested using DPPH assay. 4 ml of the DPPH's 0.004% Ethanolic and acetoneic solution were mixed with 1 ml (0.2 - 1.0 mg) of the extract, and their absorbances were measured at 517 nm after incubation for 30 min at room temperature. The absorbance value of the samples were evaluated against empty control group. BHT was used as a control. The total phenolic content of extract was determined using to the Folin-Ciocalteu method. The highest free radical scavenging activity (18.52) was recorded on the Acetoneic extract of A*. capillus-veneris* extracted with 1mg/ml concentration. The lower radical scavenging activity (85.33) was recorded on the Ethanolic extract of *A. capillus-veneris* extracted with 1mg/ml concentration. The phenolic contents of the Ethanolic and acetoneic extract was found 7.09 mg/g GAE from Acetoneic extract and 5.46 mg/g GAE from Ethanolic extract. As a result, the leaf ethanolic extract and acetoneic extract showed antioxidant, total phenolic content and cytotoxic activity. The cytotoxic activity result are the leaf ethanolic extract (LC_{50} 342.400 µg/ml). The cytotoxic activity result are the leaf acetoneic extract (LC_{50} 40.351µg/ml). *Adiantum capillus-veneris* of acetone to extract value showed higher cytotoxic activity by the ethanol extract

***Keywords*:** *Adiantum capillus-veneris*, antioxidant, brine shrimp lethality test, Pteridaceae

PP-27

Antioxidant Activities and Total Phenolic Contents of Leaf and Bulb Extracts from the Endemic *Hyacinthella lineata* Steudel in Anatolia

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In this study, antioxidant activities and phenolic content of ethanol extracts obtained from leaf and bulb extracts from the endemic *Hyacinthella lineata* (Aspargaceae) in Anatolia were investigated. The solvent (ethanol) extracts were prepared from *H. lineata* bulb and leaf. Antioxidant properties of *H. lineata* were evaluated by using 2,2-diphenyl-1-picrylhydrazyl (DPPH) and β-carotene-linoleic acid assays. The total phenolic content of extracts was determined using to the Folin-Ciocalteu method as gallic acid equivalents (GAE mg/ml). Bulb extracts (80.1%) of *H. lineata* exhibited higher antioxidant activity than leaves extracts in the β-carotene-linoleic acid assays. The DPPH free radical scavenging activity of *H. lineata* bulb-ethanol extract (86.84 ± 0.25%) was found more effective than leaves (78.61 ± 0.33%). The highest phenolic content was found in bulbs extract (8.07 mg/ml GAE). A positive correlation was observed between antioxidant activity and amount of phenolic contents of the extracts. In this study, ethanol extracts obtained from *H. lineata* have showed strong antioxidant activity. Therefore, this species can be used as a natural antioxidant in food processing and pharmaceutical industries.

Keywords: *Hyacinthella lineata,* antioxidant activity, DPPH assay, total phenolic content

PP-28

Reproduction and Breeding of Endangered Melons by Selection Methods

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Nowadays there are increasing the proficiency in melons gardening, conservation of Genofond materials, development of selections and seed breeding by World Unity Countries. The longevity of selection achievements are depending on proper seed breeding works organization. By carried research works based on the results of our investigations we can say that the proper operation of the seed stability of the productivities of melons products have depended on high tastes, high levels of the biologically active substances, high stress resistance against impacts and high-tech indicators. We can increase to 20-25% of the melons productivity depending on origin of genetic sort of seeds. Therefore we must take into account the actual problem by the proper arrangement during the seed works of the local melon plants recreation. According to statistics of 2015 the melon products from them are melons and vegetable crops will be amount of 1.72 million tons. Therefore there are an important to be solved problem for scientists the proper selection of the endangered melon plants, which is endangered at most of extinction in the restoration of native plant samples, by means of selection of new sorts, complex resistant to the impacts of stresses, the creation of new species with high quantity and quality. There is an actual urgent problem to be solved today to preserve new melon sorts created by the traditional selection methods by people, breeding, development, taking into account the existence of a particular cultures and traditions, efficiencies and environmentally sustainable collections owned by increasing their sorts by Gene Bank to deploy for the next generations. Containing mineral salts, carbohydrates, micro and macro elements, C and B group vitamins, carotenes, malic acids, citric acids, various salts, sodium, potassium, iron inside of Melons are given them using them in dietary and medicinal treatment. Protein-rich meat and fish products can easily digest by eating of Horticultural crops products.

***Keywords*:** melon plants, malic acid, mineral salts, carotene

PP-29

Primary phytochemical analysis of *Crocus alatavicus* Regel et Semen

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The purpose of this study is phytochemical analysis of *Crocus alatavicus.* Species of the genus Crocus are the sources of some biologically active substances with antibacterial, antiinflammatory, antiviral, antioxidant and other properties. Different parts of *C. alatavicus* were collected from the natural environment of Almaty during the flowering period. Qualitative tests for determination of major biological active compounds in plant material revealed the occurrence of flavonoids, anthocyanins, phenols, amine-containing compounds, carbohydrates and carotenoids. Quantitative analysis revealed a predominant content of flavonoids and carotenoids in the aerial part of plant, in the bulbs were detected predominant content of amine compounds. The carbohydrate content in the tested parts of plant during the flowering stage does not exceed of 0,05-0,06%. Dry plant material was extracted with water, ethanol, benzene, dichloromethane, and followed by distillation on a rotary evaporator and freeze-drying to obtain the different extracts. Total phenolic content of the extracts was determined by the Folin-Ciocalteu method using gallic acid as a standard. Total antioxidant activities of the extracts were estimated by the β-carotene bleaching test and electron-donation ability of the extracts was measured from the bleaching of a purple-coloured methanol solution of DPPH. The high content of phenols, flavonoids, anthocyanins and carotenoids in the ethanol and dichloromethane extracts from the aerial part of plant is correlated with the activity of lipid peroxidation (63%-65%) and with significant ability to inhibit the DPPH radicals with IC50 387 μg/ml.
The results of evaluation of cytotoxicity by BSL test showed a high degree of negative influence on the survival of brine shrimp *Artemia salina* (LD50 12,7 μg/ml) of the ethanol extract from the aerial part of *C. alatavicus.* The results indicate the prospects of further study of *C. alatavicus* from Kazakhstan as a source of natural compounds with high antioxidant and cytotoxic activity.

***Keywords*:** *Crocus alatavicus*, antioxidant activity, phenolic content, cytotoxicity

PP-30

Antioxidant Activities and Total Phenolic Contents of Leaf and Bulb Extracts from the Endemic *Allium reuterianum* Boiss. in Anatolia

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In this study, the different solvent extracts (methanol and ethanol) prepared from bulb and leaf of *A. reuterianum* (Alliaceae) were firstly investigated for their antioxidant potentials and phenolic composition. Antioxidant properties of *A. reuterianum* were evaluated by using 2,2-diphenyl-1-picrylhydrazyl (DPPH) and β-carotene-linoleic acid assays. The total phenolic content of extracts was determined using to the Folin-Ciocalteu method as gallic acid equivalents (GAE mg/ml). Among all the extracts evaluated, the highest antioxidant abilities were obtained from ethanolic bulb extracts of *A. reuterianum*. Bulb ethanol extracts (71.3%) of *A. reuterianum* exhibited higher antioxidant activity than leaves extracts (64.22%) in the β-carotene-linoleic acid assays. The DPPH free radical scavenging activity of *A. reuterianum* bulb-ethanol extract (82.3 ± 0.25%) was found more effective than leaves (73.68 ± 0.33%). The highest phenolic content was found in ethanol bulbs extract (9.46 mg/ml GAE). A positive correlation was observed between antioxidant activity and amount of phenolic contents of the extracts. In this study, ethanol extracts obtained from *A. reuterianum* have showed strong antioxidant activity. Therefore, this species can be used as a natural antioxidant in food processing and pharmaceutical industries.

Keywords: *Allium reuterianum,* antioxidant activity, DPPH assay, total phenolic content

PP-31

Introduction of Berberis amurensis in Absheron

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It has used in various species of trees and bushes due to reconstruction works in new parks and gardens. There are observed on the species of ornamental plants belonging to the genus *Berberis* L. which has played significant role in landscape architecture of Absheron. Our purposes areto study*Berberis* L. (genus Berberis amurensis) as ornamental plant in Institute of Dendrology. In general Berberry species have included to the genus of flowering plants. They are mainly trees and shrubs.Amur berberry (Berberis amurensis) belongsto shrub species of the genus Berberis family Berberidaceae.In nature the range of the species are coveredthe Beach shoreand the southern part of the Khabarovsk Territory, eastern China and Korea. It has been described from the Amur River valley. They grow in deciduous broad-leaved pine forest and pine-spruce forests, on edges of forests, on banks of Mountain Rivers, on river terraces, among bushes, on dry rocky and gravelly slopes, mainly on humus rich soils. They are a little scratchy shrub height up to 3.5 m. The branches are straight, slightly, erect, ribbed, yellowish, and even gray. Budsare red or brown, length up to 1.5 mm. Leaves are alternate membranous, elliptic or ovate, length up to 12 cm, wide 5 cm, margin at the end are toothed prickly, matte, light green in summer, in autumn are purple, dark red. The leaves are mostly located with the short shoot beams. Yellowish spines are usually tripartite, up to 3 cm, on sterile shoots are longer; on the one-year shoots, especially closer to the ground, often 4-5, and sometimes 7 lobed, thickened or cylindrical and flat; from shoot spikes low to leaf-extended.

Keywords*: Berberis L.,* leaves, genus, buds, species

PP-32

Introduction of Berberies L. species in Absheron condition

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It has used in various species of trees and bushes due to reconstruction works in new parks and gardens. There are observed on the species of ornamental plants belonging to the genus Berberis L. which has played significant role in landscape architecture of Absheron. Our purposes are to study Berberis L. (genus Berberis amurensis) as ornamental plant in Institute of Dendrology. In general Berberry species have included to the genus of flowering plants. They are mainly trees and shrubs. Amur berberry (Berberis amurensis) belongs to shrub species of the genus Berberis family Berberidaceae. In nature the range of the species are covered the Beach shore and the southern part of the Khabarovsk Territory, eastern China and Korea. It has been described from the Amur River valley. They grow in deciduous broad-leaved pine forest and pine-spruce forests, on edges of forests, on banks of Mountain Rivers, on river terraces, among bushes, on dry rocky and gravelly slopes, mainly on humus rich soils. They are a little scratchy shrub height up to 3.5 m. The branches are straight, slightly, erect, ribbed, yellowish, and even gray. Buds are red or brown, length up to 1.5 mm. Leaves are alternate membranous, elliptic or ovate, length up to 12 cm, wide 5 cm, margin at the end are toothed prickly, matte, light green in summer, in autumn are purple, dark red. The leaves are mostly located with the short shoot beams. Yellowish spines are usually tripartite, up to 3 cm, on sterile shoots are longer; on the one-year shoots, especially closer to the ground, often 4-5, and sometimes 7 lobed, thickened or cylindrical and flat; from shoot spikes low to leaf-extended

***Keywords*:** *Berberis* L., leaves, genus, buds, species

PP-33

Induction of transgenic hairy roots in *Astragalus membranaceus* (Fisch.) Bunge for secondary metabolites production

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Astragalus membranaceus (Fisch.) Bunge. a medicinal plant (family *Fabaceae* Lindl.) is well-known in traditional Chinese medicine and listed in the Pharmacopoeia of China. Immunomodulating, antioxidant, cardiotonic, hepatoprotective, antidiabetic, antitumoral and antiviral activities of astragalus roots were revealed in numerous studies. These pharmacological effects are due to the presence of polysaccharides, astragalosides, isoflavonoids and other polyphenol compounds. Hairy root cultures have been proved to be an efficient means of producing secondary metabolites that are normally synthesized in plant roots. The objectives of our research were to obtain hairy roots cultures of *A. membranaceus* and to perform the primary analysis of samples for the content of biologically active substances. Hairy roots were induced from hypocotyls, cotyledons and plantlet primary shoots through the transformation of A4-RT, R-1601, 15834 SWISS strains of *Agrobacterium rhizogenes.* Efficiency of transformation depended on the strain used and the type of explant. The emergence of adventitious roots after incubation with the strain 15834 SWISS was noted after 5-20 days, with the strain R-1601 - after 7 - 20 days, and for A4-RT - 12-20 days. Among the tested strains of *A. rhizogenes*, 15834 SWISS was found to be the most efficient in transformation frequency. This parameter varied depending on the explant type and was 15,4% for cotyledons, 9,1% for hypocotyls and 37,5% for primary shoots. Maximum growth index of a hairy root cultures (59,6) was recorded 4 weeks after bacterial infection of cotyledon explants. Analysis of the second metabolites in the hairy root cultures by HPLC revealed the predominance of phenolic acids, isoflavones and presence of some flavonol compounds. The phenolic compound content after 12 weeks of cultivation was 2,98% of absolute dry mass compared with plant roots from the natural cenopopulations of Trans-Baikal region (0,79%). The flavonol compound content in these roots was higher (0,24%) compared with trace amounts in the natural plant roots (0,002%) too. Thus, the hairy root cultures of *A. membranaceus* is a promising system for production of valuable naturally derived metabolites.

***Keywords*:** Agrobacterium rhizogenes, hairy root, Astragalus membranaceus, secondary metabolites

PP-34

A New Species of *Zercon* C. L. Koch (Acari, Zerconidae) for Turkish Fauna: *Zercon laczii* Ujvari, 2010

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Mites belonging to genus *Zercon* C. L. Koch, 1836 (Acari, Zerconidae) collected from litter, soil, lichen and moss pads of different habitats of İstanbul province are investigated in order to contribute to both Turkish and world zerconid fauna. The new record for Turkish fauna, the species *Zercon laczii* Ujvari, 2010, was defined according to the samples collected from İstanbul province and its geographic distribution was given. Furthermore, an identification key to the adults of *Zercon* species known from Turkey is also given. Samples with mites were placed into plastic bags, labelled and transferred to the laboratory, they were placed into combined Berlese funnels and mites were separated. 60 % lactic acid was used for bleaching and cleaning of the samples. Microscobic analyses were mainly made in enviroments containing glycerine. However, temporary samples were prepared in Hoyer medium when it was necessary to observe in different conditions. After the analysed and identified of samples were photographed with a microscope and their shapes were drawn and different body parts were measured. Then, the samples were put in stock bottles containing 70 % alcohol and 1- 3 drops glycine and labeled. Samples selected in *Zercon*, total 111 mite samples of species *Zercon laczii* Ujvari, 2010, were identified, including 65 females, 38 males and 8 deutonymphs. Specimens were analysed under light microscope, their shapes were drawn, measures of their various body parts were made, their geographic distributions were given and according to the literatures are discussed. It was determined this species spread in Croatia before and is recorded from Turkey for the first time.

Keywords: Acari, Systematic, *Zercon laczii*, İstanbul, Turkey.

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PP-35

Introduction Some of *Quercus* L. Genus Species in Absheron

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Quercus L. genus of Fagaceae family is leading form in the forest area in quantities of species. The importance of the research work is introduction of 3 plant species in the Azerbaijan flora (Quercus coccifera L., Quercus brantii Lindley., Quercus cerris L.). Researched seeds are delivered from Turkey. The purpose of this research work is to study the process of plant species breeding in Absheron conditions and there are explored the biological and ecological characteristics of new sprouts conditions in Institute of Dendrology. There are revealed that by the experiment results of Quercus coccifera in the form of low germination percentage in (14%). The results of the study are demonstrated that the researched two species of plants (Quercus brantii and Quercus cerris. cerris) has showed in Absheron the high germination percentage in (96-98%). It is revealed that in the surface part of studied species has been set between 12 and 28 cm, annual growth depending on the kinds of sprouts in Absheron condition. Therefore by the result works of the investigations we come to conclusion that the studied species of plant sprouts are tended to grow and develop in Absheron conditions.

Keywords: Introduction, Quercus L. genus species, Absheron, development

PP-36
Juniperus Species Features in Azerbaijan

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Juniper (Juniperus) cupressaceae (Cupressaceae) family is a coniferous tree species; it can be grown in a mountainous zones. Juniper may take the form of a very large shrub view sometimes in the form of trees in height of 10 meters. It is very resistant to cold and drought. The reason of resistance is existence of sharp, tough and needles. It is a green coniferous trees as many coniferous trees. In many countries as in Europe juniper (Juniperus L.) contains great importance because of its use in medicine, especially in pharmacology. Juniper was also planted around the house to get rid of the witches. There is extracted from fruits of Juniperus medicinal agents such as essential oil, resin, qlucoside, pentosan, manganese, calcium. It has performed itself as Urine remover, increaser of the body resistance, the metabolism stimulator and it has also germicidal properties, juniper seeds help as sedative feature in bladder inflammation, in migraine and headache ensure continuous improvement adding in tea boling, in digestion disorders and eliminate the drawbacks that arise with consequent impairment of gastric acid secretion in the body. Wegener and Schmidt (1995), the juniper berries urological and indigestion (dyspepsia) and the diuretic properties of juniper oil they used for a long time in patients with kidney disease and stated that harmful. Azerbaijan's eight species of juniper is usually encountered in mountainous areas: Juniperus communis, Juniperus foetidissima, Juniperus rufescens, Juniperus polycarpus, Juniperus virginiana, Juniperus sabina, Juniperus procumbens, Juniperus semiglobosa. The Azerbaijan-scented juniper Juniperus foetidissima of the above is a very rare tree species recorded in the Red Book in our country and in Sheki, Gabala, Nakchevan, which is spread also in Agdash.

