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FACULTY OF SCIENCES,  
PHYSICAL EDUCATION AND INFORMATICS**



*International Symposium*  
**Current Trends in Natural Sciences**  
*Book of Abstracts*

April 19-21, 2018



**PITESTI CITY HALL**



**ASOCIAȚIA ROMÂNĂ DE  
PTERIDOLOGIE**



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**Workshop: Challenges and Perspectives in the Knowledge of Human Biology**

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**Workshop: *Increasing the institutional bioeconomic research capacity for innovative exploitation of local plant resources to obtain horticultural products with high added value* – BIOHORTINOV (PN-III-P1-1.2-PCCDI-2017-0332) – the first meeting of the consortium**

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**The exhibition “The Tulip’s Symphony”**

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## PROGRAM

### **THURSDAY – April 19<sup>th</sup>, 2018**

10 <sup>00</sup> – 12 <sup>00</sup>	REGISTRATION OF PARTICIPANTS
12 <sup>00</sup> – 12 <sup>30</sup>	OPENING CEREMONY
12 <sup>30</sup> – 14 <sup>00</sup>	PLENARY SESSION
14 <sup>00</sup> – 14 <sup>30</sup>	COFFEE BREAK
14 <sup>30</sup> – 17 <sup>00</sup>	SESSIONS
17 <sup>00</sup> – 18 <sup>30</sup>	POSTER PRESENTATIONS
19 <sup>00</sup>	FESTIVE DINNER

### **FRIDAY – April 20<sup>th</sup>, 2018**

12 <sup>00</sup>	Workshop: Increasing the institutional bioeconomic research capacity for innovative exploitation of local plant resources to obtain horticultural products with high added value – BIOHORTINOV (PN-III-P1-1.2-PCCDI-2017-0332) – the first meeting of the consortium
13 <sup>00</sup> – 18 <sup>00</sup>	VISIT THE EXHIBITION „THE TULIP’S SYMPHONY”

### **SATURDAY – April 21<sup>th</sup>, 2018**

9 <sup>00</sup>	Social and cultural program
10 <sup>00</sup>	Workshop: Challenges and Perspectives in the Knowledge of Human Biology

**ORAL PRESENTATION****(O-01) CARDIOBIOTHERAPY – BOTANIC REMEDIES AND DIETARY SUPPLEMENTS****Adrian TASE** <sup>1,2\*</sup><sup>1</sup> University of Pitesti<sup>2</sup> Emergency Arges County Hospital Pitesti, Romania\* Corresponding author: [agtase@yahoo.com](mailto:agtase@yahoo.com)

Publishing in 2005 the consensus paper on complementary and alternative medicine practices in cardiovascular care, the American College of Cardiology pointed up cardiologists to a unique dimension of healthcare concepts, research, and practice. As the trend among patients to use complementary and alternative medical therapies has risen exponentially, this growing professional interest has been paralleled by concerns about exaggerated claims of efficacy, quackery, and even toxicity across this largely unregulated pantheon. Even as adjuncts to the high-tech professional care, herbal remedies as garlic (*Allium sativum*), hawthorn (*Crataegus* species), *Ginkgo biloba*, horse chestnut tree extract (*Aesculus hippocastanum*), policosanol, gugulipid (*Commiphora mukul*), red rice yeast (*Monascus purpureus*) have gained popularity. Along with these botanicals, ew mention dietary supplements like: omega-3 fatty acids, antioxidants and antioxydant vitamins, B vitamins, chelation therapy, soluble fiber, soy protein and isoflavones, plant sterols. Last but not least, mild ethanol and caffeine consumption have been associated in a variety of reports with improved cardiovascular outcomes. Cardiobiotherapy, even an enormous area of unregulated and widely used therapeutics, has an ancient and deeply rooted cultural basis and opens the door to a broadened range of options for optimizing cardiovascular care.

**(O-02) IRRIGATION WATER REQUIREMENTS OF SUGAR  
BEET UNDER THE DEFICIT IRRIGATION  
CONDITIONS IN AKARCAI BASIN OF TURKEY**

**Alparslan TEKBAS<sup>1\*</sup>, Suleyman KODAL<sup>2</sup>, İsmail TAS<sup>3</sup>,  
Arman MONSHIZADEH<sup>2</sup> Cenk AKSIT<sup>4</sup>,  
Yusuf Ersoy YILDIRIM<sup>2</sup>**

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Eskisehir, Turkey

<sup>2</sup> Ankara University Agriculture Faculty, Department of Agricultural  
Structures and Irrigation, Ankara, Turkey

<sup>3</sup> Canakkale Onsekiz Mart University Agriculture Faculty, Department  
of Agricultural Structures and Irrigation, Canakkale, Turkey

<sup>4</sup> Ministry of Food, Agriculture and Livestock, Üniversiteler Mah.  
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Climate change will have the most severe impacts on deficit water resources. The decrease in precipitations of a region directly affects the available water volume of that region. A minor decrease in water volume directly or indirectly affects the entire sectors. Among these sectors, irrigation comes first to be effected by water deficit. Possible impacts of climate change on irrigation decrease the agricultural yields and consequently create a food deficiency. Akarcay basin of Turkey is the least-precipitated region of Turkey and highly prone to impacts of climate change. The basin has also the highest groundwater irrigations with excessive withdrawals. Therefore, the present study was conducted to determine the potential impacts of climate change on crop water requirements of sugar beet crops commonly cultivated over Akarcay Basin of Turkey. Long-term (1981-2010) climate data were used to evaluate the impacts of evapotranspiration of sugar beet. IRSIS was used to simulate yield response of the crops under deficit irrigation conditions (40%, 60%, 80% and full irrigation). Recommendations were provided to mitigate the possible impacts of future climate change on irrigation.

**(O-03) INSECTS FROM M. EMINESCU'S POETIC WORK****Asea M. Timuş<sup>1\*</sup>**<sup>1</sup> State Agricultural University of Moldova, Faculty of Horticulture,  
Department of Plant Protection\* Corresponding author: [asea\\_timus@yahoo.com](mailto:asea_timus@yahoo.com)

From the analysis of the insects and others animals in M. Eminescu's poetic works, we mention that in the 457 titles with versatile works (folklore, jokes, clues, proverbs, sayings, ballads, doines, songs, curses, shouts, games, poems) unverified works (chronicles, articles, fairy tales, stories, prose) were recorded 76 popular animal names quoted in 297 papers. They are about 52.03% of which: 54 vertebrates (29 birds in 105 papers, 22 mammals in 75 papers, 2 amphibians in 4 papers and 1 reptile in 5 papers) and 22 invertebrates (20 insects in 95 papers, the spider in 9 papers and a decapod in 4 papers). Most likely for some animals it was possible to establish the taxonomic identity, having its own popular name. But taxonomic identity of insects and spiders, of 21 species was established only for 12, and the other was not possible, the common name being applied to: insects, moths, butterflies, bugs, bark beetles, wasps, bumble bees, flies, spiders and so on. The details and comments about insects and spiders from Eminescu's work are presented below.