Keywords: *Juniperus* tree species, genus, reproduction, growth

PP-37

Determination of relationship degrees according to protein profiles of some fish species living in Beysehir, Suğla Lake and Dam Apa and investigation of the effect on protein profiles of seasonal temperature changes in some fish species

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Comparisons based on morphological characters is not enough for making the right decision in the determination of the species of taxonomists. Electrophoretic methods are frequently used by animal systematics in taxonomic studies. Proteins are the product of gene effect and are used as genetic markers that play an important role in determining the taxonomic status. In recent years, electrophoretic investigation of proteins have contributed both to the systematic studies and to the studies done on the biochemistry of fish. As well as determining degrees of relationship among fish that are collected from different regions in the same geographical segment species and the differences in proteins as a result of seasonal conditions based on the knowledge that different proteins occur a result of gene expression with the effect of hot and cold water utilizing total protein profiles by SDS-PAGE, one of biochemical methods, in fish such as *Leuciscus lepidus* (Ablet), *Cyprinus carpio* (carp), *Carassius gibelio* (Prussian carp), *Phoxinellus anatolicus* (fatty fish), *Tinca tinca* (Tench), *Alburnus orontis* (Orontes spotted bleak), *Scardinius erythrophthalmus* (Rudd), *Capoeta capoeta (*Transcaucasian carp), *Vimba vimba* (Vimba), *Sander lucioperca* (Pikeperch) living in Lakes Beysehir, Suğla and Dam Apa was aimed. In all studied fish species, although there are common major protein bands, the presence of species-specific minor protein bands has provided the separation of the species. Both the same fish species which spread in the different lake and dam showed difference in terms of minor bands and the same fish species demonstrated changes in the protein profiles by synthesizing different proteins in different seasons. It is expected that the study will contribute to the systematic classification and to be source to new studies to be done later.

Keywords*:* Protein profiles, SDS-PAGE, fish, relationship, seasonal changes

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PP-38

Determination of the cytotoxic activity of *Crocus cancellatus* spp.*mazziracus's* extracts

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Active substances that accumulated in onions , tubers and rhizomes of Geophytes are great importance for use in medical field. *Crocus* species that belonging to *Iridaceae* and having economic value have used since the earliest years in the alternative medicine for the treatment of diseases. Cytotoxic agents are substances that killed cells by its toxic effect and inhibited the cells function. Brine Shrimp (*Artemia salina* L.) lethality test that used in determining the cytotoxic activity of plant extracts is a simple, reliable an inexpensive method. *Artemia salina* eggs (10 mg) in 500 mL seawater were incubated under light to pH 7-8 and 28◦C. After 24 hours maturing *Artemia* larvae (nauplii) were collected with the help of a Pasteur pipet. Ten were selected via a pasteur pipette and nauplii were tubes containing 4.5 ml of seawater . After each tube was added 0.5 ml of plant extract in nauplii and incubated under light for 24 h at room temperature. Living nauplii were then counted and recorded. Five different concentrations (10 μg / ml , 50 μg / ml, 100 μg / ml, 500 μg / ml , and 1,000 μg / ml) assay was done in triplicate. Non-plant extract (control group) were compared with the experimental group living nauplii on the apparatus . % Mortality rate calculated standard error and statistical tests were performed for all applications. According to results of brine shrimp cytotoxicity assay, the highest death rate were observed in 1000ppm concentration of *Crocus cancellatus* spp.*mazziaricus*'s leaf extract with ethanol. So, our results indicate that *Crocus cancellatus* spp.*mazziaricus*'s leaf extract have cytotoxic effects on Brine Shrimps.

***Keywords*:** *Crocus cancellatus* spp.*mazziracus,* cytotoxicity, ethanol, brine shrimp

PP-39

Total and Fecal Coliform Levels of Aquatic Environments of Some Rainbow Trout Farms in Eastern Black Sea Region of Turkey

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We aimed to investigate the total and fecal coliform levels of aquatic environments of some rainbow trout (*Oncorhynchus mykiss*) farms in Rize and Trabzon, Turkey. For this purpose, the quality of influent and effluent of 7 trout farms located in Rize and Trabzon was determined in terms of bacteriological structure. According to Multiple Tube Fermentation Techniques, while the highest total coliform level was calculated as 1380 EMS/100 ml, the highest fecal coliform level was 1100 EMS/100 ml. Nine bacterial species (n:159) of coliform bacteria particularly *Escherichia coli, Citrobacter diversus*, *Enterobacter cloacae* and *Klebsiella oxytoca* were isolated from the water and sediment samples. Generally, bacteriological qualities of the fish farm waters were classified as High Quality (Class 1 and 2) in accordance to Quality Criteria of Inland Surface Water Resources of Turkish Water Pollution Control Regulation.

***Keywords*:** Bacteriological pollution, water quality, coliform bacteria, rainbow trout farms

PP-40

Useful Properties of Juniperus foetidissima Willd. and using in Landscape

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Juniperus foetidissima Willd. is belong to dioeciously trees group and its height reaches up to 15-17 m tall, with broad or narrow conical or dense crowns. The trunks have gray bark. Barks on the shoots are brown with long fibers, but young branches are reddish-brown. Branches especially in young plants are articulately ascending with long branches, pointed, prickly leaves upward. Dark green shoots are thick, about 1.5 mm thick, tetrahedral. Plucked branch leaves have unpleasant smell. Phyllotaxies are opposite and whorled on one escape. The leaves are subulate, 1.5-2 mm to 4 mm in length. Leaves blade are triangular, acute, spineless, bent on escaping from 60-90^0. Keels are rarely, in the upper third of the leaves. Glands are located on the base plates below the limb. The top sides of the sheets are flat or convex. Juniperus foetidissima willd. pinecone have direct short shoots, spherical, large, about 1 cm in diameters, dark brown or almost black with sparse bluish tinge, composed in 4-6 scales, which ends subtle on a mature cone. Seeds in cones are 1-2, rarely 3 large, oval, pale brown. They grow best in open spaces in dry clay soil; not resistant to shading and constant humidity. They can reach the age of 300 years or more. It has a very solid wood, resistance to rotting and they have yellowish color, which is valued as a building and as mainly an ornamental material. The leaves contain 1-2% of essential oil. The oil is derived from fresh leaves by steam distillation. Essential oil is almost colorless it comprises α-pinene, camphene, borneol, cineol, bornyl acetate substances. Juniperus foetidissima willd. Wood has sufficiently high strength characteristics and high bio stability that makes it suitable as a building valued and ornamental material due to the fact that cannot be biodegraded. In addition to decorative, aromatic and phytochins features offers its use in landscape architecture.

Keywords: *Juniperus foetidissima,* leaves, essential oil, landscaping

PP-41

The Effects of Allelopathic Species on Biodiversity

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Allelopathy event; They synthesize the plants is defined as biochemical substances influencing the growth and development of individuals of their species or another species. This is due to the natural interaction allelopathy event has an important place in terms of biodiversity. The Allelopathy has been recognized for many years ahead. BC 300 years of Aristotle's pupil Theophrastus chickpea no weeds in the soil of substances that had left the Roman scholar Pliny the Elder, affecting other plants have noticed that the walnut tree contain certain toxic substances. Today, allopathic studies have become more important with the experienced technological development. Especially made on the development of weeds in agriculture inhibitory effect of natural herbicides work has gained momentum. However, when considered in terms of biodiversity, the release allelochemicals from plants known Biosystems may affect the diversity of species and up into a condition estimated. As the new species could lead to the extinction of existing species can cause these natural interactions between plants biocides join up. Therefore, the question we must now ask; A species enters the ecosystem allelopathic effect how? What is the range of tolerance of the ecosystem? Is it going to cause harm by affecting other species? A significant portion of plants worldwide are at 12% risk. 14% of this type of rose species, 32% of species of lilies, irises 32%, 14% of cherries, 29% of the palm species. Located in the red book of plants (270,000 species), 43% rarely, 24% vulnerable, endangered species are also 20%. Industrialization and urbanization threaten the natural ecosystems, expansion of agricultural lands and overgrazing, tourism, exports abroad and domestic purpose and nature of the collection and Dry (halophytic) of salt loving plants and the rehabilitation of the area is threatened by factors such as the destruction of habitats. Allelopathic effects of a species, it is the diversity of other species or habitat to habitat changes, can cause destruction of the kind used in agriculture and horticulture.

Keywords: Biodiversity, allelopathy, endangered species, ecosystem

PP-42

Investigation the Effects of Different Doses Organic Fertilizers and Phosphate Solubilizing Bacterias on Yield and Nutrient Contents in Chickpea (*Cicer arietinum* L.)

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The study was conducted to determine the effect of phosphate solubilizing bacteria (N2; *Bacillus megaterium* M-3, TV-6I; *Cellulosimicrobium cellulans*, TV-34A; *Hafnia Alve*, TV-69E; *Acetobacter pasteurianus* and TV-83F; *Bacillus cereus*) and organic fertilizer (0, 10 and 20 ton / ha) on the seed yield and nutrient content of chickpea under field conditions in 2010 and 2011 growing seasons. Phosphate solubilizing bacteria used in this study were determined by the separate investigation conducted in chamber room by using ten phosphate solubilizing bacteria and organic fertilizer (control, %5,%10). The tiral were laid out with a factorial design in randomized complete block with three replications. In this study, plant height, primary branches, secondary branches and number of pods per plant, number of seeds per pod, grain yield and biological yield and nutrient content of stem and seed were determined. According to the results of the study bacteria applications increased significantly biological and seed yield. Bacteria applications without organic fertilizer increased nutrient contents of seed and steed except cupper content. In case of inoculation with organic fertilizer provided more increases in biological and seed yields. The highest seed yield were obtained from application of 20 ton/ha + N2 (*Bacillus megaterium* M-3) with 1020 kg/ha and 1793 kg/ha in 2010 and 2011 years, respectively. Bacteria without organic fertilizer application were more active in terms of phosphorus uptake in both years.

Keywords: Nutrients, PSB, Organic manure, Phosphorus, Chickpea,

PP-43

The Reserve of Some Species of Polygonaceae Juss. Family

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It is always topical to study the sorts of *Polyqonaceae*Juss.family, because of their being rich for both medical and biological active components. The research was held in the Julfa, Sharur, Ordubad and Shahbuz regions of Nakhichevan Autonomous Republic. *The Rumex euxinus* Klok. is mostly common in the meadows, stony slopes and shrubberies in the Arafsa and Lakatag areas of Julfa region. On the pastures created by the abundance of the plants – there are grouping of *Poa bulbosa, Hordeum bulbosum, Taeniatherum crinitum, Thymus collinus, Salvia limbata.* The leaves are used for nutrition purposes. In order to calculate the reserve of the plant, it was taken the areas of size of 10x10metre. The 150 grammes of leaf is collected per one bush (375 kg per 1 hectares). The research held in Ordubad covered the area of 972 km. The local community uses the species of *Rumex acetosella* L. for nutrition and treatment purposes. The plant is spread in the humid meadows and forests of Nurgut, Khurs, Nasirvaz and Paragachay areas of the region. According to the same methodological estimations, the biological reserve of the plant is 22.8 tons. Such an areas were also defined in the other villages of Ordubad region and the total stock is 180 tons. One of the interesting sorts of the family is *Polygonum luzuloides* Jaub. et Spach.It is widely spread in the middle-upland as well as in the stony, dry and gravelly slopes of Gumushlu and Akhura villages of Sharur region. The plant generates the first-level layer. The fertility of the plant is 1500 kilogramme per hectare. Generally, the result of the research held for many years shows that it is possible to exploit 840 tons of *Rumex euxinus*, 3500tons of *Rumex cetosella,* 1000tons of *Polygonum luzuloides*per year in Nakhichevan Autonomous Republic.

Keywords: *Polyqonaceae Juss.* family leaves, Paragachay, biological reserve

PP-44

Removal of Everzol Blue BRF By Different Carrier With Immobilized *M.esculanta* in The Batch Shaking Systems

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When discharge volume and final composition of wasted water are considered, relatively to the other industrial sectors the textile sector is called as the most enviroment polluting sector. The colour sourced by paninting material is the first defined polluter in waste water. Which must be taken away from waste water before it is discharged to rivers and the ground. Thus researches are done upon refining waste water containing azo painting materials which are very difficult to piece by biologically to remove both colour and pollution particulles by white rot fungies. White rot fungies sourced ligninolytic enzymes are very important for preventing enviroment pollution in industry because of the support they provide on removal of phenolic compounds and colour in waste water of dye and textile industries. In this study; biological removal of Everzolbluetekstile by using *Coprinus plicatilis, Morchella esculanta,Pleurotus ostreatus*white rot fungies was researched and M. *Esculenta*white rot fungi the most removal occurring was immobilized to four different supporting materials (*amberlite* XAD-7, gelatin, *kaolin*, *Ca-alginate*).And removal of Everzolblue paiting materil in immobilized cells was examined, existing metabolites after removal was researched by using FT-IR and GC-MS.

Keywords: *Coprinus plicatilis, Morchella esculanta, Pleurotus ostreatus,* metabolite, immobilization, biodegration, Everzol blue

PP-45

Decolorization of Reactive Dye Using White Rot Fungi Immobilized in Sand

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Abstract

Wastewater from textile industries creates a great problem of pollution due to the dyes contained therein. Along with the strengthened public environmental protection awareness, thewastewater discharge regulations all over theworld are becoming increasingly strict. And the research on the new technologies for wastewater treatment as well as the improvement for the existing ones is becoming more and more important. The aim of this study is to investigate the biological treatment of reactive dyes, at a low cost and in the shortest possible time, which are used expecially dye and textile industries and are an important polluting agent in the waste water dumped into the environment by these industries. For this purpose we investigated the ability of two fungi (*Coprinus plicatilis*, *Morchella esculenta*) immobilized into sand to decolorize the reactive textile dye Everzol Red 3BS. Maximal decolorization percentages of 92% and 95,5% for *C. plicatilis* and *M. esculenta* were attained, respectively, when operating at an initial Everzol Red 3BS concentration of 10 mg/L. Laccase enzyme activities were monitored during decolorization process. At the end of biodegradation process, the metabolites of the dye were analyzed via FT-IR. It was concluded that the decolorization of dye by immobilized *C. plicatilis* and *M. esculenta* was achieved.

Keywords: *Coprinus plicatilis, Morchella esculanta, Reactive Textile Dye, Immobilize, Decolorization*

PP-46

Characterization and Distribution of Wild Cherry *Cerasus microcarpa* (C.A.Mey.) Boiss. in Turkey

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Natural resources in Turkey has become more important, understood well and studies about biodiversity has increased in recent years. Drought and arid resistant plants has taken into consideration more, in terms of global warming. *Cerasus microcarpa* (C.A.Mey.) Boiss., wild cherry, is seen naturally several distinct in South-East part of Turkey. It is easily grown rocky, stony areas and calciferous soil where most of plant species are not able to grow. This species includes several types, changing by creeping to 1,5-m-growth. It has several trunks and general appearance of it is bushy. This study was conducted between 2009 and 2014. Some characteristics of plant which are leaves, shoots, flowers and fruits are determined and dispersion in South East part of Turkey was studied. Moreover, of 11 types, which are grown in Adıyaman and Gaziantep, are studied in the case of germination, seedlings growth, grafting success and affinity to *Prunus* species. Conservation of this species is important and it contributes biodiversity of Turkey.

Keywords**:** *Cerasus microcarpa,* Biodiversity, Genetic Resources, Wild Cherry

PP-47

Botanical-Ecological Characteristics of Trees and Bushes of European and Asian Origin in the Territory Institute of Dendrology

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The purpose of researches are the theoretical understanding of arboretum growing science, the development of forest and selection of resistant trees and bushes for landscaping of parks, alleys and other areas of cities. Therefore there are revealed the fundamental conclusions as the main morphologic-anatomical, biological features of trees and bushes, ecological development patterns in terms of negative conditions and in the anthropogenic actions, as the growth and development of plants. In recently there are massively spread theoretical framework and good practices for the conservation of rare and valuable species of trees and bushes in different environmental conditions, particularly in gardening of Absheron Peninsula, where there are large industrial cities and enterprises, as well as there exist many vehicles.The main dendrology researches are conducted at the Institute of Dendrology of ANAS, where more than 80 years are grown and introduced more than 600 species of trees and bushes from the flora of Europe and East Asia. Dendrology researches have acquired particular importance in gardening of semi-desert areas of Apsheron also the entire territory of Azerbaijan. Introduction and landscaping of parks and alleys in big cities have been possible due to the long-term experiments adapted on different species of trees and bushes as well as the Pinus Pinea L, Olea europae L., Olea verrucosa L., Quercus ilex L., Quercus castaneifolia C.A.Mey., Laurus nobilis, Cupressus sempervirens L.for. pyramidalis Targ, Cupressus sempervirens L. for. Horizontalic Mil., Elaeagnus L.,Elaeagnus argentea trees. As well as known that the natural trees and bushes of the Absheron Peninsula are missing, only sometimes has occurred between the rocks Tamarix L., Lonicera iberica Bieb, Ficus carica L., Prunus divaricata Ledeb trees. Absheron soil is mainly sandy, there are exsisting chloride, sulfate and carbonate in sand soil and salinity in different degrees. The climate of the peninsula is close to the Mediterranean climate type, it has bounds on three sides by the Caspian Sea. In recent years there has been observed a dry subtropical climate in winter and long hot summers. Here are rare observed cold days in winter; periodically there falls snow in winter months accompanied by northern winds. As a result of many years researches have showed the structural features of leaves, slowing processes of growth, the dynamics of stomatal activities, frugal evaporation of water during transpirations, the relative decline of photosynthesis prosesses and in finish to observe slowness of growth. The above mentioned prosesses gives us the assumption that the named representatives of the European and East Asian flora effectively adapted in arid climate, salinity soil and show partial resistance to toxic industrial gradients of water, air and soil.