**(O-04) THE GEOPOLITICAL SIGNIFICANCE AND  
PROBABLE REGIONAL AND ECONOMIC EFFECTS OF  
THE CANAL ISTANBUL PROJECT**

**Cengiz KAHRAMAN<sup>1\*</sup>**

<sup>1</sup>Istanbul University, Faculty of Engineering, Department of Maritime Transportation Management Engineering Istanbul, Turkey

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At the present time, nearly 80% of raw materials and semi-finished and finished products of commercial value are transported by sea. The global importance of maritime transportation requires minimizing transportation costs and saving time. In this sense, canals help save time and fuel by substantially shortening the route in maritime transportation. Thusly, cargoes can be transported to destinations as soon and cost-effectively as possible. It is clear that waterways such as the Suez, Panama, Kiel, and Corinth Canals offer considerable economic benefits by shortening routes of thousands of miles. As a recent project, Canal Istanbul, designed and conceptualized as a modern project, is thought to serve as an alternative maritime route. Contrary to the other canals across the world, the primary function of Canal Istanbul is to relieve the annual traffic load of 50 thousand vessels and minimize the flow via the Bosphorus Strait rather than to provide a shortcut. As is known, Istanbul has hosted many great civilizations over a history of thousands of years. The city, having been capital to Rome, Byzantine, and Ottoman Empires chronologically, occupies an exclusive place among the cities with waterways. Istanbul was bequeathed a rich historical and cultural heritage, along with which it has a very special waterway, called the Bosphorus. The present study investigates the regional and economic effects of Canal Istanbul from a geopolitical perspective.

**(O-05) EVALUATION OF FROST RISK DATES IN  
ANTALYA AND BURDUR BASINS****Cenk AKŞİT <sup>1\*</sup>, Süleyman KODAL <sup>2</sup>**<sup>1</sup> Ministry of Food, Agriculture and Livestock<sup>2</sup> Ankara University Faculty of Agriculture, Farm Structures and  
Irrigation Department\* Corresponding author: [cenkaksit@gmail.com](mailto:cenkaksit@gmail.com)

The main aim of agriculture is to obtain high quality, high quality and healthy products from the unit side by using agriculture technology which considers contemporary and sustainability. You can reach this purpose; quality seeds, use of seedlings and seedlings, good soil treatment, conscious irrigation, fertilization and pruning are all related to the correct application of agriculture operations. The number of automatic climate stations used by the public and private sector for early warning purposes has reached to 300 and the hourly rainfall, temperature, leaf wetness, soil moisture, soil temperature, solar radiation, wind speed values are measured in these climate stations. The measured values are transmitted to the host computer using GSM technology at certain intervals and then evaluated on the model in this computer to make an estimate for frost, disease and harmful and send the warning notes to the person's mobile phone. In this regard, the necessary precautions for frost are taken immediately, the problem of plant harms and diseases can be used at the right time and at the right dosage without the problem growing too much. Thus, both labor and economic savings are achieved. Frost causes many barriers especially in fruit and vegetable breeding, preventing the plants from continuing their life when temperatures of very low air temperatures fall below critical values. It is not possible for physiological events to occur in the plant after the water in the plant is frozen. This usually causes the plants to die or the yield to be low. Frost events, if necessary precautions are not taken, the producers of the declining production and therefore the economy of our country are affected negatively. In this study carried out in Antalya and Burdur Basins risk dates of frost have been determined. The days when frost formation is expected are determined at different probability levels by different geostatistical methods by using daily minimum temperature of climate stations values in spring and autumn. Inverse Distance Weighted (IDW) and Radial Basic Functions (RBF) methods gave proper results. The frost risk maps for the IDW method for 80%, 50%, 20% probability levels in spring and autumn are given with the digital terrain model of the basins.

**(O-06) WHAT IS THE POTENTIAL OF TULCEA COUNTY  
AS REGARDS THE NON-WOOD FOREST PRODUCTS?****Lucian CIOACĂ<sup>1</sup>, Cristian Mihai ENESCU<sup>2\*</sup>**<sup>1</sup> Faculty of Horticulture, University of Agronomic  
Sciences and Veterinary Medicine of Bucharest<sup>2</sup> Department of Soil Sciences, University of Agronomic Sciences  
and Veterinary Medicine of Bucharest)\* Corresponding author: [mihaienescu21@gmail.com](mailto:mihaienescu21@gmail.com)

Tulcea County has the largest diversity of relief forms, the greatest degree of biodiversity and the highest number of the protected areas from Romania. The purpose of the research was to determine the most important non-wood forest products (NWFPs) for Tulcea County. By taking into account the forest management plans of the eight forest districts managed by Tulcea Forestry Directorate and other relevant data, a selection of the most ten important NWFPs was done. Four categories of NWFPs proposed within the FP1203 COST Action European non-wood forest products network were taken into account and twenty five criteria were used. The Analytic Hierarchy Process (AHP) was used to assess the performance of selected alternatives (the ten selected NWFPs) by means of pairwise comparisons. The analyses were carried out using the Expert Choice Desktop software package. The most important NWFPs in Tulcea County were the acorns of grayish oak, followed by the honey and nettle, while the less promising products were represented by the penny bun and honey fungus.

**(O-07) DEVELOPMENT OF *FUSARIUM OXYSPORUM F. SP. LYCOPERSICI* (FOL) AND *FUSARIUM OXYSPORUM F.SP. RADICIS LYCOPERSICI* (FORL) RESISTANT TOMATO LINES USING MARKER ASSISTED SELECTION**

**Duran ŞİMSEK<sup>1</sup>, Hasan PINAR<sup>2</sup>, Nedim MUTLU<sup>3</sup>**

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Molecular markers have extensively been used along with classical methods in tomato breeding like other important vegetables. For this aim, many molecular markers for resistance to biotic stresses, especially the ones controlled by a single gene or major QTL (Quantitative Trait Loci) were improved. The objective of this study was to present utility of the molecular markers which developed for important some tomato diseases after tested with using the plant materials via MAS (Molecular Assisted Selection) for breeders. Hence, the molecular markers, linked to *Fusarium oxysporum* f. sp. *lycopersici*, and *Fusarium oxysporum* f.sp. *radicis lycopersici* (FORL) were tested using FOL I-2 I-3 genes for *Fusarium oxysporum* f. sp. *lycopersici* and FORL Frl gene for *Fusarium oxysporum* f.sp. *radicis lycopersici*. At end of the breeding program, FOL I-2 I-3 and Frl genes were pramitted at same tomato lines. Results showed that these markers can have a potential to be utilized in the MAS programs after combine with classical testing methods.

**(O-08) DETERMINATION OF MEDICINAL AND AROMATIC  
PLANT SPECIES AND ITS SOME MORPHOLOGICAL TRAITS  
IN BOTANICAL COMPOSITION OF UNGRAZED PASTURE  
AT KUBRAT, BULGARIA**