Keywords: Introduction, greening, wood-shrub species

PP-48

Medicinal Herbs of Naknchivan Autonomous Republic Used at Dermatosis Diseases

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Data about 23 species of wild plants spread in the Azerbaijan flora and widely used in folk medicine (at skin diseases) during ethnobotanical researches have been acquired: *Lycopodium clavatum* L. *Pinus sylvestris* L., *Quercus robur* L., *Morus alba* L., *Rheum rupestre* Litv., *Chelidonium majus* L., *Ribes nigrum* L., *Rosa canina* L., *Filipendula ulmaria* (L.) Maxim., *Agrimonia eupatoria* L., *Melilotus officinalis* (L.) Pall., *Peganum harmala* L., *Hypericum perforatum* L., *Hippophae rhamnoides* L., *Origanum vulgare* L., *Plantago major* L., *Viburnum opulus* L., *Bidens tripartita* L., *Sambucus nigra* L., *Tussilago farfara* L., *Helichrysum plicatum* DC., *Tanacetum vulgare* L., *Matricaria chamomilla* L., *Taraxacum officinale* Wigg., *Verbascum densiflorum* Bertol., *Centaurium umbellatum* Gilib. Areals and biological features of these plants, parts used as medicine and phases of plants have been specified and their medicinal significance and curative properties defined on the result of the complex researches executed in 2007-2011. Wild medicinal herbs collected for cure of dermatovenereological diseases bore great interest. On the result of the researches executed below information related to the use of bioecological and phythotherapeutic properties of some wild plants especially at dermatovenereology including other diseases were provided. It's been known a part of the studied plants takes a wide range in the flora and it's possible to use them as a biological base of raw materials. Some plants are threatened as they're collected unlimitedly. Taking into account in-situ collections of such plants have been created and the seeds collected were reintroduced in their initial natural populations.

Keywords: Medicinal herbs, species, genus

PP-49

Microorganisms caused to rotting of grape root infected by phylloxera in Tovuz region condition

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The roots of Qirmizi kishmishi, Ag kishmishi, Qara kishmishi and Tavkveri grape varieties were took and researched microbiological from the viticulture farm of Tovuz region. The quantity of microorganisms separated from the roots of Qirmizi kishmishi grape varieties have been 100 % that concerning to phytopatogenic fungus and bacteria. From these is identified the funguses belong to *Gliocladium* specie is 35%, funguses belong to *Cylindrocarpon* specie is 10%, the funguses belong to *Fusarium* specie is 25%, the bacteria belong to *Pseudomanas* specie – 30 %. At the same time it's necessary to mark that in the roots of this grape sort aren't discovered bacteria belong to *Bacillus* specie and saprotrophic fungi. The quantity of microorganisms separated from the roots of Ag kishmishi grape varieties have been 92,5 %. From these is identified the funguses belong to *Cylindrocarpon* specie is 20%, funguses belong to *Fusarium* specie is 7,5%, there isn't discovered belong to *Gliocladium* fungus species. There were identified bacteria belong to phytopatogenic *Pseudomanas* specie – 42,5 %, the bacteria belong to *Bacillus* specie – 17,5%. As well as is identified that here are the funguses belong to saprotrophic *Penicillium* specie – 2,5%, the funguses belong to *Mucor* specie –2,5%. In the roots of this grape sort aren't discovered more saprotrophic fungi compared to phytopatogenic fungus. The quantity of microorganisms separated from the roots of Qara kishmishi grape varieties damaged by phylloxera have been 100 %. From these is identified the funguses belong to *Cylindrocarpon* specie is 60%, the bacteria belong to *Pseudomanas* specie – 40%. In the roots of this grape sort isn't discovered belong to saprotrophic fungi species. The quantity of microorganisms separated from the roots of Tavkveri grape varieties infected by phylloxera have been 100 %. From these is identified the funguses belong to *Gliocladium* specie is 50%, In the roots of this grape sort isn't discovered belong to *Cylindrocarpon* and *Fusarium* phytopatogenic fungus species. The bacteria belong to *Bacillus* specie – 50%. In the roots of this grape sort isn't discovered belong to saprotrophic fungi species.

***Keywords*:** Phylloxera, grape, fungi, phytopathogenic fungi, saprotrophic fungi.

PP-50

Introduction Species of Gleditsia L. and Their Economical Meanings in Absheron

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Variety of Azerbaijan dendroflora attracts many visitors come to Institute of Dendrology. All researchers introduced plants from Far East come to the conclusion that most of them have broad ecological amplitude. However, in the flora of Azerbaijan according to our observations, there are a number of difficult plants to grow. Botanists have faced serious challenges in greening the newly created towns and villages, creating windbreaks and forest massive from resistant plant species soil and climate conditions of Azerbaijan. From introduced species have required adaptation to heat climate, considered cold resistance, the ability to saline soils resistance and wind-resistance. Necessary, promote species to grow rapidly, have high technical qualities of woods, were durable and resistant to various and diseases and pests. Nowadays more attentions have paid to the use of plants and perspectives in the national economy. The best of the exotic appearences all of these requirements are species and genus of Gleditsia. Gleditsia triacanthos has showed itself as equal valuable species in decorative gardening and forestry. By system of Engler Gleditsia triacanthos belongs to family the *Leguminosae,* subfamily of *Cesalpinioidea.* As known from the literature data there are cultivated have been introduced in the Institute of Dendrology also in many botanical gardens of the world 8 species of Gleditsia, from them 2 species- *Gleditsia Caspian L.* and *Gleditsia triacanthos.* In Azerbaijan territory grows wild representative of *Gleditsia caspian.* This tree is tall 20 m and 60 cm in diameter of root. It has introduced in 1980 from Asia. Both species of Gleditsia are beginning annually to bloom in the second and third decades of May. Gleditsia flowering duration is 5-21 days, and the inflorescence is 5-10 days. First are begin to bloom male species, and nearly during phase of full bloom of males begin to bloom female.

***Keywords**: Introduction, Gleditia L. species, cultivation*

PP-51

Prospects and ways of increasing genetic deversity of *Linum grandiflorum* Desf.

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The large-flowered flax (*Linum grandiflorum* Desf.) is a species from genus *Linum* wide used in ornamental gardening. Aside from decorative characters the species has also a number of valuable ones: its fatty-acid content differs from content of cultural flax, meanwhile the unique ratio of proteinaceous fractions in its seeds testifies to adaptation potential (Lagron, Lyakh, 2002; Polyakov et al., 2011). Analysis of biotechnological and genetic scientific papers on *L.grandiflorum* showed this species is relatively poorly studied and difficult for research (Litvinova, Gladkov, 2013). Mostly genetically related to large-flowered flax are annual *L.decumbence*, perennial *L.perenne* and cultivated *L.usitatissimum*, in this connection researches on these species can be taken as a base both for creating technique of introduction *L.grandiflorum in vitro*, maintaining steady culture and receiving regeneration and for searching optimum and efficient ways of increasing genetic diversity (Lemesh et al., 2005; Muravyenko et al., 2009). Under natural conditions large-flowered flax is characterized by poor range of flower coloring and nimbus form. However just these characteristics are critical for ornamental varieties. Thus there is a need to changing the genome. Besides the chemical mutagenesis (Lagron, Lyakh, 2002) induction of somaclonal variability can be used. Genetic transformation is direct method of genom alteration. Such methods developed for cultural flax may be tested on *L.grandiflorum.* We conducted a comparative analysis of the efficiency of *in vitro* germination seeds on nutrient media Murashige & Skoog and Gamborg. Also the check experiment under unsterile conditions was laid. Dynamic of seedlings growth and morphometric criteria were analyzed. Experiments on induction of organogenesis in callus culture of large-flowered flax were conducted.

Keywords: *Linum grandiflorum*; genetic diversity; somaclonal variability

PP-52
Bio-Ecological Features of *Punica granatum* L. in Azerbaijan Conditions

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Vegetation of pomegranates begins with vegetative buds blooming in the first half of April. Time of vegetation duration is about 230-235 days in different species. There are revealed in the study works of the biological characteristics of subtropical fruits, that each breed in the process of formation of a crop has its main critical periods, the most responsible for the effective implementation of their potential productivity in the real harvest. The major role in the formation of new Pomegranate growth has played one and two-year branches, which appears near in 90% of all shoots. The bases of the harvests are long pistils of flowers that make up 10-20% of the total number of flowers on the bushes. There are added direct experimental researches on augmented desk and literary works of analysis, organizations and synthesis of all previously accumulated literary materials, observations on meteorology, phenology for all crops in order to compare and derive sufficient reliable and permanent perennial theoretical positions on the biological cycles of phenology with temperature relations in regime and their edaphic growth. This kind of methods gives us opportunity to specifically control the rules of adaptation of plants in relations with the evolution of their adaptation to the ecological analogues of varying degrees of similarity. There are determined the validity of the soil-climatic and ecological characteristics of the studied subtropical fruit crops in accordance with its biological requirements to a variety of microclimatic conditions of Absheron and Shirvan zones of Azerbaijan, also ensured the successful growing of a pomegranates with the recommendations to their productivities. Subtropical fruiting in Azerbaijan has evolved in a very favorable dry subtropical zone condition, covering the whole territory of the Kura-Araz lowland, the whole territory of Absheron Peninsula, foothill areas of the Small Caucasus, semi-humid subtropical zone, foothills of the Greater Caucasus, as well as the territory of humid subtropical zones of Lenkoran-Astara. There has been since olden time's cultivated olives, pomegranates, figs, and jujubes, Japanese persimmons, nut species (almonds, pistachios, walnuts, hazelnuts, chestnuts, and pecans), pineapple guava, citrus and others.

***Keywords*:** *Punica granatum* L., ecology, productivity, environment, development

PP-53

The endemic plants of Konya province in Turkey

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In this study, the endemic plants of Konya province in Turkey are listed and .their conservation status are assessed. Konya province is one of the most floristically rich areas of Turkey and it has number of endemic and rare taxa. Totally 119 endemic plant species are unique for Konya province. The distribution areas of the taxa are noted and their IUCN threat categories are evaluated. The IUCN threat category of this endemic plant species are as follow:, 36 of them Critically Endangered (CR), 29 of them Endangered (EN), 19 of them Vulnerable (VU), 12 of them near threatened (NT), 10 of them are evaluated Least Concern (LC), 5 of them Data Deficient (DD), and 8 of them Not Evaluated. Some taxa are distributed very locally in this area. The monitoring and conservation activity are needed for these local endemic plants.

***Keywords*:** Endemic plants, Turkey, Konya

PP-54

Analysis on some Biochemical Parameters of the Aboriginal Plants of Kur-Araz Lowland

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The ecological problems remain important for Azerbaijan which has saline lands more than 1.5 million hectares. It have been monitored wormwood, salinity and ephemeral plants in Karrar district of Kurdamir region during Kur-Araz lowland agro-ecosystems sustainability study in the saltness condition. It was taken the plant and the land samples of under the plant from the lands which visually determined different salinity level. It was studied amount of general nitrogen (N), phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg), copper (Cu), iron (Fe), manganese (Mn), zinc (Zn), boron (B) elements in the plant samples*. It has been revealed the differences on the gathering of the shown componds in the plants which live in the territory. It has been determined that amount of (N) and (P) is higher than others in the plant *Trisetaria linearia* Forssk. and they lived more saltness areas. Opposite, the determined all compounds were less in the plants *Veronica hederifolia* L. in the naked areas. It has been elected the plants which belong *Chenopodiaceae* Less. family because of the quantity of (Cu), (Mn), (Zn), (N) and (K) elements, especially (Fe) was higher than other plants. It was supposed, the heavy metals which has changeable valence such as (Cu), (Fe) and (Mn) isolate from the participation in the formation of highly toxic hydroxyl radicals and detoxified with methaltioneins. It was very interesting that (B) quantity is 2 time higher than other plants in *Alhadi pseudoalhagi* (Bieb) Fich. plant and this result showed that this element is exceptional important for all plants, especially for legume plants. The quantity of (N) and (Ca) was very high (these elements are the indicators of the resistant to salt) in the *Artemisia szovitsiana* (Bess.) Grossh. which is resistant to extreme situation and *Polygonum arenastrum* Borean. This result confirms once again that the Artemisia is phyto-amelioration plant.

***Keywords*:** Saltness, agro-ecosystem, chemical-elements.

PP-55

Bioecological Requirements of Restoration of The Forests

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At the present time become important research projects to study the features of the development of forests for conservation and sustainable forest management. Studies of changes of forest habitat types at a constant increase of anthropogenic factors contribute to the identification of patterns of the natural dynamics of forest ecosystems. As in other regions of the world, in Azerbaijan the forests exposed to the influence of the agricultural activity. Using of forests as cultivation areas in the past, pasturing of cattle, using the natural resources ineffectively, carrying out of recreation purposes and plundering of forests in the occupied territories have affected negatively the forests. As the researches indicate, the influences arisen because of pasturing and other anthropogenic influences causes the infringements of the restoration processes of the forests. The pasturing of livestock caused vacuums in the forest cover. As the practice proves, the water-resistant ability of upper layer is reduced because of trampling out of the land. As the observations prove, picking of shoots of the trees and bushes by the livestock prevents the growth of the plants and decreases the forest's biological rhythms. At the same time the number of endemic and rare kinds is decreasing. The limit of the irrevocable changes arisen in the forest ecosystem is characterized by transforming of the quantitative changes into the quality changes in phytocenosis between the third and fourth stages of the digression. If the violated ecosystem is not exposed to any violated in some times, the forest's ecological equilibrium state may be restored. Studying the main development regularities of the forest you can reach the sustainable using the forest resources. The ecological enlightening of the population in the field of sustainable management of forests guarantees for protection of this unexampled value in future.

Keywords: Anthropogenic influences, restoration of the forest

PP-56

Spectrophotometric method for determination and speciation of vanadium in water and coal samples

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A simple spectrophotometric method was optimized for the speciation vanadium using pyrocatechol violet as chelating agent. Vanadium(V) was determined by pyrocatechol violet at pH 3.0, whereas vanadium(IV) was simultaneously determined using same procedure after oxidation of vanadium(IV) by potassium permanganate. The linear range for vanadium(V) is 0.2-4.0 µg/mL (r2=0.9997) with a detection limit of 0.038 µg/mL. The proposed spectrophotometric method was found selective for vanadium(V) with high tolerence limit of foreign ions. The proposed method was validated by standard addition method at different levels of both understudied species with >92 % recoveries in water and coal samples. The RSDs for the real samples were found to be 2.6-7.9 %.

Keywords: Vanadium, speciation, water, spectrophotometry

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PP-57

Use of Essential Oil Derived From *Artemisia absinthium* L. in Veterinary

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Ether oil derived from leaves and blossom points of *Artemisia absinthium* L. species accepted by State Pharmacognosy was used for preventing stomach-intestine diseases of calves. Medium height of *A.absinthium* species is 80-120sm, humid weight of overground part of a bush is between 80-125 gr. In the over ground part structure exists 0,5-2 % essential oil having dark green-blue color. Depending on plant development phase ether oil extract is changing: in virginil phase 0,1%, in budding phase 0,38%, in general blossom phase 1,45%. Stomach- intestine diseases of newly burned calves are widely spread in all regions of our country. At the end of winter, beginning of spring when cows have general calving period 80-95% newly borne calves are infected with this disease having symptoms of digestion problems and 10-30% of borned ones die in most farming's. The main etymological factors of newborned calves severe stomach-intestine diseases are entoropatogen stams of intestine bacillus. They make enzootiya in calves in most farming, it shows itself either enter it or septic process form. Usage of vaccine is not effective. Toxically dyspepsia do great harm to cattle-breeding, but nowadays veterinary is not supplied with enough synthetic substances and at the same time hyperimmun serum against microbes are ineffective for being high-priced in economic respect. In this case effectiveness of ether oil usage of *A.absinthium* species was defined. For this purpose 10 drops of essential oil of *A.absinthium* species should added to calf food (3 times a day). As a result stomach-intestine problem of a calf have been solved. Medical importance of *A.absinthium* species is great, it makes digestion better, raises appetite. Increases activity of digestion sermons agitating tastes receptors in mouth cavity. It is widely used in medicine, helminthes circular worn diseases, hypoxic gastritis, anemia, in treatment of gall-bladder and liver, unpleasant smelling in mouth, meteorizm and stomach-intestine diseases, in the treatment of helmintos, anemia and neurasthenia diseases. Ether oil of *A. absinthium* species has bacteriasid, bacteriostatic, disinfections, anti-parasite effects. There are used its brewed extracts.

***Keywords**:* Essential oil, veterinary, *Artemisia absinthium* L., species, genus

PP-58

Seasonal changes in fatty acid profiles of two freshwater fish species

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Total fatty acid compositions of the muscle lipids and its seasonal variations in (rudd) Scardinius erythrophthalmus and (chub) Squalius cephalus in Sapanca and Terkos Lake in Turkey, were investigated by a gas chromatographic method. Saturated fatty acid (SFA) was palmitic acid and other predominant SFA found in both species was stearic acid. SFA contents were found between 41.54% and 26.79% in rudd in all seasons. Oleic acid C18:1 ω9 was identified as a primary monounsaturated fatty acid (MUFA) in both fishes for all seasons. It is found that chub had a large amount of C18:1 (15.09% to 28.56 %) in all seasons compared to rudd. It was noticed from the present data that DHA (22:6ω3) was predominant PUFA in muscle lipids of rudd. According to these data, we concluded that freshwater fish were a good source for EPA and DHA.