**Ertan ATES<sup>1\*</sup>, Emrullah CULPAN<sup>1</sup>**

<sup>1</sup> Field Crops Department, Agriculture Faculty, Namık Kemal University,  
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The investigation was carried out the ungrazed pasture of Kubrat district in northern Bulgaria. In each patch, ten 1 m × 1 m quadrats were randomly placed for sampling vegetation and measuring green and dry matter yields, plant coverage, botanical composition (*Poaceae*, *Fabaceae*, different botanical families, medicinal and aromatic plants ratios in different botanical families) in the south aspect of ungrazed pasture at full bloom stage of dominant species. Five dominant medicinal and aromatic plants [*Paenonia peregrina* Mill. (Fam. *Paeoniaceae*), *Papaver rhoeas* L. (Fam. *Papaveraceae*), *Chamomilla recutita* (L.) Rauschert. Fam. *Asteraceae*), *Sambucus ebulus* L. (Fam. *Caprifoliaceae*), *Artemisia absinthium* L. (Fam. *Asteraceae*)] were identified. The green fodder yield, dry matter yield, plant coverage, *Poaceae* ratio, *Fabaceae* ratio and ratios of different botanical families, ratios of medicinal and aromatic plants in different botanical families at full bloom stage of dominant species in ungrazed pasture ranging from 30.13 t ha<sup>-1</sup>, 8.79 t ha<sup>-1</sup>, 96-98%, 70.12%, 19.78%, 10.1% and 4.77%, respectively. The plant height (*Paenonia peregrine*, 64.77±2.11 cm; *Papaver rhoeas*, 48.77±1.88 cm; *Chamomilla recutita*, 57.11±1.23 cm; *Sambucus ebulus* 94.45±5.74 cm; *Artemisia absinthium*, 88.77±10.11 cm), number of stem per plant (*Paenonia peregrine*, 3.79±1.3; *Papaver rhoeas*, 12.62±1.66; *Chamomilla recutita*, 14.12±1.47; *Sambucus ebulus* 2.77±0.42; *Artemisia absinthium*, 10.47±2.33), number of leaves per stems (*Paenonia peregrine*, 4.87±0.73; *Papaver rhoeas*, 13.41±0.44; *Chamomilla recutita*, 7.87±0.33; *Sambucus ebulus* 11.0±0.12; *Artemisia absinthium*, 15.2±1.04), main stem diameter (*Paenonia peregrine*, 10.07±0.22 mm; *Papaver rhoeas*, 8.1±0.21 mm; *Chamomilla recutita*, 9.5±0.14 mm; *Sambucus ebulus* 26.17±1.07; *Artemisia absinthium*, 17.11±1.31 mm) and leaf length (*Paenonia peregrine*, 10.97±1.31 cm; *Papaver rhoeas*, 9.45±1.02 cm; *Chamomilla recutita*, 6.47±0.33 cm; *Sambucus ebulus* 16.42±1.37 cm; *Artemisia absinthium*, 18.41±2.11 cm) were found for dominant aromatic and medicinal plants.

**(O-09) EFFECT OF DIFFERENT SEED SIZES ON  
GERMINATION AND EARLY SEEDLING STAGE OF SOME  
VETCH SPECIES (*VICIA* SP.)**

**Eyüp Erdem TEYKIN <sup>1\*</sup>, Hazım Serkan TENIKECİER <sup>2</sup>,  
İlker NİZAM <sup>2</sup>, Ertan ATEŞ <sup>2</sup>, Adnan ORAK <sup>2</sup>, Sude DEVECİ <sup>2</sup>**

<sup>1</sup> Tekirdağ Namık Kemal University, Faculty of Agriculture,  
Agricultural Biotechnology Department

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Crops Department

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The aim of this work was to determine the effect of different seed sizes on germination and early seedling stages. The study was carried out in Tekirdağ Namık Kemal University, Faculty of Agriculture, Field Crops Department Seed Laboratory in randomized split plot design with four replications at  $25 \pm 1^\circ\text{C}$  for 10 to 14 days in a growth chamber. The characters studied in the investigation are mean germination time, germination rate, number of leaves, root number, root length, seedling height, root fresh weight, root dry weight, seedling fresh weight, seedling dry weight. Three species of vetches [common vetch (*Vicia sativa* L.), narbon vetch (*Vicia narbonensis* L.), and Hungarian vetch (*Vicia pannonica* Crantz.)] were used. Seeds were sterilized with %2 sodiumhypochloride. Seeds were sieved 4,50-4,75-5,00 mm for common vetch, 7,50-8,00-8,50 mm for narbon vetch, 3,50-3,75-4,00 mm for Hungarian vetch. Seeds were sterilized with %2 sodiumhypochloride. Sieved 20 seed were put in 9 mm petri dishes with 20 ml pure water. A seed was considered to be germinated when the radicle protruded 1 mm and germinated seeds were counted for 4 days, then root length (mm), seedling length (mm), root fresh weight (mg), root dry weight (mg), seedling fresh weight (mg) and dry weight (mg) were measured on day 10.

**(O-10) DETERMINATION OF VEGETATIVE  
DEVELOPMENT AND FLOWER EFFECT OF TRANSGENIC  
NICOTIANA TABACUM**

**Hasan PINAR<sup>1</sup>, Aydın UZUN<sup>1</sup>, Semih YILMAZ<sup>1</sup>,  
Amitava MITRA<sup>1</sup>**

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Species and varieties in the *Nicotiana* genus may respond differently to photoperiodism in terms of flowering time control. These are classified as short day, neutral day and long day plants. One of these, *Nicotiana tabacum* cv. The Xanthi nc is a genotype which can flowering on a long day. But the genotype Kanamycin resistance can open its flowers in January when the resistance gene is transferred to the plant. On the other hand, the effect of rootstock to scion in plant species is very important. One of the issues raised is whether the transgenic plant in the rootstock is effect of transgen. In this study, it was aimed to determine whether flowering of the plants carrying transgenic plants are effective for flowering. In the study, control was grown without grafting, transgenic and control plants were reciprocally grafted and flowering time and plant development was recorded. According to the findings obtained, no effect of reciprocally grafted was observed in terms of flowering and plant development. However, it has come to the conclusion that it need detailed study to understand whether signal goes from rootstock to scion.

**(O-11) ENRICHMENT OF ACTIVATED SLUDGE IN  
AMMONIA OXIDIZING BACTERIA FOR A MORE  
EFFICIENT NITRIFICATION****Cristina MOISESCU<sup>1</sup>, Marinela CÎRNU<sup>1</sup>, Ioan ARDELEAN<sup>1\*</sup>**<sup>1</sup> Institute of Biology, Bucharest, Romanian Academy\* Corresponding author: [ioan.ardelean47@yahoo.com](mailto:ioan.ardelean47@yahoo.com)

In the last decades there are reports concerning attempts to increase the amount and activity of a given physiological group of microorganisms from the activated sludge, in order to increase the overall yield of wastewater purification. In this paper we report our original results concerning the selective cultivation of microbial populations in different types of culture media specific for ammonia oxidizing bacteria (AOB), in order to increase the rate of ammonia oxidation from that growing media or from artificial wastewaters, model for true wastewaters, mainly those related to recirculating aquaculture systems (RAS) The results show that, after appropriate selective cultivation, there is a significant increase in the activity of AOB, in agreement with the increase in cell densities of AOB estimated by MPN technique. The improved populations thus obtained are good candidates for enhancing the removal of ammonia, firstly at laboratory level, from synthetic wastewaters. However, the stability/resilience of these populations in true life conditions remains to be evaluated.

This work was supported by ABAWARE ERA NET Project.



**(O-12) VARIATION OF ACTUAL MORPHOLOGICAL  
CHARACTERS OF WINTER WHEAT****Nicolaie IONESCU<sup>1\*</sup>**<sup>1</sup>Agricultural Research and Development Station Pitești, Șos. Pitești-Slatina, km. 5,117030, Pitești, România\* Corresponding author: [nicolaeionescu50@gmail.com](mailto:nicolaeionescu50@gmail.com)

Various studies on morphological, biochemical and molecular characters could be used to improve new wheat varieties. Broad genetic dowry and wheat crop conditions usually lead to the characteristic expression of plant morphology. In the case of winter wheat, the *Cameleon* variety, some new directions have been found, which has recently been improved, with specific characters. Thus, the straw had an average length of 58 cm, of which the basal internode (the third of top) had a length of 12 cm and a thickness of 3.2 mm, usually full marrow. The sub-apical internode measured 20 cm, and the apical internode 21 cm. The spike (ear) had a length of 8.1 cm, a weight of 2.1 g and contained 16 spikelets. The spikelet had an external glume of 8.9 mm, a lower lemma of 9.7 mm, and a 7 cm awn. A medium spike contained 49 grains, weighting 1.62 g. The grains (caryopsis type) had a length of 6.8 mm, a thickness of 2.99 mm, and a thousand grains weight of 33 g. Significant positive correlations were obtained between the morphological characters of the spike. The grains, by size, correlated less with the other characters, except the mass of thousand grains. The new cultivated variety has shown a good adaptability to a new and efficient agriculture.

**(O-13) SUBSEQUENT EFFECTS OF ARTIFICIAL  
FERTILIZER APPLICATIONS ON NATURAL  
GRASSLANDS****Yalçın BOZKURT<sup>1</sup>, Mevlüt GÜNAL<sup>1\*</sup>**<sup>1</sup> Suleyman Demirel University, Faculty of Agriculture, Isparta,  
Turkey\* Corresponding author: [mevlutgunal@sdu.edu.tr](mailto:mevlutgunal@sdu.edu.tr)

This study was aimed to investigate subsequent effects of artificial fertiliser applications on the natural grasslands in Turkey. To this end, an experiment was conducted to compare the two grazing areas; one with naturally grown and the other one applied with artificial fertilizer. Two grassland areas were selected next to each other and one area was fertilised with fertilizer calcium ammonium nitrate and triple super phosphate respectively. The experiment lasted for 3 years. To observe biomass and chemical composition, the soil and meadow samples were collected from non-grazed areas regularly. Average biomass dry matter and sward height between areas were statistically significant ( $P<0.05$ ) only for the first year. It was found that there was no statistical differences ( $P>0.05$ ) in botanical composition between both grazing areas. While there were no significant differences in crude fibre, crude protein and dry matter content of meadow samples. However, there were no statistical significant differences ( $P>0.05$ ) in organic matter and mineral content of the soil between two grazing areas during the experimental years. Consequently, it was concluded that the improvement of grassland conditions in the region was not a consequence of the application of artificial fertilizer; therefore, the application of artificial fertilizers should be reconsidered in terms of environmentally sustainable natural meadow areas.

**(O-14) ECONOMIC ANALYSIS OF DIFFERENT DAIRY  
FARM SIZES IN TAVŞANLI DISTRICT OF KÜTAHYA  
IN TURKEY**

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The purpose of this study was to determine the economic structure and problems of some dairy farm in Tavşanlı District of Kütahya Province. Data were obtained by conducting a survey on 80 dairy farms selected by the stratified random sampling method. Dairy farms were divided into three groups according to their sizes and were analyzed accordingly. The numbers of cows in groups were: I) 5-10 (24 farms), II) 11-20 (20 farms), and III) over 21 heads (36 farms). In the farms analyzed, variable cost share in milk production was % 82 and the feed share in the varying costs was determined to be % 78. It was pointed out that the production cost and the net profit increased as animal unit per farm increased. Milk production income increased when farm size increased. The cattle value appreciation in small sized farms was higher compared with other groups. Also, it was calculated that the net profit for small farms (5-10 head) was not high enough to sustain a farm household's living. As a result of the research, farmers in all groups should be given technical information based on animal production and the optimal utilizations of the materials.

**(O-15) THE STATE OF VEGETATION IN STANDS  
ESTABLISHED ON DEGRADED LANDS IN THE HILLY  
AREAS OF TRANSYLVANIA**

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In the past, Transylvania was an area of high afforestation, in 1919 having a surface of about four million hectares. Due to the need to expand agricultural areas, accessible ones have been deforested, with some of them degrading as a result of intense and irrational grazing. In order to ensure that the degraded areas are not totally unproductive, in the 1970s, they have been afforested, many of them being made with conifers, even in situations where the ecological group provided for other solutions. A number of six sample surfaces were taken into study, in which measurements were taken to track the growth of stands on degraded lands. These stands suffer from isolated windfall and crown damage, due to the fact that the silvicultural operations are performed at a lower frequency than in production stands. Comparing the data obtained, it was found that the most healthy stands are in the Săvădisla, Sic and Sărmaşu areas, while in the Filitelnic area the trees are affected by isolated windfall and tip breaks and crowns damage. For tree damage to occur at the lowest possible frequency, strict silvicultural operations required for each stage of development are necessary.

**(O-16) RESEARCH CONCENING THE INFLUENCE OF  
CULTURE SUBSTRATE ON THE MAIN  
CHARACTERISTICS OF TUBEROSE**

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Tuberose is known for its fragrance and are among the most important ornamental flowers grown mainly due the long flowering period, which is an important aspect whether grown as cut flowers or landscaping. The purpose of this study was to improve the cultivation methodology of the species *Polyanthes tuberosa*, by using easily accessible, cheap substrates with influence on morphological, ornamental and production characteristics. The research was carried out in 2017 at the University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca (U.A.S.V.M). The experience was bifactorial and watched the influence of some culture substrates (garden soil, 50% peat + 50% garden soil, 50% sand + 50% garden soil and 50% manure + 50% garden soil), on the main decorative morphological characteristics of the 'Perla' tuberose variety. Following the interpretation of the results by the DL test (variance analysis) it is recommended to use the culture substrate formed by peat or manure + garden soil (1:1) and bulbs with a larger diameter.

**(O-17) CLIMATE SHIFTS AND EMERGING  
TECHNOLOGIES FOR SUSTAINABLE CROP  
PRODUCTION**

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Like several other countries of South Eastern Region climate shifts during recent years have caused a forced decline in agricultural productivity. The major cropping zones include cotton-wheat, rice-wheat and mixed cropping of Pakistan has shown a sharp decline in productivity during recent years. During past one decade, an average increase in maximum and minimum temperature of 2°C has been recorded in the months of June and September. Similarly, a significant decrease in rainfall and relative humidity during fruit setting period, especially in months of August-September, has been observed. May-June are the months for sowing of summer crops and August-September is crucial period for fruit setting in cotton, rice, legumes and oil crops. A sharp increase in temperature, rainfall and relative humidity in these months has been resulting lower crop stand, poor fruit setting and ultimately a significant decrease in the yields (ranging 10-30%) of summer crops. Similarly significant changes in minimum and maximum temperature have been observed during winter cropping seasons of recent years. A dominant increase in minimum and maximum temperature ranges have been observed during the months of November to February with maximum increase of 1.27°C in minimum temperature during January and highest increase of 2.3°C in the month of February. Total decrease in rainfall during winter cropping season from November to April was recorded 27.30 mm. Due to these drastic increase in temperature and decrease in rainfall we are focusing on new technologies including mulching, raised beds, pit plantation, zero tillage, sensor based nutrients management and cover crops and residue management. In this presentation we will discuss salient results of promising emerging technologies for sustainable production under rapidly changing environment.

**(O-18) THE DIVERSITY OF INDIGENOUS VS. ALIEN  
PLANT SPECIES IN BUCHAREST**

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The inventory of plant species in the metropolitan area of Bucharest produced a long plant species list. Every species was categorised in terms of its route of introduction and its world distribution. Multivariate statistical analysis highlighted that most species in the city are alien *i.e.* not indigenous to Romania. Some species deliberately introduced for different purposes (especially trees planted for flood protection or soil stabilisation) became invasive and even locally dominant, changing the plant species diversity on a small or on a large scale (*i.e.* *Ailanthus altissima*). For these trees, the city acts like a dispersion pool, with the seeds being carried out by wind into the surrounding areas (agricultural, forests, abandoned fields, *etc.*). Taking action to remedy these problems involves high costs but not taking action results in continued and future dominance of the urban landscape by invasive alien species.