Keywords: *Scardinius erythrophthalmus*; *Squalius cephalus*; fatty acid composition; seasonal changes; sreshwater fish; Turkey.

PP-59

Natural Plant Cover of Tovuz Region of Azerbaijan

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There are spreaded over up to 660 natural species of plants in areas located in the mountains of the Greater and Small Caucasus. Plant development and spreading of plants are depending on the zones of the soil cover. The main reasons for creating circle of plants in the forests are light, heat and humidity. Tovuz forests are rich in different plants cover. Development of plants and the location in the zones are depending on the soil and climate. In these natural Dendroflora zones are growing Ironwood, some species of Oaks and Maples, Beeches, Hornbeams, Walnuts, Ash-trees and other wild fruit bushes. There are researched in the complex study areas of distribution, biodiversity of flora, including species composition of trees and shrubs, biological and ecological features, relief of Tovuz. We have studied in complex the biodiversity of natural flora, composition of trees and shrubs species, and their biological and ecological features, areas of distributions. The soil cover in this area is consisting of Primitive Mountain - meadow soils, mountain - meadow - forest soils and brown forest soils. Development of plants and the location in these zones are depending on the soil cover. In the formation of plants vegetation ecological factors, soil, geographical, genological factors play a major role. In the territories Shamlik, Asrik, Agbulag, Keran, Cheshmali, Hatunjan, BoyukGishlag settlement of Tovuz trees species as Irontree species, ordinary Beech, ordinary Hornbeam orientalis, Gokchay Hornbeam, Georgian Oak tree, Western Oak, chesnut Maple and other species have formed mixed forest. On the outskirts of the forest roads have formed ordinary berberries, medlars, dogwoods and others. In the local area can be found formations of Paliurus Mill., Frangula Mill., Cotoneaster Medic., Corylus L., Sprea L., Sorbus L., Crataegus L., Rhus L. et al .; plants of the genera Acer L., Quercus L., Ulmus L., Carpinus L. et al. form a mixed forest and they are directly involved in the formation of good mountain - xerophytic plants vegetation.

Keywords*:* Beech tree, Maple tree, Hornbeam tree, cronwood

PP-60

Biodiversity of Geometridae, Lepidoptera in Georgia

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Biodiversity of Geometridae, Lepidoptera were investigated in Georgia. The study area was represented by forest ecosystem and farmers gardens. A total of 230 species (100 species were indicated first time) of Lepidoptera, Geometridae belonging to 6 subfamilies, 35 tribes 115 families were recorded during the study period (2010-2014). From them most dominant were 2 species: *Hyphantria cunnea*, and *Operophthera brumata*.

Keywords: Biodiversity, Geometridae, Lepidoptera, Georgia

PP-62

The Reproduction Ecology and Estimating the Sex Ratio of Loggerhead Turtle Hatchlings at Sülüklü/Demre Beach in Antalya, TURKEY in 2013

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The reproduction of the sea turtle population at Sülüklü Beach in south-western Turkey was investigated in 2013. First hatchings of *C. caretta* matures began in 30 July 2013 in Sülüklü/Demre shore. The last matures hatchings were recorded in 01 September 2013. 21 Loggerhead Turtle (*Caretta caretta*) nests were found, but hatchlings emerged from 18 of them (85.71 %). Furthermore, the nest temperatures of 4 Loggerhead turtle's nests (*Caretta caretta*) at Sülüklü Beach were monitored over the May 2013 and September 2013 nesting seasons and hatchling sex ratios of clutches were estimated, according to Kaska (1998). In this season produced a female-biased sex ratio (89.79%) and mean middle third of nest temperature was 31.9 C^0.

Keywords: *Caretta caretta*, Demre, Sülüklü, ecology,s ratio, hatchlings

PP-63

Some Physico-Chemical Parameters Concerning the Fish Communities of the Lake Eğirdir (TURKEY)

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In this research presented deal with physico-chemical parameters and fish species in Lake Eğirdir. Fishes were captures monthly by different nets from January 2010 and December 2010 in 4 stations, and 15 fish species belonging to 8 family. *Carassius gibelio, Cyprinus carpio* (common carp), *Pseudophoxinus egridiri* and *Vimba vimba* belonging to Cyprinidae were the dominant fish species and followed by Percidae. Detrended Correspondance Analysis (DCA) was used to some environmental parameters concerning the fish species. According to DCA result, variables was able to explain 90 % of total variation suggesting a significant result ($P<0.05$). In conclusion, the detrended correspondence analysis indicated that the temperature of the surface water, dissolved oxygen and percent saturation of dissolved oxygen were the most important physico-chemical parameters affecting fishes. *Carassius gibelio, Vimba vimba, Cyprinus carpio* (common carp), *Cyprinus carpio* (mirror carp), *Knipowitschia caucasica and Cobitis turcica* were found in some areas where water temperature are inluded in high level, dissolved oxygen and saturation of dissolved oxygen are included in low level.

***Keywords*:** Physico-chemical parameters, fish communities, DCA, Lake Eğirdir

PP-64

10 years data on the avian diversity of Lake Acıgöl (Denizli/Afyonkarahisar-Turkey) with a glance on its crucial problems and conservation requisites

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In this research aiming to detect the bird species inhabiting Lake Acigöl (Denizli/Afyonkarahisar-Turkey) to determine the seasonal and annual population sizes, Lake Acıgöl is visited monthly between September 2005-April 2015 and species countings and determinations are made by transect counting, point counting and random monitoring methods. Surrounding salt pans and agricultural areas are also investigated depending on the suitability of physical conditions and birds are recorded properly. Passerine birds and birds of preys are also recorded on the suitable habitats around the lake. At a result of this long term monitoring, 176 bird species belonging to 20 families and 16 orders are determined in Lake Acıgöl and its vicinity. In consequence of obtained data, annual and seasonal variations of bird species and numbers are tried to be presented. The importance of the conservation of Lake Acıgöl is emphasised by notifications about the wetland and species inhabiting the area. Despite the lake's Important Bird Area (IBA) Status, unauthorised hunting and reed burning/cutting, ignorancy and reluctancy of local people for the conservation of the lake, curbing of Aşağı Pınar stream which is the sole water input of the lake for providing Çardak city drinking water, pollution due to farming and household usage and anthropogenic demolition in breeding and wintering areas of the birds are observed and irreversible abandoning by birds or being represented by less number on individuals of the bird species are detected. It is crucially highlighted that the conservation status of the wetland should be enhanced urgently.

***Keywords**:* Lake Acıgöl, Ayfonkarahisar, Denizli, Turkey, conservation

PP-65

Genetic Diversity of the Endemic *Psephellus gracillimus* (Wagenitz) Wagenitz with respect to *matK* gene region

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Psephellus gracillimus (Wagenitz) Wagenitz is a local endemic species taking place in very limited area of Diyadin province (Ağrı) in East Anatolia (Turkey). Its biodiversity was shortly analyzed according to *matK* gene region (chloroplast genome) in this poster. Not only *matK* gene region is used to determine genetic variations at the population level but it also could be used a molecular marker in phylogenetic studies systematically in many categories and rate of nucleotide diversity. As a result of this study, a data matrix was handed with 990 nucleotide and an aligment was made by helping BioEdit. Later, three singletons and three informatics site were determined in point of parsimony via DnaSP. Additionally, we determined three different haplotypes (Nh); Haplotype PM16 was the most abundant haplotype occurring in 22 samples. Two haplotypes (PM7 and PM4) occurred in only a single sample. The nucleotide diversity (Pi) was 0.00025 and haplotype diversity (Hd) 0.163 respectively. According to haplotype and nucleotide diversity values belonging to *matK* gene region, *Psephellus gracilimus* had low nucleotide diversity and genetic variation as correlated with its local and limited distribution. Due to its poor genetic variation and extinct risk, the species could be considered as good candidates for future *in-situ* conservation programs.

Keywords: *matK*, chloroplast haplotype, nucleotide diversity, Turkey.

PP-66

Eco-Geographical Features of Wetlands in Azerbaycan Flora

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In 2010-2011plant accessions acquired from these different areas observed in wetland areas have been collected, dried, labeled and the species have been secured according to 'Azerbaijan Flora' (1950-1961, Volume 8) to identify the plants & plant units that show spread areas of the plants been under threat in the wetland ecosystems of the Absheron Peninsula, Lankaran Plain, Samur-Davachi and Kur-Araz lowlands (Kura-Araks – former Russian version) of Azerbaijan. On the result of area activities carried out in the research area existence of 502 taxa belonged to 62 families and 208 genera have been ascertained. Wetland plants and plant units are being occurred in all over Azerbaijan beginning from the Sea Level up to high mountainous segments. Wetland ecosystems in plains cover broader areas in Azerbaijan. These ecosystems are occurred in broader areas especially in the Absheron Peninsula, Samur-Davachi, Alazan-Ayrichay, Kur Lowland, Jeyranchol & Gobustan Plains and plain areas of Naxçıvan along with the Kur-Araz Plain. The wetland flora in the mountainous areas is nearly twice poorer than in the plain. Anthropogenic effect onto the wetland ecosystems in plains covers wider areas as many lakes were already subjected to drying; some of them are being dried and subjected to succession at present. 169 taxa out of 502 ones occurred in the wetland plant units of Azerbaijan are hydrophytes (102 of them are amphibians, 67 half-body under water); 243 are hydrophyte - hygrophites and 90 are hydrophytes. These information show existence of typical wetland vegetation in Azerbaijan. There are the most hygrophytes and the least hydrophytes in the regions beyond the Absheron against the difference of these taxon numbers represented these groups in different regions. Wetland flora of Azerbaijan has been evaluated according to its threat categories as well as they were separated into 6 categories. Only 68 taxa have been secured in different threat categories. This number has created 13.5% of the plants only belonged to wetland flora. Majority of these plants takes part in the categories of VU(25 taxa, 13.5%), Lr(cd), Lr(cd) (each of them 11 taxa 2. 2%) and Lr(nt) (10 taxa 2. 0%), but there are 5 taxa (1. 0%s) in the EN and DD categories. The richest taxon number of the plains according to the geographical regions are: Lankaran Plain (274 taxa); Kur-Araz Lowland (270); Kur (178) and Samur-Davachi Plains (168). Flora of the other regions changes between 102 - 155 taxa. It was ascertained that mountainous area of the plain-wetland flora was richer than the wetland flora.

Keywords: Azerbaijan, wetland, flora

PP-67

Antioxidant Activities of Different Parts of *Calicotome villosa* (Poiret) Link. (Leguminosae) from Turkey

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Calicotome villosa is a drought deciduous spiny shrub, possessing mature, green stems with yellow papilionaceous flowers during the spring season, very common in the Mediterranean area, where it grows near the sea (0-1200 m altitude). The aim of the present work was to study in vitro antioxidant activities of ethanolic extracts obtained from the flowers and stems of C. villosa. The parts of the plant were collected during flowering season at Milas, Muğla, Turkey in April 2014. Antioxidant properties of the extracts were determined by DPPH radical scavenging and β-carotene/linoleic acid assays. In addition, total phenolic and flavonoid contents in the extracts were determined. The total phenolic contents in the extracts of C. villosa were expressed as miligram of gallic acid equivalents (GAEs), were determined with Folin-Ciocalteu reagent (FCR). The total flavonoids content of the extracts was expressed as mg quercetin equivalents per gram of extract. The flower extracts of C. villosa exhibited higher antioxidant activity than stem extracts. The highest free radical scavenging activity (86.32 ± 0.55%) was recorded on flower extracted with 1 mg/ml concentration. The flower extracts showed the highest phenolic (159.47 mg/g GAEs) and flavonoid contents (66.21 mg/g QEs). These findings suggest that C. villosa flowers could be an antioxidant resource in some industries, such as food, pharmacology.

***Keywords*:** *Calicotome villosa*, antioxidant activity, DPPH, phenolics, flavonoids

PP-68

Heavy Metal Accumulation and the Road Effect: In Levant Voles (*Microtus guentheri* (Danford and Alston 1880)) at Korkuteli/Antalya, Turkey

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In this study, the levels of some heavy metals (Cr, Mn, Fe, Co, Ni, Cu, Zn, As, Cd, Hg and Pb, B and Al) in the muscle tissues of *Microtus guentheri* (Levant Vole) from Korkuteli at Antalya Province (Turkey), were investigated. Samples (n=120), caught from the roadsides close to agricultural areas and grasslands areas away from the road in July 2013. After dissection of the individuals and getting the muscle sample tissues. Samples were dried till and comes to constant weight. Microwave method was applied for the digestion produce of samples. From each tissue, 0.5 g homogenates were placed in a teflon digestion vessel with concentrated nitric acid (HNO_3)/hydrogen peroxide (H_2O_2). The samples in the vessels were then digested using an optimized microwave method. After digestion the samples were cooled to room temperature and diluted with ultra pure water. Then, samples were analysed by Inductively coupled plasma mass spectroscopy (ICP-MS). The mean concentrations of the metals accumulated in *M.guentheri* on roadsides close to agricultural areas as follows: Cr; 0.32±0.08, Mn; 1.53±0.37, Fe; 43.76±9.10, Co; 0.07±0.02, Ni; 0.95±0.26, Cu; 1.21±0.26, Zn; 10.56±2.19, As; 0.22±0.06, Cd; 0.42±0.12, Hg; 0.34±0.11 Pb; 0.36±0.11, B;0.26±0.05 and Al; 27.48±6.79 ppm but, grasslands areas away from the road: Cr; 0.21±0.21, Mn; 1.34±0.31, Fe; 43.80±7.04, Co; 0.04±0.01, Ni; 0.48±0.43, Cu; 1.29±0.09, Zn; 13.08±1.33, As; 0.01±0.001, Cd; 0.37±0.08, Hg; 0.01±0.001 and Pb; 0.00±0.00, B;0.35±0.03 and Al; 10.54±2.39 ppm. The order of concentration of the heavy metals in the muscle samples from the roadsides close to agricultural areas was Fe>Al>Zn>Mn>Cu>Ni>Cd>Pb>Hg>Cr>B>As>Co, but from grasslands areas away from the road Fe>Al>Zn>Mn>Cu>Ni>Cd>B>Cr>Co>Hg=As and Pb was zero. As can be seen, especially for Al, Co, Ni, As, Hg and Pb, the values for agricultural areas were considerably high. This situation is thought to be due to the road effects and pollution from pesticides.

Keywords: Heavy metal accumulation**,** *Microtus guentheri*, Burdur, Road effect, pesticides, lead

PP-69

Determination of Some Biological Activity of *Crocus cancellatus* spp. *mazziracus* 's Extracts

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Because of geographical position on the world Turkey's floristic structure shows a great richness and diversity. there are 700 geophyt species in the richness of Turkey. Geophytes are herbaceous plants which have specialized underground stems that store nutrition. Active substances that accumulated in onions , tubers and rhizomes of Geophytes are great importance for use in medical field. *Crocus* species that belonging to *Iridaceae* and having economic value have used since the earliest years in the alternative medicine for the treatment of diseases. Cormus have used in cooking. After plants collected in suitable conditions and drying in the shade was pulverized.It was then extracted using ethanol and distilled water as the solvent (55 °C ' twice in six hours in a shaking water bath). After removal of the solvent Rotary evaporator lyophilized samples were used in assays to determine biological activity. On Examples; determining the amount of total phenolic compounds and determining the DPPH free radical removal capacity tests were performed.The results of this study indicate that total phenolics of the ethanol extract of *C. cancellatus* spp.*mazziracus* were higher in leaf extracts and the highest Biological activity observed in leaf extracts. The greater activity of free radical sweep was in leaves extracts.

Keywords: *Crocus cancellatus* spp.*mazziracus,* biological activity, DPPH, the total amount of phenolic

PP-70

Introduction of *Lonicera sempervirens* in Azerbaijan

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Lonicera sempervirens (also coral honeysuckle or trumpet honeysuckle) is a species of Lonicera. It is grown as a plant for wildlife, as it is used by ruby-throated hummingbirds in their natural range; it is also grown as an ornamental for its attractive flowers, especially as a native alternative to the invasive Japanese honeysuckle. Several cultivars have been selected for variation in flower color, including 'Magnificence' (flowers red outside, yellow inside), 'Sulphurea' (yellow flowers), and 'Superba' (bright scarlet flowers). The plant is evergreen in zones 8 and up and deciduous in colder climates. It is a twining vine growing to 20 ft or more through shrubs and young trees. The leaves are produced in opposite pairs, oval, up to 5 cm long and 4 cm broad; the leaves immediately below the flowers are perfoliate, joined at the base in a complete ring round the shoot. The flowers are produced in clusters of several groups of three together, tubular, 5 cm long, with five small lobes opening at the tip to expose the stamens and stigma; they are bright red to pinkish-red, and pollinated by ruby-throated hummingbirds and insects. Lonicera caprifolium (goat-leaf honeysuckle, Italian honeysuckle, perfoliate woodbine) is a species of perennial flowering plants in the genus Lonicera of the Caprifoliaceae family. It is native to parts of Europe, and naturalized in South East Britain. It can readily be distinguished from Europe's most common species, Lonicera periclymenum, by its topmost leaves which areperfoliate as the Latin name suggests (that is, the stem appears to grow through the center of the leaf). It is a vigorous, deciduous climber growing up to 8 meters. It bears masses of very fragrant, cream-colored flowers, tinged with pink, appearing in midsummer.