**(O-19) FREEZE DRYING - NOTABLE ADVANCEMENTS IN  
SUBLIMATION-DRYING OF FOODS****Ramona COTRUȚ<sup>1</sup>\***<sup>1</sup> Research Center for the Study of Quality Food Products, Bucharest\* Corresponding Author: [ramona\\_cotrut@yahoo.com](mailto:ramona_cotrut@yahoo.com)

Freeze drying is one of the best methods of water removal which results in final product with the highest quality, combining science and controlled process to result in beautifully preserved food. Freeze drying is sublimation of ice fraction where water passes from solid to gaseous state. Suitable parameters of process application allow us to obtain best quality products compared to products dried with traditional methods. Due to very low temperature all the deterioration activity and microbiological activity are stopped and provide better quality to the final product retaining the most nutrients than any other food preservation method, and maintains its color and flavor. Very good physical and chemical properties of food and biotechnological products make this method the best for drying exclusive products. This review focused on the recent advances and its targets in near future, considering also that the market for organic products is increasing and new market demands are emerging that could concern freeze-dried products.



**(O-20) RESEARCH ON IDENTIFYING, DETECTING  
AND PREDICTING THE DEFOLIATOR *ARCHIPS*  
(*CACCOECIA*) *XYLOSTEANA* L.**

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*Archips (Caccoecia) xylosteana* L. is a tortricid defoliator common in orchards and broadleaf forests. It is widely distributed in Scandinavia, Central and Southern Europe, Southern Siberia, Asia Minor and Japan. One of the causes explaining the gradation of this insect is definitely the intensive use of chemical treatments applied during the last decades, which caused modifications in the quantity and quality of the populations, modifications often of great importance for the natural biocenoses. This gives us one more opportunity to prove the validity of the statement often met in the literature that brutal intervention in the forest biocenotic complex triggered the gradations of certain totally unexpected pests, the outcome of which cannot be predicted. *Archips (Caccoecia) xylosteana* L. registered a sudden increase in number during the last years, not only over an extended area in the south of the country, but also in the hilly areas or even at higher altitude, as a permanent companion of the insect *Tortrix viridana* L. Thus, in a durmast oak (European oak – *Quercus petraea*) stand mixed with beech and hornbeam in the Warthe region, there was a medium defoliation in 1970 caused by the larvae and caterpillars of *Tortrix viridana* L. and *Caccoecia xylosteana* L. Our research focused on this outbreak, aiming at gathering data necessary for the identification, detection and prediction the defoliator *Caccoecia xylosteana* L.

**(O-21) EFFECT OF DIETARY BENTONITE ON RAINBOW TROUT (ONCORHYNCHUS MYKISS) GROWTH PARAMETER**

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This study aims to use bentonite clay which has a widespread use as a completely natural detoxifier in the removal of heavy metals from water in the feeding program for rainbow trouts which is the most commonly produced species in the freshwater aquaculture, and to conduct both physiological evaluations. Bentonite clay and copper that will be used in the project was obtained from commercial companies. Bentonite and copper was be added at different ratios to the feeds that were formulated according to the nutritional needs of the fishes. Rainbow trout fries produced in Atatürk University Faculty of Fisheries Freshwater Fish Treatment and Research Center will be used in the study. In the trial, 9 tanks and 900 fish at  $15\pm 2$  g weights for each tank was be used. Bentonite and copper was be mixed to the feed and transformed into the pellet forms, and the feeding program was be applied for 4 months, following the acclimation period. During the trial period, body weight gains was be determined every 15 days According to results of study, we found that treatment had effected on growth parameter ( $p<0.05$ ).

**(O-22) ANALISYS OF LEAVES USING FTIR  
SPECTROSCOPY AND PRINCIPAL COMPONENT  
ANALISYS DISCRIMINATION OF DIFFERENT PLANT  
SAMPLES**

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The present study was conducted to characterize various bioactive phytoconstituents from blueberry, chokeberry and strawberry leaves using FTIR spectroscopy. Attenuated total reflectance (ATR) spectra of plant leaves display complex absorption features related to organic constituents of leaf surfaces. The spectra can be recorded rapidly, both in the field and in the laboratory, without special sample preparation. This paper explores sources of ATR spectral variation in leaves, including compositional, positional variations

**(O-23) ASSESSMENT OF CHANGES IN IRRIGATION  
INDICATORS IN IRRIGATION AREAS LOCATED IN  
GEDIZ BASIN**

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Water has an important role in natural resources and production factors. Recent climate change, global warming and environmental problems, sustainable agriculture, water and environment issues brought to the agenda. Basin-based planning of sustainable water resources requires the identification of all the elements that make up the basin and the temporal changes in these elements and information about the changes. Gediz Basin is one of Turkey's 26 major watersheds meets 10% of the total agricultural production in Turkey, and agriculture depends on irrigation due to the climatic characteristics of the basin. Due to the climatic characteristics of the basin, agriculture is dependent on irrigation. The plains within the basin has an area of approximately 110 000 hectares irrigation systems are available. In this study, changes in irrigation areas in 5 different places in Gediz in the last 10 years will be evaluated in terms of irrigation systems, irrigation rates, crop pattern, amounts of irrigation areas and reasons for not irrigating. The reasons for the differences within the basin will be revealed as the result of the evaluation.

**(O-24) THE EFFECT OF INCREASING BORON  
APPLICATIONS ON SOME MICRO NUTRIENT ELEMENTS  
CONTENTS IN COMMON VETCH (VICIA SATIVA L.)  
PLANT**

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The research was done to determine the effect of increasing boron application on some micro nutrient element contents of common vetch (*Vicia sativa* L.) plant. For this purpose, a pot experiment was done according to randomized block experimental design, with three replications in greenhouse conditions. Four kg soil sample filled in each pot. Thirty common vetch (*Vicia sativa* L.) seeds were sown in to 30 cm diameter pots. Five different boron doses (I. dose: 0 mg kg<sup>-1</sup>, II. dose: 10 mg kg<sup>-1</sup>, III. dose: 20 mgkg<sup>-1</sup>, IV. dose: 30 mg kg<sup>-1</sup>, V. dose: 40 mg kg<sup>-1</sup>) were applied and plant samples were harvested 60 days later from sowing date. Some micro nutrient elements (Fe, Cu, Zn, Mn) contents of plants were determined. Analysis results were evaluated SPSS 18 statistically program. According to the experiment results, generally, statistically important increases of some micro nutrient element contents of common vetch (*Vicia sativa* L.) plants were determined with increasing boron applications. The micro element contents were determined as Fe (127 mg kg<sup>-1</sup>, 110 mg kg<sup>-1</sup>, 119 mg kg<sup>-1</sup>, 170 mg kg<sup>-1</sup> and 392 mg kg<sup>-1</sup>), Cu (6 mg kg<sup>-1</sup>, 6 mg kg<sup>-1</sup>, 7 mg kg<sup>-1</sup>, 8 mg kg<sup>-1</sup> and 12 mg kg<sup>-1</sup>) Zn (11 mgkg<sup>-1</sup>, 10 mg kg<sup>-1</sup>, 12 mg kg<sup>-1</sup>, 18 mg kg<sup>-1</sup> and 31 mg kg<sup>-1</sup>), Mn (56 mg kg<sup>-1</sup>, 51 mg kg<sup>-1</sup>, 57 mg kg<sup>-1</sup>, 70 mg kg<sup>-1</sup> and 91 mg kg<sup>-1</sup>). These Fe, Cu, Zn and Mn contents were determined significant at the level of 5 %, statistically. The highest nutrient element contents of common vetch (*Vicia sativa* L.) plant were obtained V. dose: 40 mg kg<sup>-1</sup> applications for all nutrient elements.