Keywords: *Lonicera sempervirens, species, genus, plant*

PP-71

Phytopathologic estimation of cotton intra- and interspecific hybrids resistance to fungi *Verticillium dahliae* Klebahn

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Cotton is one of the valuable crops. A significant attention is being paid to production of this culture. Creation of highly productive varieties of the cotton resistans against diseases and their introduction in agriculture is very important link in system of actions for struggle against them.Researches of immunity and also selection of a cotton is conducted concerning the most harmful diseases. One of the most dangerous diseases of cotton is wilt. This disease is caused by fungi *Verticillium dahliae* Klebahn, which concerns to imperfect fungies. We studied resistance to wilt intra- and interspecific hybrids of *G.hirsutum* L. and *G.barbadense* L. cotton species. The phitopathologic estimation of cotton hybrids resistance was carried out on an artificial – infections background by Vaytenoks metod on a five-ball scale. Symptom of disease is appearens of yellowish round and angular spots on leaves. The estimation of cotton hybrids resistance has shown different sensitivity of crops to diseases which has allowed to reveal the most resistant to this one. On the results of our data of the interspecific hybrids of *G.hirsutum* L x *G.barbadense* L. cotton species turned out more resistant to this disease. Amount and per centage of sensitive and highly sensitive to wilt interspecific hybrids at *G.hirsutum* L. x *G.barbadense* L species. twice exceeded than intraspecific hybrids of cotton at *G.hirsutum* L. species id est these made accordingly – 20,5% -14,3% and 8,9% - 6,1%. The per centage of immune hybrids at this cotton species equalled accordingly – 21,2% and 44,5%. The most resistant ones Pima-S-4 x 18819; S-5497 x 6465-b; Todla-16 x Acala-1517 and ets. According to the above-stated one can make conclusion, that the interspecific cotton hybrids *G.hirsutum* L. x *G.barbadense* L. are more resistant to wilt, that the intraspecific hybrids of cotton at *G.hirsutum* L. species. These hybrids can be used in selection as donors of resistance to this disease.

Keywords: Cotton, *G.hirsutum* L., *G.barbadense* L., interspecific hybrids, wilt.

PP-72

Oribatid Mites (Acari, Oribatida) New to the Turkish Fauna

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The present study is based on oribatid mite material collected from Artvin province (Turkey). Two oribatid mite species, *Cepheus heterosetosus* (Sitnikova, 1975) (Compactozetidae) and *Chamobates (Chamobates) birulai* (Kulczynski, 1902) (Chamobatidae), are reported for the first time from Turkey. Their morphological characters are reviewed on the basis of Turkish samples. In addition, their chorotypes are given. The extraction of mites from materials collected from Artvin province (Turkey) was made by using a Berlese -Tullgren funnel extractor. Mites were fixed and stored in 75% ethanol. The light and scanning electron microscopes were used to examine mites. The compound microscopic examinations of specimens were made in lactic acid, mounted in temporary cavity slides. Two oribatid mite species, *Cepheus heterosetosus* (Sitnikova, 1975) (Compactozetidae) and *Chamobates (Chamobates) birulai* (Kulczynski, 1902) (Chamobatidae) were determined from the examined materials. Mite specimens were examined under light microscope, the measurements of their various body parts were made, and their scanning electron microscope photos were taken. Both species were determined as new records for the Turkish fauna.

***Keywords*:** Acari, Oribatida, Taxonomy, new records, Artvin, Turkey

PP-73

A Comparative Study on Antioxidant, Phenolic Content and Cytotoxic Activity of *Arisarum vulgare* O. Targ. Tozz. and *Dracunculus vulgaris* Schott from Turkey

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Arisarum vulgare and *Dracunculus vulgaris* are belonging to the family Araceae. This investigation was conducted to examine the cytotoxicity [Brine Shrimp (*Artemia salina* L.) Lethality Test], the antioxidant activity (free radical 2,2-diphenyl-1-picrylhydrazyl = DPPH) and the phenolic contents (Folin-Ciocalteu method) of *A. vulgare* and *D. vulgaris*. The phenolic contents of the above-ground parts of the ethanolic extracts are higher than the underground parts of *D.vulgaris.* Antioxidant activity of *A. vulgare* and *D. vulgaris* were tested using DPPH assay. 4 ml of the DPPH's 0.004% ethanolic solution were mixed with 1 ml (0.2 - 1.0 mg) of the extract, and their absorbances were measured at 517 nm after incubation for 30 min at room temperature. The absorbance value of the samples were evaluated against empty control group. BHT was used as a control. Tests were carried out in triplicate. The total phenolic content of extract was determined using to the Folin-Ciocalteu method. The highest free radical scavenging activity underground parts of *A.vulgare* than *D.vulgaris* under-ground parts in 1 mg/ml concentration. The under-ground extracts of *A. vulgare* most prominent cytotoxicity activite, while the above-ground extracts of *D. vulgaris* most prominent cytotoxicity activite.

***Keywords**:* Antioxidant, *Arisarum vulgare*, Cytotoxicity, *Dracunculus vulgaris*, Araceae

PP-74

Cytotoxic Activity of Acetoneic Leaves and Flowers Extract of Three *Rhododendron* Species from Turkey

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Medicinal plants constitute an important component of flora and are widely distributed in Turkey. The brine shrimp assay is very useful tool for the isolation of bioactive compounds from plant extracts. The method is attractive because it is very simple, inexpensive and low toxin amounts are sufficient to perform the test in the microwell scale. In this study, the asetoneic extracts obtained from flowers and leaves of 3 *Rhododendron* species (*R. caucasicum* Pallas, *R. x sochadzeae* Charadze & Davlianidze and *R. ungernii* Trautv.) collected from Turkey, were studied for their cytotoxicity using brine shrimp (*Artemia salina* L.) lethality test. *A. salina* eggs were incubated in 500 ml of seawater under artificial light at 28 ^{0}C, pH 7-8. After incubation for 24 h, ten nauplii were collected with a pasteur pipette. In each experiment, 0.5 ml of the plant extract was added to 4.5 ml of brine solution and maintained at room temperature for 24 h under the light and surviving nauplii were counted by using overhead projector. Experiments were conducted along with control, five different concentrations of the test extracts in a set of three tubes per dose. LC_{50} values were calculated by EPA Probit Analysis Program (version 1.5). The flower extracts of *R. caucasicum* and *R. x sochadzeae* showed most prominent activity with LC50 12.825 and 33.879 µg/ml respectively, while the leaf extract of *R. ungernii* had LC_{50} at 1.829 µg/ml.

Keywords: *Rhododendron*, *Artemia salina*, Brine shrimp, Cytotoxicity, Turkey

PP-75

Free Radical Scavenging Capacity, Phenolic Content and Cytotoxicity Evaluation by Brine Shrimp Lethality Bioassay of *Rhododendron x filidactylis* R.Milne (Ericaceae) from Turkey

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Nature has been a good source of medicinal agents for many years and many effective drugs that are used today have been isolated from natural sources. Turkey has a rich flora because of its geographical location and climatic properties. *Rhododendron* is a genus of 1024 species of woody plants in the Ericaceae family either evergreen or deciduous, and found mainly in North America to Europe, Russia and Asia. In this study, the acetonic extracts obtained from flowers and leaves of *Rhododendron x filidactylis* collected from Rize, Turkey, were studied for their possible cytotoxicity using Brine Shrimp (*Artemia salina* L.) lethality test. The antioxidant activity of the extracts was evaluated by free radical scavenging (DPPH) activity assay. In addition, total phenolic contents in the acetonic extracts of *R. x filidactylis* were determined as gallic acid equivalents. The highest free radical scavenging activity (96.35%) was recorded on the flower extracts of *R. x filidactylis*, extracted with 1 mg/ml concentration. The phenolic contents of the leaf extracts (211.7 mg/g GAE) were higher than the flower extracts (116.4 mg/g GAE). In the cytotoxicity assay, the mortality for each extract increased with increasing the concentration (10 µg/ml to 1000 µg/ml). The flower extract of *R. x filidactylis* had the lowest LC_{50} value of 3.73 µg/ml which indicates very toxic than the leaf extract (194.85 µg/ml). The results indicated that the acetonic leaf and flower extracts of *R. x filidactylis* have strong antioxidant properties and this species can be used as a natural antioxidant in food processing and pharmaceutical industries.

***Keywords*:** *Rhododendron*, total phenolic content, DPPH, brine shrimp

PP-76

DPPH Scavenging Activity, Total Phenolic Content and Brine Shrimp *(Artemia salina L.)* Lethality Bioassay of *Rhododendron ponticum* L. from Turkey

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Phenolic compounds are constituents of both edible and nonedible parts of plants. Many have antioxidant activity, which delays the oxidation of various ‘‘important for life” compounds by inhibiting the initiation or propagation of oxidising chain reactions. Natural antioxidants can scavenge reactive oxygen species; evidence suggests that these may be of great importance in preventing the onset of oxidative diseases in the human body. The brine shrimp lethality assay is considered a useful tool for preliminary assessment of toxicity and it has been used for the detection of fungal toxins, plant extract toxicity, heavy metals, pesticides etc. The aim of the present study is to determine the DPPH free radical scavenging activity, total phenolic content and brine shrimp lethality bioassay of *Rhododendron ponticum.* Leaves and flowers of *R. ponticum* were dried in shade at room temperature and ground to fine powder. Extractions were prepared using acetone. The total phenolic content of the extracts was determined using Folin-Ciocalteu reagent and expressed as gallic acid equivalent. The antioxidant capacity of the extracts was evaluated by using 2,2-diphenyl-1-picrylhydrazyl (DPPH). The phenolic content of leaf and flower extracts of *R. ponticum* was observed as 159.3 mg/g GAE and 74.0 mg/g GAE, respectively. The free radical scavenging activity of the flower extracts (94.56%) were higher than the leaf extracts (93.89%) of *R. ponticum*, extracted with 1 mg/ml concentration. Also the DPPH radical scavenging activity of BHT (standard) was assayed for comparison and found less effective (92.30%) than the extracts. In the cytotoxicity assay, the mortality for each extract increased with increasing the concentration. The flower and leaf extracts were determined as 117.67 µg/ml and 1046.79 µg/ml, respectively. However, further investigation on the cytotoxicty effect of the flower acetonic extracts of *R. ponticum* is needed for the better and broader understanding of the cytotoxic effect in mammals.

Keywords: *Rhododendron*, antioxidant, phenolic content, brine shrimp

PP-77

Distribution of Ni hyperaccumulators belonging to the Brassicaceae in Turkey

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Turkey is one of the most significant places in the world for plant genetic resources: it is located on two of Vavilov's Centres of Origin (Near East and Mediterranean) and three phyto-geographical regions (Euro-Siberian, Mediterranean, Irano-Turanian). It has a unique combination of diverse geographical, edaphic and climatic conditions that have given rise to a large number of rare or endemic species. According to the Flora of Turkey, 9222 native, alien and cultivated species grow in Turkey. The number of taxa is 12006 while the endemic taxa is 3708 and the percentage endemism is 34.5%. Some plants including most hyperaccumulator species, are endemic to serpentine soils. Serpentine soils contain large amounts of Fe and Mg, relatively small amounts of Si and Ca, and sometimes large amounts of other metals (Ni, Co, Cu, Zn, etc.). In temperate climates, including the Mediterranean region and Turkey, the families Brassicaceae, Asteraceae and the Caryophyllaceae are well represented in the serpentine floras. The largest number of hyperaccumulators occur in the *Brassicaceae*. The term "hyperaccumulator" describes a number of plants that belong to distantly related families, but share the ability to grow on metalliferous soils and to accumulate extraordinarily high amounts of heavy metals in the aerial organs, far in excess of the levels found in the majority of species, without suffering phytotoxic effects. About 25% of discovered hyperaccumulators belong to the family of Brassicaceae and, in particular, to genera *Thlaspi* and *Alyssum*. These also include the highest number of Ni hyperaccumulating taxa. Many of the Ni accumulators are serpentine-endemics. Botanical exploration of serpentine soils in Turkey and neighbouring countries has shown that the region includes at least 59 taxa capable of hyperaccumulating nickel (to >0.1% of plant dry weight). The aim of this study is to determine the distribution of nickel hyperaccumulator plants belonging to the Brassicaceae in Turkey.

Keywords: Hyperaccumulator plants, *Brassicaceae*, nickel, Turkey

PP-78

Antioxidant and Cytotoxic Activities of Two *Alyssum* L. species (Brassicaceae) on Brine Shrimps and Human Tumor Cell Lines

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Genus *Alyssum* L. has been known with up to 230 species in the world with major distribution in Eastern Europe and Turkey. In Turkey, this genus is represented with about 100 taxa. In this research antioxidant and cytotoxic activities of methanolic extracts obtained from aerial parts of *Alyssum minutum* Schltdl. ex DC. and *Alyssum hirsutum* M.Bieb. were firstly investigated. Antioxidant properties were evaluated by using DPPH (2,2-diphenyl-1-picrylhydrazyl), β-carotene-linoleic acid test system and reducing power. In addition, total phenolic and flavonoid contents in the plant extracts were determined. The extracts were screened for their possible cytotoxic activities by brine shrimp (*Artemia salina* L.) lethality assay. *Artemia* nauplii have been extensively used as a tool to monitor the cytotoxicity of samples under study. This is a rapid, inexpensive, in-house, general bioassay which has been developed for screening, fractionation and monitoring of physiologically active natural products and plant extracts. Additionally, the methanolic extracts of the plants were investigated for its *in vitro* cytotoxic activities against human breast cancer cell line MCF-7 and cervical cancer cell line HeLa cells. The test were carried out as dose-dependent assay starting from 100 µg/mL to 1000 µg/mL. In this investigation, our results indicate that the crude extract of two *Alyssum* L. species have antioxidant properties and cytotoxic effects on Brine Shrimps and two human cancer cell lines.

Keywords: *Alyssum*, cytotoxic, antioxidant activity, cancer

PP-79

Use of *Ligustrum ovalifolium* in Azerbaijan Parks and Gardens

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Ligustrum ovalifolium also known as California privet, garden privet, and oval-leaved privet is a shrub in the privet genus Ligustrum. The species is native to Japan and Korea. It is occasionally known as Japanese privet, but is not to be confused with Ligustrum japonicum which is predominantly called by that common name. Ligustrum ovalifolium is a dense, fast-growing, deciduous (evergreen/semi-evergreen in warm winter areas) shrub. It grows to 10–15 feet (3.0–4.6 m) tall and wide. It has a thick, fleshy leaf that is green on the top, and greenish-yellow on the underside. It flowers in midsummer, the abundant white blooms producing a unique pungent fragrance, unpleasant to some. They are borne in panicles. They have four curled-back petals and two high stamens with yellow or red anthers, between which is the low pistil; the petals and stamens fall off after the flower is fertilized, leaving the pistil in the calyx tube. Flowering starts after 330 growing degree days. The fruits, borne in clusters, are small purple to black drupes, poisonous for humans but readily eaten by many birds. In favorable growing conditions, individual shrubs may produce thousands of fruits. Ligustrum oval folium is used as a food plant by the larvae of some Lepidoptera species including Common emerald, Common marbled carpet, Copper under wing, The Engrailed, Mottled beauty, Scalloped hazel, Small angle shades, The V-pug and Willow beauty. All parts of plant are poisonous if ingested by humans. The species Ligustrum ovalifolium is widely cultivated as an ornamental plant in many countries, as a shrub, and grouped for an informal or formal hedge. Privets need to be trimmed several times during a growing season, in order to maintain a formal hedge shape. Regularly trimmed plants do not produce flowers or fruit.Several cultivars are used in gardens and for hedging, including Ligustrum ovalifolium 'Aureum,' the Golden Privet, with oval, rich yellow leaves with green centers. It has gained the Royal Horticulture Society's. Ligustrum ovalifolium is the most common hedging plant species in cultivation in the United Kingdom The species is reportedly naturalized in France, Spain, Italy, the Balearic Islands, SaintHelena, Réunion, Chiapas (México), Costa Rica, Guatemala, Honduras, the Juan Fernandez Islands, Ontario, and in the United States. Ligustrum ovalifolium has also been listed as an invasive species in areas of the United States, including: California, Hawaii, Washington state, Texas, Missouri,Alabama, and many of the Mid-Atlantic and Northeastern states. 46 states have it listed on their noxious weed lists.

Keywords: *Ligustrum ovalifolium,* genus, species, shrub

PP-80

Ornithofauna of Cindere Dam Lake (Denizli/Turkey)

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It is aimed to determine the bird fauna of Cindere Dam Lake and its vicinity and to determine how dam lake affects the bird species. This study was carried out between June 2013 to May 2014. In total 24 field trips were performed between these dates twice a month. Transect, point and random counting methods were used during the surveys. For observations, binoculars, telescopes and cameras with various brands and enlargement properties were used. *Heinzel et al*.(1995) and *Svensson et al*.(2009) bird reference field books were used for the diagnosis of observed birds. Studies were conducted during the daytime between sunrise and sunset. In addition, birds calls were listened in order to determine nocturnal birds at nights. As a result of field surveys, 127 bird species belonging to 41 family and 16 order were identified in Cindere Dam Lake. Among them, 51 species are residents, 35 species are summer visitors, 18 species are winter visitors and 23 species are passege migrants. According to the IUCN criterias; 2 species (*Coracias garrulus*, *Sitta krueperi*) are in NT (near threatened) category. The remaining 125 species are in LC (least concern) category. It is detected that Cindere Dam Lake has adverse affects on some birds species as it distructs the natural river ecosystem. Overgrazing, egg collecting of some birds such as partridges and unauthorized hunting activites around Cindere Dam Lame affects the area adversely. Natural structure is distructed gradually due to loading of river system following the lake and due to withholding of its waters. This research is tought to be a reference tool for the future researches.

***Keywords*:** Ornithofauna, Cindere Dam Lake, Denizli, Turkey.

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PP-82

Strategical Methods to Overcome Risks in Food Safety and its Sustainable Development

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There are today more than 840 million undernourished people in the world according to the Food and Agriculture Organizations and the World Health Organization reports. Almost every one in eight, more than 30% of the world populations are experiencing problems related to malnutrition, lack of main elements and vitamins in the bodies. For this reason, more than 160 million children suffer stagnations in physical and intellectual developments. It is also necessary to note that in our memories preserved crisis events of 2008, when world prices and shortages of food supply caused serious troubles and riots in many countries of Asia, Africa and Latin America, there were a threat to stability in the world. In this regard, food securities of the states are associated with risks, which significantly weaken them. Therefor the economic risks are arisen cause of inadequate and lack of guarantees of states agricultural support. Technological risks cause by lag in being not behind of developed countries in the level of technological developments in national food industries and in organizations of the control of their compliance. Natural risks are remained for Uzbekistan the permanent factor that must be considered when forecasting the development of agriculture and food security of the country. Social risks are determined to a large extent lack of qualified staff because of the low wages in agriculture among all other spheres of activity in the economy, the growing backlog of social infrastructure in rural areas than in urban areas, declining prestige of agricultural work. Political risks may be arisen for possible increased pressure on government policy, depending on the situation by requirements for further liberalization of the Agricultural food market, and increase of access to imported products, and in certain circumstances import restrictions, higher prices in imported food, which could lead to imbalances in the national domestic market.

Keywords: Food security, undernourished people, social risks

PP-83

Dendrochrological and biochemical study of Eucalyptus rostrata Schlecht (Eucaliptus camaldulensis) in Institute of Dendrology

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There are tested as dendrological introduction research works in Azerbaijan Republic territory rich with natural and historical monuments for the development of eco-tourism since many years at the Institute of Dendrology belonging to the Myrtacea family of Eucalyptus genus the Eucalyptus rostrata Schlecht. species.There are investigated scientificaly basises influences of climatic factors in the types of researches, their productivities, infections and other pest conditions. We have used in dendrochronological researches various published materials and analysed datas , methods, equipments. The date of introductionIn in our republic the oldest eucalyptus Eucalyptus rostrata schlecht. is revealed since 1913. There has revealed large pipes a wide range of thin-walled cells during the development in the body of the Eucalyptus rostrata schlecht. depending on the environmental factors. The dynamic development of this species in Absheron conditions has begun from October to November and during this period there are formed small - large cells in it. There has been observed in each yearling rings in the initial and subsequent timber sharp distinctions of a consistent links,veins between the transition that cause of internal (endogenous) and external (exogenous) factors , existence in the shallow soils of substrates, the influence of various forms of complex humidities. Species cultivated in favorable conditions have less changed the ranks of the rings (without sensitivity) from year to year , but the nutrition shortages has effects to the development of their sensitivity reaction of non-sensitivity reactions. There are observed an additional development activities in December and March in mild and cold Absheron weather in Kambi layer in the samples. There have been found variations in the natural eco-systems of the calculated absolute and relative indices in annual root rings.There are determine an extreme measures, the anomalies, as well as other factors related in the annual rings. In this study was conducted the analysis of biochemical species, essential oil percentage of eucalyptus rostrata species in Absheron conditions, the quality of the flowering periods in 10-18 years of old trees.The oil share in Eucalyptus rostrata Scheda. Is 0,9383%, light refraction index-–nd^{20}-1,4660-1,4955, deriving of essential oils in percentage %- is estimated in 1,35-1,55 %.

Keywords*:* Dendrochronology, *Eucaliptus rostrata (Eucaliptus camaldulensis)*, annual rings, introduction, essential oil

PP-84

Medicinal use of *Rheum rupestre* in Azerbaijan

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Rheum rupestre includes to the family of Polygonaceae. It has about 20 species in nature. These species have large some triangular shaped leaves with long, fleshy petioles. The flowers are small, greenish-white, rose-red, and grouped in large compound leafy substance. In Azerbaijan grows wildly 2 species of Rheums: 1) Rheum ribes, 2) Rheum rupestre. Both species are a perennial herbaceous plant with a large root system and large rosette rounded orheart-shaped rock view in leaves on shorter, long petioles. Rheum species have herbaceous perennial growing from inside of fleshy roots. They have upright growing stems and mostly basal, deciduous leaves growing from short, thick rhizomes. The inflorescences are terminal and panicle-like with pedicels. The outer three sepals are narrower than the inner three and all are sepal-like in appearance. The flowers have nine (sometimes six) stamina inserted on the torus at the base of the peranthium, they are free or subconnatent at their base. The anthers are yellow or pinkish green, elliptic in shape. From rhizomes and roots of another species is prepared drug named rheum officinale or medicinal rhubarb. This species are also native to Asia, as like as turkey rhubarb (R. palmatum). Many rheum species have food and medicinal uses. Some of these uses originated in Asia more than 2,000 years ago. Rheum rhabarbarum is used to make pies, jellies, jams, and wines. All parts of the plant contain the poison oxalic acid, but its concentration in the leaf stems or petioles used in food preparation is very low, and their tart flavor instead is caused by nontoxic malic acid. Plants in cultivation are propagated by vegetative and generative methods by cutting up the crowns of larger plants and by seeds.

Keywords*: Rheum rupestre,* species, genus, *Polygonaceae* family

PP-85

Population Structure and Ethnobiology of *Carum carvi* L. in Azerbaijan Flora

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Azerbaijanian people in own lifestyle using a wide range of medicinal plants, food, paint and household work for created a wealth of history having ethnobiology properties. For many years, preservation and use of the scientific basis of their biological variability are studied in the ethnobiology of plants. Among the plants the *Carum carvi* L. (*Apiaceae* Lindl.) has special interest. *C.carvi* species has been known and use in various regions of Azerbaijan summarized in the fact that the contribution of the food (especially meat and rice dishes), and the healing drink (to strengthen the process of lactation), and medications (gastro-intestinal problems), as well as flavors (perfume, soap-boiling etc.) are used. Given the current state of the studied populations of *C.carvi,* including pharmacology, veterinary medicine as a means of drug use revealed their ethnobiology and their natural resources in flora of the Small Caucasus and of the Nakhchivan Autonomous Republic have been calculated (1000-1200 kg of seeds). Phytocenology evaluations conducted populations, there has been a decrease in the nature of the plant dynamics has been known to say. Age (Δ = 0,44-0,53) and efficiency rate was determined in localities of plants. In folk medicine, veterinary, beekeeping, poultry, discovered the healing properties, as well as the classification has been used for technical purposes. It was established in ethnobiology experiences gained throughout the centuries, from the standpoint of scientific justification, along with a description of experience in the form of future generations and the use of biological control stimulus for the development of the principle. The modern state of C. carvi in Azerbaijan flora is asked to supply the raw material reserves and public areas, many of which can be used more effectively in selected areas, exposed to the danger of extinction for many years in the areas of procurement was carried out reintroduction. Creation is required for the cultivation of plant genetic resources. The dynamics of either oil (0,87-1,2%) of plant seeds collection have been studied. Plant essential oil have antimicrobial, antioxidant and antifungals properties, C.carvi can be used as a source of raw materials in the creation of a new type of medicines.

Keywords: *Carum carvi* L., medicinal plants, essential oil, ethnobiology

PP-86

The First Record of *Raillitiella* sp. (Pentastomida) on *Acanthodactylus harranensis* Baran, *et al*., 2005 (Squamata, Lacertidae) From South-Eastern Anatolia Region, Turkey

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The Raillietiellidae family is represented by the single pentastomid genus *Raillietiella*. In this study, we observed the *Raillietiella* sp. in the lungs of Harran fringe-fingered lizard (*Acanthodactylus harranensis*) samples collected from it's "terra typica" the ruins of the Ancient University in Harran, Şanlıurfa (South-Eastern Anatolia Region) Turkey. This is the first report of *Raillietiella* sp. on reptiles from Turkey.

***Keywords*:** *Acanthodactylus harranensis*, Fringe-fingered lizard, Pentastomida, *Raillietiella,* Tongue worms

PP-87

A preliminary helminthological study on the Denizli Rooster, with the fecal examinations from Denizli, Turkey

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Denizli rooster is renowned in Turkey, according to it's colour, prolonged and harmonious crowing. In this preliminary research, some Denizli rooster's fecal samples examined for the first time for helminths. Fecal examinations performed with "Füelleborn Flotation Method" for helminth eggs. We observed some Nematode eggs (e.g. *Capillaria* sp., *Heterakis* sp.). Denizli rooster represents a new host record for all observed helminths.

***Keywords**:* Denizli rooster, Fecal sample, Helminth, Nematode.

PP-88

Age structure of *a Bufotes variabilis* (Variable toad) population from Yeniköy (Antalya, Turkey)

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The age structure of *Bufotes variabilis* (Pallas,1769) population living in the Yeniköy village near Antalya, Turkey was determined using skeletochronological method which based on counting the lines of arrested growth (LAGs) in cross-sections taken from phalanges. The maximum observed lifespan was 8 years for both males (n= 5, mean= 4,24, range= 2-8 years) and females (*n*= 25, mean= 5,80, range= 4-8 years). Mean body size was found 75.42 and 79.26 mm for males and females, respectively. Age at maturity was estimated as 3 years for males and 4 years for females. Endosteal resorption which is the replacement of the periosteal bone and endosteal bone was obserbed 26% of the all individuals. According to Student *t*-test, differences in mean age between sexes were not statistically significant (*t*= 1,868, df= 28; *p*> 0,05). Age and body size were positively correlated in only males (*r*= 0,887, *p*< 0,001).

Keywords: *Bufotes variabilis,* age determination, skeletochronology, lifespan, body size

PP-89

Potential distribution and morphology of a rare pontic endemic viper species *Pelias barani* (Böhme and Joger, 1983) in Turkey

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A female *Pelias barani* specimen, which is a rare pontic endemic viper species together with a new locality record, was found in village Büyükköy of Çayeli, Rize, at 529 m above sea level. Female *Pelias barani* specimen has morphological similarities in terms of color and pholidosis pattern like other specimens in the literature. Since *P. barani* is a rare species, new locality records are very important in order to understand the distributional ranges of the species. According to IUCN Red List, *Pelias barani* (*Vipera barani* in IUCN) is listed as near threatened (NT) and it is known as pontic endemic. Population trend of *P. barani* has been decreased because of the international pet trade, habitat loss, and persecution, and so it is going to have been listed as vulnerable (V) under the red list category in the near future. Literature information about its distribution and ecology are very scarce. Therefore, it's a new locality record might be useful for conservation of this pontic endemic viper.

Keywords: New locality, *Pelias barani*, Rize, Turkey

PP-90

Using of Dolihos Ordinary as a Great Decorative Plant in Azerbaijan

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Dolihos is a leguminous plant that brings an unprecedented charm. Line, the artist appearance that lasts until frost looks great with both the flowers and the fruits. The genus belongs to the family Dolichos beans (Fabadae L.) and includes about 70 species. Dolihos ordinary also named as (curly lilac, black beans) - one of the oldest cultures of Asia and Africa. In remote times Dolihos got to Asia and some forms of it run wild. There is widely cultivated in the Caucasus and Crimea. A common view of culture previously attributable to the genus Dolihos (Dolichos Lablab), now isolated in the genus Lablab Adans, called Lablab purpureus (L.) sweet. In some countries it is an important food crop (India, Egypt), decorative - subtropical countries in Europe, for new cultivation areas (America) is used mainly in the food and as an ornamental plant. The Bengal is a vegetable crops. In Azerbaijan, it was first studied as forage and ornamental plant. The seeds were brought from the Krasnodar region. In the studies we have obtained excellent results, i.e., in both cases, its green mass is held from the beginning of June until the end of November. This legume cross-pollinated. It is good that there everything is absolutely decorative: flowers, leaves, beans. They are curly annual. The culture grows more than 3 m in height. Grow hyacinth beans (Dolihos) for decoration cannot be only in the garden but also on the balcony. Like other vine, dolihos is often decorated in chalet structures, such as gazebos or the walls of the houses. Any place is lovely that a plant makes an unprecedented charm. Decorative appearance is preserved until frost; the plant looks great with both the flowers and the fruits in the form of pods.

***Keywords**:* Giasint bean, grain bean, crossed pollinate, decorative

PP-91

The Current Conditions of Trees and Bushes of The North-Eastern part of The Greater Caucasus Ismayilly Forests

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This article has provided an information about the current status of Ismayilly forests and Shahdagh National Park region which flora rich with trees and bushes. Shahdagh National Park and Ismayilly forest has hold as well as a special place in forests of Greater Caucasus due to the size of the richness of vegetation and forest territory. We know that this area has a rich flora. There are studied the situation in the last 50-60 years the species composition of the forest trees, bushes, plants and their biology structure. Therefore, the main objective of our researches in those areas are aimed to investigate the current status of the species to preserve the dendroflora of genefond, to discover a new plant species. The effects of floristic regions of forests of the north-east part of the Great Caucasus and their colorful vegetation are led from the richness of flora, from its physical geography and nature, from the historical conditions due to its compound history. During the expeditions to the north-eastern part of the Greater Caucasus to Shahdagh National Park and to Ismayilly forests, all the areas have been studied, there have been collected herbariums, there has been analyzed all conditions of trees and bushes. Plants are existing in zones depending on climate and soil conditions of the vegetation. Plants relating to the need of light moved to tier adapted to live together in forests in different floors. We have studied the several tier placements of plants in these forests. At the top of the first forest tier are consisted of mainly of oak trees- *Quercus longipes, Carpinus caucasica, Alnus barbata, Carpinus orientalis, Faqus orientalis, Ulmus suberos, Ulmus foliacea*. At the second tier has consisted of *Acer L., Pyrus caucasica, Prunus divaricata, P. caspica*, *Tilia L*., *Sorbus L. trees. At the third tier are consisted of Crataegus L*, *Mespilus germanica,* Svida australis trees. And at the fourth tier of the forest are consisted of wood plants. At the fifth tier are consisted of mosses and lichens. There are determined by ourselves the natural and cultural conditions the taxonomic compositions of cultivated trees and bushes in natural Dendroflora. There are selected the species for greening they are recommended by promising to appoint using them plant in newly built highways, parks and gardens to improve our infrastructure and our environment .

Keywords*:* The Greater Caucasus, Ismayilly forest, bushes and trees, mosses and lichens

PP-92

Some Heavy Metal Contents Related With Different Physiographic Units and Land Use in Van Lake Basin

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The objective of this study was to determine the relations among some heavy metal contents related with different physiographic units and land use in Van Lake Basin. Surface soil samples (0-20 cm) were taken from forty different points having three different physiographic units (backslope, footslope and terrace) and three different land use (wheat, clover and pasture) in Van Lake Basin. Some soil properties heavy metal contents (Al, Cd, Cr, Ni, Pb) changed due to land use and physiographic units. The means of Al, Cd, Cr, Ni and Pb varied between 103.567-68.174 ppm, 0.514- 0.448 ppm, 2.789-2.513 ppm, 2.139- 1.923 ppm and 0.247- 0.132 ppm respectively.

***Keywords*:** Land use, physiographic units, heavy metal contents

PP-93

N resorption in *Castanea sativa* Miller (Sweet chestnut)

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Nutrient resorption is among the major strategy that is used by plants to preserve minerals before senescence. The resorption and elimination of minerals from senescent leaf and their gathering or storage in the perennial parts of trees are a common event. In this study, nitrogen (N) resorption parameters associated with forest ecosystem were researched in *Castanea sativa* Miller (Sweet chestnut). For this purpose, Fırtına Valley in Rize was selected as a study area and the leaves collected along an elevation gradient from 347 m to 1039 m. From these chosen localities, leaves were regularly collected in May, June, July, August, September and October. N concentration by Dumas was determined. While N resorption proficiency (N-RP) showed statistically significant differences, there were no significant differences in terms of N resorption efficiency (N-RE). The highest and lowest N-RE was at 347 and 700 m, respectively. The highest and lowest N-RP was at 347 and 1039 m, respectively. N-RE and N-RP (%) values ranged between 49 and 0.8, respectively. According to the obtained data, N-RE (49%) value was found within normal limits. The foliar N resorption generally increased in parallel with altitude. N-RP value was above of the stated limits (<0.7% for N-RP). *Castanea sativa* did not show full resorption with respect to threshold values.

Keywords: Altitude, *Castanea sativa* Miller, N resorption.

PP-94

Bacillus sp. 5O5Y11 strain ameliorates copper stress induced damages in maize seedlings

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It is planned to measure in this study that the efficiency of 5O5Y11 isolate which is isolated from Ovit Plateau orchids root soil on lipid peroxidase activity of maize plants in the presence of copper. Experimental design was created as maize, maize+bacteria, maize+Cu 50 mM, maize+bacteria+Cu 50 mM and maize+bacteria+Cu 100 mM. Maize plants were grown 16 h day, 8 h night, 70% relative humidity and at 23 °C temperature conditions in climate cabinets. Bacteria and copper was performed on the 8th and 15th day of germination to samples, respectively. This experiment was terminated after 1 week and samples were prepared for the analysis. Root and leaf lipid peroxidation analysis of maize plant was determined by Heath and Packer (1968) method. While Cu (50-100 mM) concentration caused to membrane damage in the root and the leaves of maize plants, alone bacteria and bacteria+Cu (50-100 mM) combination significantly repaired this damage. According to statistical analysis results, it was found that *Bacillus* sp. 5O5Y11 strain when used alone as rhizoid bacteria decreased at significant level ($p<0.01$) the root and leaves membrane damage of maize plants. The membrane damage of maize plant was largely tolerated in the presence of bacteria. As a result, *Bacillus* sp. 5O5Y11 strain may be concluded as a suitable strain for bioremediation.