**(O-25) CONSTRUCTED WETLAND TECHNOLOGY FOR  
DOMESTIC WASTEWATER TREATMENT****Zeki GOKALP<sup>1\*</sup>, Ismail TAS<sup>2</sup>**<sup>1</sup> Erciyes University, Agricultural Faculty, Biosystems Engineering  
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Natural wetlands with various on-going complex physiological, chemical and biological processes in them, provide inherent self-treatment service of the nature. All these treatment processes are imitated in constructed wetlands. Constructed wetlands, so called as natural treatment systems, are widely used for treatment of domestic, industrial and agricultural waste waters. The constructed wetland technology is composed of specially design basins filled with substrate filter materials and planted with aquatic species, inlet and outlet structures to regulate the flow regime within the basin and to remove various pollutants from the wastewaters. In case relevant criteria were not taken into consideration in design, operation, maintenance and monitoring of these systems, irremediable or irreversible failures are evident. Therefore, national and international standards, influent waste water characteristics, site geography and climate conditions should be considered in design, constructions should be carried out precisely and operation-maintenance-monitoring activities should also be followed to meet the desired performance expectations. In this study, use of constructed wetland technology in domestic wastewater treatment was explained and potential mistakes made in design and operation of these systems were pointed out.

**(O-26) DIFFERENT SUBSTRATE MATERIALS FOR  
PHOSPHORUS REMOVAL FROM WASTEWATERS IN  
CONSTRUCTED WETLANDS****Zeki GOKALP<sup>1\*</sup>, Ismail TAS<sup>2</sup>**<sup>1</sup> Erciyes University, Agricultural Faculty, Biosystems Engineering  
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Phosphorus (P) is commonly considered as the limiting nutrient with respect to the eutrophication of water bodies. Therefore, wastewater treatment plants, either conventional or natural, must meet maximum P discharge limits. While various chemicals are used in conventional wastewater treatment plants, substrate materials play significant roles in phosphorus removal in natural treatment systems, also called constructed wetlands. Constructed wetland technology is commonly used for domestic wastewater treatment especially in rural sections. Emergent aquatic plants are grown in specially designed basins filled with substrate material to filter pollutants from wastewaters. Phosphorus removal is largely dependent on surface characteristics and pore structure of the substrate materials used in constructed wetland basins. Pumice and zeolite-like volcanic originated natural materials and fly ash like waste materials are commonly used to enhance phosphorus removal efficiency of substrate materials. These materials mostly used in certain mixture ratios with sand and gravel filter material. In this study, information was provided about general phosphorus removal mechanisms, surface characteristics of different substrate materials and their phosphorus removal efficiencies.

**(O-27) PERFORMANCE ASSESSMENT FOR  
CONSTRUCTED WETLANDS OF KAYSERI PROVINCE  
OF TURKEY**

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Constructed wetlands are commonly used for domestic waste water treatment in rural parts of Turkey. However, routine monitoring and assessments of these systems are not performed. The present research was conducted to assess the treatment performance of two constructed wetlands in in Kayseri province of Turkey. Influent and effluent waste water samples were taken at the beginning of each month for 5 months of the year 2016. Samples were taken in accordance with the principles specified in Water Pollution Control Regulation. Wastewater samples were then subjected to biological oxygen demand (BOD), chemical oxygen demand (COD), total suspended solids (TSS), pH, electrical conductivity (EC), total nitrogen (TN) and total phosphorus (TP) analyses. Effluent BOD<sub>5</sub> concentrations varied between 40-420 mg/L; COD concentrations between 63-134 mg/L; pH values between 7.18-8.04; EC values 1571-2870  $\mu$ S/cm and TSS values between 64-84 mg/L. While pH, EC, TSS and total phosphorus values were meeting the discharge criteria, BOD and COD values were not meeting the relevant discharge criteria. Considering the parameters not able to meet the discharge criteria, it was concluded that these systems should be either repaired or rehabilitated to eliminate the deficiencies experienced in practice.



**(O-28) SELENIUM SUPPLEMENT AND CYS/MET INDEX IN  
TARM 92 BARLEY CULTIVAR****Semih YILMAZ<sup>1\*</sup>, Ali İrfan İLBAŞ<sup>2</sup>, Aydın UZUN<sup>3</sup>,  
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Selenium (Se) as essential micronutrient found in foods in the form of organic selenomethionine (SeMet) and selenocysteine (SeCys) in adequate amounts. However, selenite ( $\text{SeO}_3^{2-}$ ) or selenate ( $\text{SeO}_4^{2-}$ ) can be found in inorganic form in very low amounts. While higher plants can indicate considerable variations in terms of Se requirement, it affects plant metabolism and uptake of some nutrients by plants. Barley (*Hordeum vulgare* L.) is a significant dietary source for this element for humans and animals. In present study, Cys/Met index of Tarm 92 registered barley cultivar subjected to increasing sodium selenate ( $\text{Na}_2\text{SeO}_4$ ) doses (6.25, 12.50, 18.75, 25 g  $\text{ha}^{-1}$ ) were investigated. Amino acids were analyzed according to Ion Exchange Liquid Chromatography method by Amino Acid Analyzer AAA 339 M. The experimental soil was analyzed for texture, organic matter, pH, available Phosphorus (P), Nitrogen (N), and Potassium (K). The average S level in Tarm 92 cultivar was 0.0514 mg/100mg. Results revealed significant effects of Se-treatments on grain Cys/Met index at 12.50 g  $\text{ha}^{-1}$ . Average Cys/Met index remarkably increased to 28.58 mg/100mg at 12.50 g  $\text{ha}^{-1}$  dose. However, at 25 g  $\text{ha}^{-1}$ , the level (6.98 mg/100mg) was closer to that in control (5.10 mg/100mg) group. It was concluded in present study that 12.5 g  $\text{ha}^{-1}$  selenium treatment was sufficient to increase grain Cys/Met index of Tarm 92 barley cultivar.

**(O-29) PEPTIDE DIFFERENCE IN SEEDY AND SEEDLESS  
LEMON CULTIVARS**

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In the present study, the proteins were isolated from immature tissues and the peptides responsible from seedlessness in mutant seedless lemons cultivar were compared with seedy control Kütdiken cultivar. Differently expressed spots from 2D gels were excised, de-colored, trypsinized in the gel-matrix, peptides were eluted from gel matrix and subsequently desalted with ZipTip C18. LC-MS/MS analyses of the sample peptides were performed by using the AB SCIEX TripleTOF 5600+ instrument (AB SCIEX) coupled with expert nano-LC 400 system (AB SCIEX). For the identification of the proteins, MS data were analyzed using ProteinPilot 4.5 Beta (AB SCIEX). Presence of the peptide “TTIIGVTYNGGVVLGADSR” was observed in Kutdiken, Gulsen and Alata cultivars. However a different peptide “SGSAADSQTVSDYVR” was seen in Kutdiken and Gulsen cultivar but not in control Kütdiken cultivar. This finding was suggesting that it could be used for differentiating seedless cultivars from seedy control. These peptides resembled to proteasome subunit beta type OS=Citrus sinensis GN= CISIN\_1g026587mg PE=3 SV=1 at a level of 99% (with accession number tr|A0A067F2B5|A0A067F2B5\_CITSI). Also, the peptide “TVTINSEGVS” observed in Gulsen cultivar and resembled to above mentioned peptide at a level of 96.5%. Due to the lack of Citrus lemon database, peptides were analysed over the orange (Citrus sinensis) database. Therefore, there is an urgent need for the complete genome sequencing and annotation of Citrus lemon in near future. For this reason, it is necessary to add the database of Citrus limon in order to clearly identifying peptides which could be used as markers.

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**(O-30) COMPARISON OF SOME QUANTITATIVE  
METABOLIC PARAMETERS IN NEWLY DIAGNOSED  
CANCER PATIENTS****Aysun ÇETİN<sup>1</sup>, Semih YILMAZ<sup>1,4\*</sup>, Gökmen ZARARSIZ<sup>2</sup>,  
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Cancer is a disease affecting not only the tissues and organs it occupies but also the metabolic processes in the whole organism, thereby decreasing the patient's performance and quality of life. In the present study newly diagnosed 80 solid tumor patients (mean age 50.65 years, 40 females) with different cancer types were recruited in a prospective cohort study. 20/35 of lung cancer, 7/34 of breast cancer, and 6/10 of other cancers group were in phase IV, with 89, 82, and 80% metastasis, respectively. Serum vitamin, mineral and antioxidant enzyme capacities as Super oxide dismutase (SOD), Total antioxidant capacity (T-AOC), Glutathione peroxidase (GSH-Px) as well as Thiobarbituric acid reactive substance (TBARS) values were compared between those cancer groups. It was seen that the level of Vitamin E (0.017-0.018 ppm) was considerably low, however, the level of folic acid (9.79-12.80 ppm) was high in all cancer groups compared with reference values. While the vitamins D (0.009 ppm), E(0.017 ppm), and B12 (0.005 ppm) levels in lung cancer indicated a positive correlation with stage, Vitamins A (0.059 ppm), B1 (0.044 ppm), B6 (0.013 ppm), and folic acid (9.79 ppm) exhibited negative correlation. In breast cancer group, the Vitamins E (0.017 ppm), B6 (0.014ppm), and folic acid (10 ppm) was

negatively correlated, however, vitamins A (0.58 ppm), B1 (0.037 ppm), B12 (0.006 ppm), and ascorbic acid (0.024 ppm) was positively correlated. When serum mineral levels were examined, it was observed that Fe (100-102 ppm), Zn (0.55-0.63 ppm), P (0.015-0.025 ppm) were low, and Ca (0.33-0.53 ppm), Mg (21.38-29.50 ppm), and K (294-420 ppm) levels were high compared with reference values. SOD, GSH-Px, T-AOC, and TBARS values didn't indicate any statistical significance between lung, breast and other cancers group. It is well known that although the cytokines and mediators secreted by tumor tissues cause uncontrolled consumption of vitamins and essential minerals, patients can have better tolerance to chemoradiotherapy, and quality of life can be improved through ameliorating the metabolic disturbances. Therefore, although chemotherapy and radiotherapy applications targeting tumor tissues constitute the basis of cancer treatment, supportive therapies for the correction of cancer-induced metabolic disorders have been accepted as part of treatment in recent years. However, until now there is no diagnostic and assessment method pointing all metabolic disorders in cancer patients.

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**(O-31) REINFORCEMENT OF THE HYDROGRAPHIC  
NETWORK USING *ALNUS GLUTINOSA* (BLACK ALDER )  
WITHIN THE HYDROGRAPHIC WATERSHED OF RÂUL  
MARE – CUGIR**

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The purpose of the present paper is to highlight the hydrologic role of *Alnus glutinosa* - the black alder, which is spread in two stands within the hydrographic basin of Râul Mare – Cugir. As they are pure stands, meaning stands made of the same species (alder) and equi (trees with the same age), they serve as a typical example of an homogenous statistical collectivity. In the U.P. III Râul Mare, the forestry formation “alders made of black alder” is covering a surface of only 1.2 ha out the total area of forest fund, situation that leads to significant amounts of sludge collected from the entire hydrographic network and the hydrographic basin taken into study. Within the present study, 2 administrative units were selected, covering 1.2 ha surface within the Forestry District of Cugir – U.P. III Râul Mare where one established 8 plots, 4 in each administrative unit, and measurements were carried out on a total number of 220 trees. Within the 1B administrative unit, 84 trees were measured, predominantly from the class IV of quality, having diameters between 12 and 42 cm and heights between 14.2 and 19.2 m, while within the 41E administrative unit a number of 136 trees were measured, being in the majority in the same quality class IV, with diameters between 8 and 34 cm and heights between 12.7 and 13.5 m.

**(O-32) STUDY ON THE LOWER DANUBE STURGEON SPECIES IN ORDER TO ELABORATE PROTECTION MEASURES IN ACCORDANCE WITH THE CURRENT NEEDS**

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The sturgeon decline in the last decades, as well as the prohibition of commercial fishing since 2006 and some Danube hydrotechnical works for facilitate navigation, has required monitoring to determine the current pressures on the sturgeon species survival. The studies achieved by The National Institute for Research and Development in Environmental Protection – INCDPM Bucharest (INCDPM) were started since 2011 and have been realised with modern technologies and techniques used worldwide and adapted to the Danube conditions and which have achieved outstanding results, most of them being unique at the Danube level. A concern is represented by the poaching phenomenon that has grown after banning commercial fishing and which is even manifested on specimens that are part of the research projects. More than 60% of these specimens were illegally captured during the research conducted by the INCDPM Bucharest team (2011-2017). The sturgeon salvage is due to the fact that they still naturally breeding and new habitats have been discovered downstream the Iron Gates II hydropower plants. The results of the INCDPM represent a starting point for developing new measures to protect the sturgeon species, but that must be supported by new researches in the future.

**(O-33) WHAT INFORMATION COULD THE VOLUME  
ESTIMATION DOCUMENTS PROVIDE IN THE CASE OF  
BĂILE HERCULANE FOREST DISTRICT?**

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In Romania, the timber harvesting is done in accordance with Law. no 46/2008 and Ministerial Order no. 1540/2011, the Volume Estimation Document (VED) being the main official document that is providing relevant information regarding the forest stand that will be harvested. Since 2017, the managers of the public-owned forests are obliged to publish on their websites the VEDs together with the geographic coordinates of the harvesting sites. In 2018, on the website of the National Forest Administration ROMSILVA, 102 VEDs were published in the case of Băile Herculane forest district (Caraș-Severin Forestry Directorate). The main aim of this study was to analyse the information provided by the 102 VEDs as regards the evaluated quantities of the dimensional wood assortments. Data for seventeen species (fifteen autochthonous and two allochthonous) were analysed, common beech being the main tree species. Out of the total evaluated quantity, more than a half was designated as firewood.

**(O-34) DETERMINATION OF SPATIAL VARIATION  
OF REFERENCE EVAPOTRANSPIRATION CASE STUDY  
OF SEYHAN BASIN**

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Geographic Information Systems (GIS) are computer based tools for mapping and analysing features and events on earth. GIS technology integrates common database operations such as query and statistical analysis with the unique visualisation and geographic analysis benefits offered by maps. Evapotranspiration mapping with classical methods may take months and even years based on the size of the area to be mapped. However, recently developed methods decreased the time consumed for such mapping practices to minutes. Geostatistical methods are the most commonly used methods for mapping over large areas in a short time. In present study, Reference Evapotranspiration (ET<sub>o</sub>) values were calculated by ASCE Standardize Penman Monteith method using long-term climate data in the Seyhan basin. The calculated ET<sub>o</sub> values were mapped for April, May, June, July, August, September and yearly total by using geostatistical methods. It was used 7 stations in basin and 9 stations out of basins for calculation. In the production of geostatistical maps, cokriging was used as interpolation method and spherical model was used for model of semivariogram. At the end of the study, it was determined that ET<sub>o</sub> maps could be produced with reliable method and model.