Keywords: *Bacillus* sp. 5O5Y11 strain, copper, lipid peroxidase activity, maize

PP-95

Ways of strengthen forage economy in farms in the Autonomous Republic of Adjaria

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Due to the lack of sufficient space of hayfields, pastures and crops forage crops cult event and technical work to improve their productivity and increase crop perennial forage crops sowing beans. Further intensification of livestock, increase production and procurement of livestock production in the region in general and subsidiary farms of Adjaria in the future will largely depend on the improvement works on the production and procurement of feeds. Ajar Autonomous Republic is one of the mountainous and land-poor regions of Georgia, which does not have enough of hayfields and pastures to meet the needs of existing animals on the different types of feed. These grasslands have low herbal composition, the low yield of the green mass of grass and hay. Therefore, the main task was the development of animal husbandry in the region is increasing and effective use of each hectare of natural grasslands and pastures as far as possible, increase in plantings of annual and perennial forage crops. Analysis of existing data shows that per hectare hayfields, pastures and crops fodder crops account for head of cattle, which is very high. However, because of the length of the winter season, summer grazing period lasts until the first half of October, after which the population and farmers have to keep animals on a very meager feeding (straw, hay, poor-quality feed, and so on. D. Results in reduced milk yield and reduced lactation period. In order to interest farmers and the population include pets in such circumstances, the first thing to change the current practice of harvesting and use of feeds. The practical implementation of the above mentioned can be achieved by carrying out of work on the cult-natural grasslands and pastures cleansing them from stones and harmful herbal formulations. Where is it possible to feed crops need to increase the proportion of perennial forage crops.

Keywords: Forage, cattle, farm, livestock, interest of farmers

PP-96
Biodiversity conservations of Institute of Dendrology

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Institute of Dendrology is the greatest Azerbaijan place on preservation of plants genofunds, the conservation of environment and also the place on development of landscape architecture. Climate features of Absheron peninsula is near to regions of dry subtropics. Many introduced plants from subtropical areas of Africa, Asia, the Mediterranean areas; California, Mexico, etc. have grown well and they have been well developed in Institute of Dendrology. In Institute of Dendrology are collected over 520 species and many forms of trees and bushes which are belonging to 83 families, 165 genuses. There are studied by systematic ways their growth and developments, heat and drought resistance, seed and vegetative proportions, the agro-technical care, anti pests and disease actions. Plants collection funds are divided into two groups: Gumnospermes (8 families, 14 genus, 78 species) and Angiospermaes (75 families, 151 genus, and 442 species). Gymnospermes 16, 5%, Angiospermaes 83, 5% make a general view. There are also *Rosaceae* familiy and species(20 genus, 55 species), *Fabaceae* (14 genus, 28 species), *Cupressaceae* (5 genus, 50 species), *Caesalpiniaceae* (6 genus, 20 species), *Anacardiaceae* (4 genus, 13 species), *Moraceae* (5 genus, 9 species), *Oleaceae* (8 genus, 17 species) and etc. The vital forms of plants collections in Institute of Dendrology are distributed into 3 groups: trees (210 species, 43,2%), bushes (270 species, 50,0%) and lianas (40 species, 6,7%). Studying of their bio ecological features represents the big scientific interests and it has important practical value, represents interest for our decorative gardening. It is characteristic that the early-spring period when the majority trees and bushes genus Mediterranean and East Asian origin in dry subtropical conditions are early blossom, but vegetation of North American species are flowering late. This is their feature appearing; of course, it influence on decorative effects, on thanks to such biological features of a plant resistance the late spring frosts avoidance. Results of long-term analysis introduction decorative trees and bushes, plants show that North American floristic provinces are perspective areas for introduction new species in different regions of Azerbaijan.

Keywords: Introduction, reproduction, species, genus, growth

PP-97

Change of Indicators due of Local Drought Impacts on Introduction and the Productivity of Wheat Genotypes

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There are explored the effects of drought condition of plants, especially to wheat productivity in many scientific studies as a result of focuses on the study of physiological and biochemical indices of change, drought-resistant plants, based on their fixed rate. It understands as adaptation of organism process of its structure and functions to environmental conditions. Adaptation is reached by means of various mechanisms: genetics, biochemical, physiological, morph-anatomic, etc. It is raising the knowledge of physiological bases of stability of plants allowing development of both assessment methods on this signs and receptions. All measures of fight against damages of plants require also understanding of the physiological reasons of their emergences. Under the influence of various adverse factors in plants the special condition called by a stress as a rule of developers. In some studies, the effect of drought on productivity is measured only in the final result of the productions. Thus, it remains unclear by the physiological process playing key role in one or other performances. There is completed in development stage growth in their own right as soon as the quickly grow species until the severe drought. In otherwise, the vegetation period extending species of don't fill up grains result of the expiry of the acute drought leads to a decrease in productivity. Finally, note that the living conditions and biological factors need to be complied with the requirements of the physiological processes going on in their activities and they are weaker violation in the development of some cases or they are terminated. Instead, the plants give higher yields by providing the necessary factors during normally development. The needs are different depending on those factors in these and in other plant species and even in their individuals. It is a first major task in face of agriculture, to learn the demand on cultivated agricultural crops and to create favorable conditions for their normal development.

***Keywords**:* Wheat genotypes, plants, drought-resistant plants, biochemical indices

PP-98

Peculiarities of Aboriginal Trees and Shrubs of Nakhchivan Autonomous Republic (Azerbaijan)

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Nakhchivan Autonomous Republic is considered to be a complicated and quite diverse territory in natural respect. It has been sufficiently studied and intensively developed. The forest resources have been exploited for a long time. The arboreal and shrub flora of Nakhchivan Autonomous Republic is notable for its richness. Such richness of dendroflora, which includes a great majority of economically valuable, rare, relic and endemic species is dependent on diversity of soil and climate conditions, complexity history of geology, flora and vegetation as well as specific geographical position of Nakhchivan Autonomous Republic. On the basis of results of the carried-out research works and the analysis of scientific materials it is established that dendroflora of the Nakhchivan Autonomous Republic consists of 439 species, 5 variations and 2 forms relating to 141 genera, 62 families, 44 rows, 4 classes and 3 sections. Thus, in the dendroflor of the territory are included into structure 446 taxons, from them 151 trees, the 180 bush, 39 semi-bushes, 22 low shrubby, 42 under-shrubby and 12 lianas. The aboriginal dendroflora counts 339 species, 107 species meet in the culture. In dendroflora composition key role has *Rosaceae* Adans. family, which includes 104 species from 17 genera (more than 30% of dendroflora). The largest families are *Fabaceae* Lindl. (46 species), *Chenopodiaceae* Vent. (29) and *Salicaceae* Mirb. (14). The largest genera are *Pyrus* L. (17 species, 3 variations), *Rosa* L. (29), *Sorbus* L. (12), *Salix* L. (9) and *Crataegus* L. (17). The area of Nakhchivan Autonomous Republic is considered to be one of the ancient centers of development of tree plants, a big number of endemics verifying this fact, first of all species of *Pyrus* L., *Sorbus* L., *Crataegus* L., *Astragalus* L. Their role and quantitative representation in different formations of woody plants vegetation is completely different, which depends on the conditions of the locations and type of vegetation as well as bioecological features of separate species. The dendroflora of Nakhchivan Autonomous Republic is recognized by broad amplitude of its vertical zonal adaptation. The woody plants are spread from the lowest sites (600 m a.s.l.) up to alpine meadows (3000- 3500 m a.s.l. and more). The dendroflora is richest presented in the limits 1600 – 1800 (2000) m a.s.l. In each 100 m height are available 70 % of the whole dendroflora. Similar regularity is noticed also in local separate regions.

***Keywords*:** Nakhchivan Autonomous Republic, aboriginal dendroflora, specific structure

PP-99

Effect of *Agrobacterium rhizogenes* strains and explant types on the induction of transgenic hairy roots of *Nitraria* species

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Nitraria is rich in alkaloids and phenolic compounds, which determines its medicinal properties. They are used in case of poisoning, upset stomach, ulcers, gastritis, enteritis, heartburn, colitis, colonic abdominal pain as well as antispasmodic, antineuropathic, and anti-arrhythmic agents. As a result of recent study it has been shown that Nitraria may have potential as an agent of chemotherapeutic and cytostatic activity in human leukemia lymphoma. Due to the limited reserves of these plants in nature, there is a need for biotechnological methods to produce drug raw materials preserving biosynthesis of biologically active substances. One method of solving this problem is development of a technology of genetically transformed hairy root cultures capable of biosynthesis of valuable secondary compounds. The aim of this work was to obtain stable-growing hairy root cultures of *Nitraria sibirica* and *Nitraria schoberi* and primary analysis of samples for the content of biologically active substances. Hypocotyls, cotyledons and primary leaves of two-week sterile seedlings obtained in the in vitro culture, transformed strains: A4-RT; R-1601; 8196-RT; 15834 SWISS A. rhizogenes, kindly provided Kuzovkina I.N (Timiryazev Institute of Plant Physiology, RAS). Explants were cultured on solid MS medium supplemented with cefotaxime (500 mg/l) in low light conditions before the onset of transformation. Then hairy root cultures were transferred to free of growth hormones liquid medium: ½ MS, MS, B5, Street (S), BDS. Analysis of individual phenolic compounds was performed on an analytical HPLC system.

Keywords: *Nitraria, Agrobacterium rhizogenes,* HPLC, phenolic compounds, in vitro

PP-100

Ornithogalum L. Species of Northeastern Caucasus (Azerbaijan land)

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Establishment of the Republic of Azerbaijan on the border of Asia and Europe has led to a rich flora and fauna. In this respect, over 4,500 plant taxa have been registered in Azerbaijan flora. Caucasus is of great importance for this species richness. Caucasus is a heaven for plants, especially Geofit. The over 300 GeoFit taxa were recorded at the foot of Caucasus Mountains of Azerbaijan, more than 100 of them widespread in the northeastern part of the Caucasus. One of the species that have wide distribution in this region is Ornithogalum L. While 12 species of genus distribute in land of Azerbaijan, 5 species of genus distribute in northeastern Caucasus. Said species are O. pyrenaic L., O. schischicini the Krasch., O. schmalhaus the Albov, O. sintenisi Frey, O. tenuifolia Guss. Last years, due to the works being done at the scope of energy, industry breakthroughs and road construction on the land in Azerbaijan, is known that populations of *O. schischicinii* Krasch., *O. schmalhausenii* Albov, *O. tenuifolium* Guss. species gradually decreased and to be confronted with the danger of cutting the stems of this species. So species should be transferred immediately to the gene bank to prevent cutting of the roots of the plant and plants that replicating in vitro should be spread in the botanical garden. There are a lot Works in institute of Mardakan Dendrology about cultivation of many plant species and prevention of endangered species.

***Keywords*:** *Ornithogalum* L., Caucasus, species, *in vitro*

PP-101
Plant Diversity of Rize (TURKEY)

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Rize is 3920 km^2 without lakes. It has a very rough and high mountainous geomorphology. According to phytogeographic and florisitic zone Rize is in the boder-line of Coclhic sub-area of Euro-Siberian floristic area which belongs to Holoarctic Floristic zone. “Kaçkar Mountains Important Plant Area” which is one of the 144 important plant area of Turkey is within the northeast Anatolia Plant Diversity Center (SWA.199). In accordance with the international convention there are treantened plant species and habitats which must be protected in Rize. Rize is at A8 and A9 square according to the grid system adopted by P.H.Davis (1965-1985). Ptreidophyta taxa are rich in the flora of Rize. Rize flora has % 73,2 of 71 Turkish Pteridophyta taxa which belong to 14 genus and 12 families of this division. These taxa have very important role in the formation of vegetations and especially the diversty of forest habitats. The main reason of the Pteridophyta species richness is the climate, topography and ecological conditions of the region. The Gymnospermae taxa diversty are not rich in Rize. Gymnospermae taxa are represented by 6 species belong to the families and genus *Pinaceae* (*Pinus, Abies, Picea*) *Cupressaceae* (*Juniperus*), *Taxaceae* (*Taxsus*). Eventhough the species *Pinus sylvestris, Taxsus baccata, Abies nordmanniana* ssp. *nordmanniana, Juniperus excelsa* and *Juniperus sabina* are local and rare, *Picea orientalis* is very abundant and spreads as mixed and unmixed forests. It is determined that the flora of Rize is consist of 1648 taxa belongs to 444 genus of 110 family. Some of these taxa are exotic while most of them are naturally spread. Spermatophyta is represented by 1597 taxa in Rize flora. 1238 taxa belong to 363 genus and 84 families are in class Magnoliopsida while 308 taxa which belong to 62 genus of 12 families in class Liliopsida. According to the IUCN threatened categories there are 91 threatened taxa in Rize; EN 13, VU 25, LR(lc) 31, LR(cd) 14, LR(nt) 7 and DD. In Turkey there are 87 species according to Bern convension and 2 of them are naturally spread in Rize. In accordance to CITES convension 113 species are in Turkey and 3 of these spread in Rize. In Rize, there are 118 relict and endemic species such as *Delphinium formosum* Boiss., *Delphinium dasystachyum* Boiss, *Cyclamen coum* Miller var. *coum*, *Sorbus caucasica* var. *yaltirikii* Gökşin, *Sorbus subfusca* (Ledeb.) Boiss., *Taxus baccata* L., *Quercus pontica* C. Koch, *Betula browicziana* A. Güner, *Salix rizeensis* A. Güner, *Dianthus carmelitarum* Reut., *Astragalus viridissimus* Freyn, *Allium balansae* Boiss., *Doronicum balansae* Cavill., *Lilium carniolicium* Bernh. ex W. Koch subsp. *ponticum* (C.Koch) P.H. Davis & Hend. var. *ponticum*, *Heracleum sphondylium* subsp. *cyclocarpum* (C. Koch) Davis, *Festuca pontica* E. Alexeev, *Jasione supina* subsp. *pontica* (Boiss.) Dalboldt, *Amelancher rotundifolia* (Lam.) Dum.-Courset etc. which have to be followed. In Rize there are 14 different habitat which is rich according to the target species; 1. Orient beech-Orient spruce forests, 2. Orient beech-Chesnut forests, 3. Orient horn beach forests, 4. Mixed chesnut-Orient beech forests, 5. Blacksea region orient spruce forests, 6. Blacksea Caucas mountainous alder galleries, 7. East Blacksea box forests, 8. East Blacksea shrub formations, 9. East Blacksea pseudomaquis formations, 10. East Blacksea subalpine meadows, 11. East Blacksea alpine meadows, 12. East Blacksea alpine shrubs, 13. East Blacksea alpine watery vegetations, 14. East Blacksea high mountainous rift formations.

***Keywords*:** Rize, Habitat, Plant Diversity, Flora

PP-102

The Biological Diversity of Lichens in Azerbaijan and Their Protect

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The lichens are a widespread group of organisms in all the plant and climatic zones of the Earth. Thanks to their ecological peculiarities the lichens are found in all the geographical latitudes and various ecological conditions, and play the significant role in the functional system of the nature. They play a great role in the addition and dynamics of many plant associations, especially at first stages of the inhabitation of the exposed substrate, and are the “pioneers” of the cliff mastering. The lichens are the composition parts of the most important plant formations of the Azerbaijan, and some of them take the dominant position. The lichens are widely used as the indicators of the air pollution. The practical importance of the lichens for the national economy is significant. They are used in medicine, cosmetology and confectionery industry; serve as the raw material in obtaining the dyes. The duplicity of the lichens nature, their high ecological plastic is of the interest from the biological point of view. The inadequacy of information about the biodiversity of the lichens in some geographical regions doesn’t allow the wide-ranging and exhaustive study of the appropriate ecosystems. That is why the study of the biodiversity and the groundwork of the scientific basis of the plant protection are the urgent tasks of the botanists. The research of the biodiversity is “the basis of any biological research”. The lichen flora of Azerbaijan is extremely rich and various. This richness is tied up with the diversity of ecological conditions and geographical location of the territory.

Keywords*:* Lichens, plant, genus, species

PP-103

Biological Features of *Sambucus ebulus* L. in Azerbaijan Condition

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Genus of *Sambucus* L. includes to the family of Caprifoliaceae Vent., under the last nomenclature to family *Sambucaceae* Batsch ex Borkh. From 20 species and genus of *Sambucus* L. in Caucasus 4 species and in Azerbaijan 2 species have wild grown: *S.ebulus* L. and *S. nigra* L. besides some species has met only in culture. *Sambucus ebulus* L. - the elderberry grassy has represented a high perennial plant in(70-250 cm) with a powerful creeping roots and with one simple, not branchy stalk bearing on top large shield shaped, a flat inflorescence. Stipules are foliaceous, lancelets and serrate. Leaves in petioles, from 6-9 (11) leaflets, leaflets are lancelets or linearly-lancelets, pointed, in the basis usually slanting, on the edge are serrate, naked or from below with the short descended. Flowers are on the top, large shield shaped panicle, flat inflorescences, with three main, strong things ramificated branches. Corollas are white, sometimes are pink in outside, 6-8 mm in diameter. Anthers are red. Fruits are globe shaped, black, 3-4 mm in diameter, with 3 (4) stones. Flowering is observed in June - August, and fructification is observed in September-October. Observations have shown that in Absheron conditions growth of *Sambucus ebulus* L. begins mainly in the beginning of May, depending on the meteorological conditions of the year, ending at the end of September-October (150 ± 7 days). At the end of the growing season plant's height reaches 90-160 cm, diameter of roots collar reaches 10 mm, diameter of crowns reaches 80 cm, buds appeares at the beginning of June, blooms appeares in late June. In July is observed full blooms, lasted until the end of August, the seeds will be ripen in late September. Thus, according to conducted the introduction studies *Sambucus ebulus* L. plant has been revealed in this successfully acclimated seeds position in Absheron conditions. This plant is also introduced for medicinal use.

Keywords: *Sambucus ebulus* L., growth, introduction, herbs, species

PP-104

Botanical and Medical Use of *Ceratonia siliqua* in Azerbaijan

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Ceratonia siliqua, commonly known as the carob tree, St John's-bread,[1] or locust bean (not to be confused with the African locust bean) is a species of flowering evergreen shrub or tree in the pea family, Fabiaceae. It is widely cultivated for its edible pods, and as an ornamental tree in gardens. The ripe, dried pod is often ground to carob powder which is used as a substitute for cocoa powder. It is native to the Mediterranean region including Southern Europe, Northern Africa, the larger Mediterranean islands; to the Levant and Middle-East of Western Asia into Iran; and to the Canary Islands and Micronesia. The word carat, a unit of mass for gemstones and a unit of purity for gold alloys, was possibly derived from the Greek word keratin literally meaning a small horn, and refers to the carob seed as a unit of weight. The Ceratonia siliqua tree grows up to 15 metres (49 ft) tall. The crown is broad and semi-spherical, supported by a thick trunk with brown rough bark and sturdy branches. Leaves are 10 to 20 centimetres (3.9 to 7.9 in) long, alternate, pinnate, and may or may not have a terminal leaflet. It is frost-tolerant to roughly 20 degrees F. Most carob trees are dioecious, some are hermaphrodite. The male trees don't produce fruit. The trees blossom in autumn. The flowers are small and numerous, spirally arranged along the inflorescence axis in catkin-like racemes borne on spurs from old wood and even on the trunk (cauliflory); they are pollinated by both wind and insects. The fruit is a legume (also known less accurately as a pod), that can be elongated, compressed, straight or curved, and thickened at the sutures. The pods take a full year to develop and ripen. The ripe pods eventually fall to the ground and are eaten by various mammals, thereby dispersing the seed. The seeds of Ceratonia siliqua contain leucodelphinidin, a colourless chemical compound.

Keywords: *Ceratonia siliqua,* genus, species, plant

PP-105

Determination of the plants which have characteristics as weed belonging to *Brassicaceae* family in Agrı Mountain- Igdır Province

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Some of the plants that make up the flora of our country are available in agricultural areas and damage to crops. In order to determine the plant which have characteristics as weed in cultivation areas belong to *Brassicaceae* family a floristic study was carried out in Agrı mountain- Igdır province between 2011-2015. As a result of floristic studies 20 species belong to 16 genus of *Brassicaceae* family were identified. Among the identified species 14 species were determined as a weed that make problems in agricultural lands. This species were as follows: *Alyssum montanum* subsp. *montanum*, *Erysimum senoneri* (Heldr. & Sart.) Wettst. Subsp. *İcaricum* Snog, *Cardaria draba*(L.) Desv.*subsp. Draba* (L.)Desv., *Cardamine lazica* Boiss & Balansa, *İsatis candolleana* Boiss., *Lepidium vesicarium* L., *Peltaria angustifolia*, *Rindera lanata* var.*lanata*, *Rapistrum rugosum* (L.)All., *Sinaps arvensis* L.var.*orientalis*, *Sinapis alba* L., *Boreava orientalis* Jaub. et Spach., *Capsella bursa-pastoris* (L.) Medik., *Descurania sophia* (L.) Webb ex Prantl.

Keywords: Agrı Mountain, *Brassicaceae,* Weed

PP-106

Determination of the plants belonging to *Liliaceae* family in Agrı Mountain-Igdır Province and use their in landscape design

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On of the issue of sustainable landscape is using existing plants in natural environment in order to ornamental plants. Usually these plants are suitable for used groundcovers and rock gardens. The aim of this study is determine the plant belong to *Liliaceae* family in Agrı mountain- Igdır province between 2011-2015. As a result of floristic studies 23 species belong to 11 genus of *Liliaceae* family were identified. The genus and their species number were as follows: *Allium:* 6 species, *Asparagus:* 1, *Bellevalia:* 3, *Colchicum:* 2, *Fritillaria:*1, *Gagea:* 1, *Scilla:* 1, *Linum:* 1, *Muscari:* 2, P*uschkinia:* 1, *Ornithogalum:* 4. The mong of determined genera are plants that use in Europe and Asia's landscape. This species were as follows: *Allium akaka* S. G. Gmelin , *Allium balansae* Boiss, *Allium ağrıdağensis (armenum)* Boiss.&Kotschy. et Y.Z., *Allium hirtifolium* Boiss.var.*hirtulum* Regel, *Bellevalia gracillis* Feinbrun, *Colchicum szovitsii* Fisch.& Mey.subsp. *szovitsii*, *Fritillaria caucasica* J.F.Adam, *Muscari comosum* (L.) Miller, *Muscari neglectum* Guss., *Puschkinia ssilloides* Adams. For the reason of little or no produced in Turkey, these spesies are imported from Europe countries. This species can easily be produced in Turkey and used be in the landscape. These plants is important requirement for the decoration and enrich of parks and gardens. The produced of these spesies is very important for local people's economic benefits.

Keywords: Agri mountain, *Liliaceae,* landscape

PP-107

The Extraction Ability and Selectivity of Porphyrazine Derivatives Towards Some Transition Metal Cations

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The synthesis of novel metal-free and magnesium porphyrazines, peripherally substituted with dithia-dioxa (O_2S_2) and tetrathia (S_4) 14-membered macrocycles were performed by cyclotetramerization of (6Z)-1,3,4,9,10,12-hexahydro-2,5,8,11-benzodioxadithiacyclotetradecine-6,7-dicarbonitrile or (6Z)-1,3,4,9,10,12-hexahydro-2,5,11-benzotetrathiacyclotetradecine-6,7-dicarbodinitrile. The metal free porphyrazines have been obtained by known route. The structure of compounds were characterized by el-emental analysis and ^1H, ^{13}C NMR, IR, UV-vis, and MS spectral data. The solvent ex-traction properties of the synthesized compounds towards some transition metal cations, such as Ag(I), Hg(II), Cu(II), Mn(II), Cr(III), Ni(II), Pb(II) and Zn(II) has been investigated. The effect of Cu^{2+}, Mn^{2+}, Ni^{2+}, Pb^{2+}, Sr^{2+}, Al^{3+}, Ba^{2+}, Cd^{2+}, Hg^{2+}, and Ag^{+} ions on the absorption spectra of the compounds were investigated by means of spectrophotometric method. Magnesium porphyrazine with O_2S_2 interacted within Hg^{2+} ion specifically of all the tested metal ions.

Keywords: Heavy metals; Transition metal cations; Extraction selectivity; Environmental pollution

PP-108

The comparison of Effects of Gamma Radiation of Crude Oil Yield on some *Carthamus tinctorius* (Safflower) and *Sesamum indicum* (Sesame) Seeds

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This work compared the effects of different doses gamma radiation on seed crude oil yield *Carthamus tinctorius* (Aspir, Safflower) and *Sesamum indicum* (Sesame) seeds. As materials; Dinçer and Remzi bey (Safflower), Sarısu and Tanas (Sesame) varieties seeds were used and irradiated with doses of 0 (control), 100, 200, 300, 400 and 500 Gy gamma radiation. Irradiation was performed in a cesium (Ce^{137}) Gammacell 3000 Elan source, dose rate about 9.75 Gy/min (2900 Ci) in the Pamukkale University Faculty of Medicine. Moisture amount of seeds were also measured by AOCS standarts. Extraction of the seeds was done with soxhlet apparatus using petroleum ether by hot continuous extraction for 6 hours. It was found that the highest humidity rate in 100 Gy for all seeds variety. The humidity rate ranged between 2.75 and 14.80% in Sarısu and Remzi bey, respectively. After gamma radiation application, the crude oil yield increased in Remzi bey (Safflower) and Tanas (Sesame) seeds. The highest crude oil yield was determined at 300 Gy and 31.63% in Safflower variety Remzi bey seeds.

Keywords: Gamma Radiation, *Carthamus tinctorius*, *Sesamum indicum*, crude oil yield

PP-109

Coastal biodiversity on the Black Sea is threatened by towed fishing gears

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Bottom trawling and use of dredges on the coastal area affect negatively the biological diversity of benthic species. Also, unconscious and uncontrolled fishing are major threats to their economic sustainability. Use of towed fishing gears are quite common in the Black Sea coast of Turkey. Bottom trawl, dredges and hydraulic dredges have been intensively used in benthic fish, whelk and clam fisheries, respectively. In addition, these types of fishing gears disrupt the seabed mechanically and also have high discard rate. Many species are being discarded unnecessarily by fisherman. So, management planning of coastal ecosystems should be fully considered in this area where 501 fishing vessels with different capacities and engine power continue their commercial activities with these gears throughout the fishing season.

Keywords: Black Sea, biodiversity, benthic species, towed gears

PP-110
Modern Ecological Analysis of Polluted Soils

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Ecological situation of Absheron Peninsula is under crisis circumstance. More than 100 years biosphere layer of Absheron Peninsula is under the influence of anthropogenic pressure. Soil-forming conditions of our republic's territory, also the diversity of anthropogenic soil-environmental factors (climate, vegetation, fauna, landscape, soil-forming rocks and human activities) is caused soil-cover variegated. The influence of anthropogenic factors to natural complexes, primarily the effect of soil-vegetation of Azerbaijan is special attract attention. This influence is more clearly seen is Absheron Peninsula. More than 150 mineral deposits which caused drastic changing in the environment of the Absheron Peninsula are exploited. 20 mln.ton wastes collected in the town dump in recent 30 years. 2 mln.m^3 toxic substances in the form of gas taken up to Absheron's atmosphere by industrial and transportation. Two stationary areas are selected on gray-brown soil in the eastern part of the Absheron Peninsula and their figure information is clearly seen on the table. Paying attention to soils indicators which spreading on this area we can see these results mainly between 0-50 cm layers. The indicators of polluted soils are as the following. Thus, in this soils humus is 0,9 %, pH is 9,2. Soil temperature is 25-29°C is hot season of the year in a depth 0-20 cm. It should be noted that, during research this area's radioactivity background was fluctuate between 9-10 microR\h. Absheron is the largest industrial district of Azerbaijan Republic according to industrial production scale. The following belong to Absheron region's industry: 70% of all country's industrial output, 60% of all coastal oil, all oil refining, almost all petro-chemical, more than 80% of mechanical engineering and metallurgy, 30% of electricity, more than 75% of forestry and wood products, more than 40% of food industry, 50% light industry, 70% of construction material's industry. The ecosystem of Absheron Peninsula need to urgent restore works. For the purpose the improvement of soil characteristics it should be done regulate of the area to make it suitable for using, road construction, to settle road-arrival process, to shed new soils to the area. At the biological stage of improvement grow plants at the area. To achieve this, with a certain seguence some agrochemical, agrocultural and fitomeliorative measures are taken. As you know, areas which their soils will make siutable to using do not provide plants demands with nutrients and physical-mechanical properies. Therefore, previously the plants which are less demanding to environment are grown in such areas.

Keywords: **S**oil, anthropogenic factors, plan, polluted soils, fertility

PP-111

Productivity Effects of Organic Fertilizers to Ordinary *Lavandula officinalis* Chaix in Absheron Conditions

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Lavandula angustifolia (lavender or English lavender, though not native to England; also common lavender, true lavender, narrow-leaved lavender), formerly L. officinalis, is a flowering plant in the family Lamiaceae, native to the western Mediterranean, primarily the Pyrenees and other mountains in northern Spain. It is a strongly aromatic shrub growing as high as 1 to 2 metres (3.3 to 6.6 ft) tall. The leaves are evergreen, 2–6 centimetres (0.79–2.36 in) long, and 4–6 millimetres (0.16–0.24 in) broad. The flowers are pinkish-purple (lavender-coloured), produced on spikes 2–8 cm (0.79–3.15 in) long at the top of slender, leafless stems 10–30 cm (3.9–11.8 in) long. The species name angustifolia is Latin for "narrow leaf". Previously, it was known as Lavandula officinalis, referring to its medicinal properties. English lavender is commonly grown as an ornamental plant. It is popular for its colorful flowers, its fragrance and its ability to survive with low water consumption. It does not grow well in continuously damp soil. It is fairly tolerant of low temperatures. It tolerates acid soils but favours neutral to alkaline soils. In some conditions it can be short-lived. The flowers and leaves are used as an herbal medicine,[14] either in the form of lavender oil or as an herbal tea. The flowers are also used as a culinary herb, most often as part of the French herb blend called herbs de Provence. Lavender essential oil, when diluted with carrier oil, is commonly used as a relaxant with massage therapy. Products for home use, such as lotions, eye pillows (including lavender flowers or the essential oil itself) and bath oils, etc., are also used. Both the petals and the oil are the most popular ingredients in handmade soap. Dried lavender flowers and lavender essential oil are also used as a prevention against clothing moths, which do not like their scent. *Lavandula angustifolia* is included in the Tasmanian Fire Service's list of low flammability plants, indicating that it is suitable for growing within a building protection zone.

***Keywords**: Lavandula officinalis* Chaix*,* genus, species, plant

PP-112

Larvicidal activity of *Nerium oleander* L. leaf extract against Pine Processionary Moth (*Thaumetopoea wilkinsoni* Tams.)

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Pine processionary moth (*Thaumetopoea wilkinsoni* Tams.) is the most important defoliator Eastern Meditterrenean Basin. Larval defoliation of this pest results in decreasing the annual diameter incrediment of host trees. Defoliated trees can become highly prone to the incidence of secondary insects. Plant derived products have received increased attention from scientists as they serve as a rich source for novel natural substances possessing insecticidal properties which are safe to human and ecosystem. In this study, the crude aqueous extracts of *Nerium oleander* were reported for larvicidal activity against the pine processionary moth. Mortality was observed for 0, 24, 48, 72 and 96 hours. Aqueous leaf extract exhibited highest larvicidal activity with a LC50 value of 322,5 ppm and 190 ppm after 24 and 48 hours respectively. Further investigations are needed to elucidate this activity against a wide range of all stages of pest species and also the active ingredient(s) of the extract responsible for larvicidal activity should be identified.

***Keywords*:** *Nerium oleander*, leaf extracts, *Thaumetopoea wilkinsoni*, larvicidal activity

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Rhynchocorys elephas subsp. *boissieri* (Scrophulariaceae): An endemic species of Amanos Mountains (Turkey)

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Rhynchocorys elephas (L.) subsp. *boissieri* (Post) Burbidge & Richardson, an endemic taxon was collected in Amanos Mountains (Osmaniye). The first specimens of this species were collected during an expedition by *Haradjian* to the area around Amanos Mountains (Hatay), South Anatolia in August 1891. These specimens were described as *Rhynchocorys* boissieri of a new species by *Post* in 1893. And then, this taxa was reduced to subspecies as *Rhynchocorys elephas* subsp. *boissieri* by *Burbidge and Richardson* in 1970. Some deficiences, dealing with *Rhynchocorys elephas* subsp. *boissieri* were eliminated, and the description was prepared again in this research. As well as the, ıt was given distribution, habitat, ecology and threat category of this taxa.

Keywords: *Rhynchocorys*, Endemic, Amanos Mountains, Turkey

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Characterization of the genetic diversity of tea cultivars from Turkey's Black Sea coast by using ISSR markers

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Tea, made from the leaves of the tea plant, *Camellia sinensis* (L.) Kuntze, Theaceae, is enjoyed globally, and is second only to water in popularity as a non-alcoholic caffeine-containing beverage. The first large scale cultivation occurred in 1937 when 20 tons of seeds were brought from Batum in the Georgian Republic, and planted at the central green house in Rize, yielding 30 kilos of tea. Cultivation then began to spread and become an inextricable part of economic life along the Eastern Black Sea Coast of Turkey. Today, Turkey is the world's fifth largest producer of tea, behind India, China, Kenya and Sri Lanka. Traditional clonal identification methods are inadequate to determine the genetic diversity of tea plants as with other outcrossing crops since the morphological and biochemical traits are influenced by evolutionary changes and environmental conditions within genomic regions. However, molecular techniques, especially those based on DNA markers, provide phylogenetic resolving power to determine genetic diversity for plant breeding. The ISSR technique is more straightforward and a very quick method to determine genetic diversity. In the present study, the genetic diversity and relationships of 18 Turkish tea cultivars were determined using 15 ISSR markers. The similarity indices among these cultivars were between 0.456 and 0.743 based on our cluster analysis by using UPGMA. Our data provide valuable information to find elite parental clones for tea breeding and help farmers in this regard in the Eastern Black Sea coast of Turkey.

Keywords: Tea breeding, Turkish tea cultivars, PCR based markers, UPGMA clustering, Genetic polymorphism

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