**(O-35) THE EFFECTS OF IRRIGATION WATERS WITH  
HIGH ELECTRICAL CONDUCTIVITY ON THE  
GERMINATION OF WHEAT SPECIES OF DIFFERENT  
PLOIDY LEVELS****Ismail TAS<sup>1\*</sup>, Yalcin COSKUN<sup>2</sup>, Zeki GOKALP<sup>3</sup>**<sup>1</sup> Canakkale Onsekiz Mart University Agriculture Faculty,  
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At the beginning of low quality irrigation water is salty water. Germination in the beginning of the negativities encountered in plant production under the conditions of using saline irrigation waters. Irrigation water with different electrical conductivity (EC) (0, 8, 10, 12, 15, 20 and 30 dS / m) from different salt sources, such as less than 3 the Sodium Absorption Ratio (SAR) different types of wheat (diploid, tetraploid, and hexaploid wheat) were planted and subjected to the germination test. The decrease in germination rate of tetraploid wheat (19%) and hexaploid wheat (12%) were followed by diploid wheat (46%), respectively. When we looked at salt doses, doses of 8 and 10 dS / m were in the same group with the control whereas other doses formed different groups. The decrease in germination rate also increased as the salt dose increased. As a result, it was determined that hexaploid wheat was more resistant to salinity of the irrigation water, followed by tetraploid and diploid wheat respectively, and when the all ploidy levels were taken into consideration, the salinity effect started to appear with 12 dS / m dose and this effect increased with dose increase. The effect of salt doses on dry weight was statistically insignificant and the highest dry weight was obtained from hexaploid wheat, followed by diploid and tetraploid wheat respectively.

**(O-36) RESEARCH REGARDING THE INFLUENCE OF THE  
CULTIVAR AND CULTURE SUBSTRATE ON *HYACINTH*  
FORCING CULTURE****Roxana Alexandra SABO<sup>1</sup>, Maria CANTOR<sup>1\*</sup>,  
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The Hyacinth (*Hyacinthus orientalis*) is a bulbous plant with a great variety of cultivars, being in the same time among the first flowers of spring. Hyacinth bulbs can brighten up the darkest days of winter if are forcing. The main aim of this research was to pursue the influence of the cultivar and culture substrate on the main characters. The study took place in greenhouses of University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca (UASMV), during 15<sup>th</sup> of November 2016 - 30<sup>th</sup> of March 2017. The experience was bifactorial, first factor being the culture substrate, with three graduations (garden soil, garden soil + peat and garden soil + sand), the second factor being the cultivar, with five graduations ('City of Haarlem', 'Blue Jacket', 'Miss Saigon', 'Jan Boss' and 'Double Prince of Love'). Analyzing the combined influence of the culture substrate and hyacinth cultivars which were used in the research, the most favorable combination from the decoration period, number of florets per cluster and flower stem height point of view were 'Double Prince of Love' and 'Jan Boss' on the substrate garden soil + sand (1:1).

### **(O-37) FOREST TREES IN ROMANIAN TOPONYMY**

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According to paragraph (3) of Article 3 of Romanian Constitution, the territory is organized in communes, cities and counties. Currently, there are 41 counties, plus Bucharest, 320 cities (including municipalities) and 2861 communes, that are divided in two or more villages. The aim of this study was to highlight the relation between the names of the localities and the forest tree species found in Romania. In most of the cases, a strong correlation between the natural distribution range of forest tree species and the names of the localities was found. Both hardwood and coniferous species were well represented, the names of the localities related with the softwood species being more common in mountainous regions. These results suggest that Romania is a country with a strong forestry-related heritage.

**(O-38) DETERMINATION OF INCREASE LOSSES IN OAK STANDS AFFECTED BY DECLINING PHENOMENA, ACCORDING TO CLIMATIC PARTICULARITIES****Vasile ȘIMONCA<sup>1,3\*</sup>, Tatiana BLAGA<sup>2</sup>, Alexandru COLISAR<sup>3</sup>, Cristian MOLDOVAN<sup>1,3</sup>, Ioan TĂUT<sup>1,3</sup>**<sup>1</sup> National Institute for Research and Development in Forestry “Marin Drăcea” București – SCDEP Cluj-Napoca, Romania;<sup>2</sup> National Institute for Research and Development in Forestry “Marin Drăcea” București – SCDEP Bacău, Romania;<sup>3</sup> Faculty of Horticulture, University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania\* Corresponding author: [simoncavasile@gmail.com](mailto:simoncavasile@gmail.com)

Age and health are the intrinsic characteristics of each individ, but depending on the environmental conditions, the entire population will be affected. In the case of injury to the stands containing species of *Quercus* genus, the symptoms are also manifested by the reduction in height and stand basal area, crown scarring, discoloration of the leaves and an abnormal grouping on the top of the lures, followed shortly by the appearance of epicormic branch. Sustainable management of forests viewed from the perspective of the unconscious economy without maintaining the state of health and good vegetation, obtained through management at the intersection of economic requirements and what can produce biologically and physically a forest ecosystem under certain given conditions. This concept can be expressed by a series of qualitative or quantitative indicators. In the present paper, the increase losses, expressed from the perspective of wood biomass accumulations, were determined on the radial section for 5 years, using the method of couples applied to stands situated in similar conditions of vegetation but with major differences in status health and vegetation. The differences between the situations considered normal and those with declining phenomena show that these losses are between 14 and 22% in the affected stands compared control stands.

**(O-39) CONTROL OF PATHOGENS AND PESTS FROM STANDS LOCATED IN DEGRADED LANDS IN NORTH WEST OF ROMANIA****Ioan TĂUT<sup>1,2\*</sup>, Mircea C. MOLDOVAN<sup>1,2</sup>, Vasile SIMONCA<sup>1,2</sup>, Alexandru COLIȘAR<sup>2</sup>, Liviu C. BOCA<sup>1</sup>, Tudor I. LUNGU<sup>1</sup>**<sup>1</sup>National Institute for Research and Development in Forestry (INCDS) "Marin Drăcea" S.C.D.E.P. Cluj, România<sup>2</sup>University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, România\* Corresponding author: [ioan\\_taut90@yahoo.com](mailto:ioan_taut90@yahoo.com)

Degraded land is a problem at both national and global level. The need for their reconstruction is imperative in order to prevent large-scale ecological imbalances. So different integration methods are being attempted to reintroduce in the agricultural and forestry circuits of these lands. With the placement of stands, pests and pathogens are introduced that can affect them differentiated. In deciduous stands, mainly *Quercus* sp, it is necessary to control the pathogens present systematically - *Microspora abbreviata* (F.C. *Oidium alphitoides*) and other genera of *Erysiphe*. Regarding the resinous stands, they are invariably infested with pathogens of the genus *Lophodermium* sp., *Chrysomyxa abietina*, etc. The present paper proposes to present the main pests in these stands and their control technologies. From the studies, analyzes and statistical processing, it has been shown that the milling at *Quercus* sp. or rust to resinous are present at different intensities and frequencies, and the use of FSC and EEC approved fungicides can be maintained at optimal pest degradation.

**(O-40) ASSESSMENT OF POLLEN QUALITY OF SOME  
APRICOT AND CHERRY CULTIVARS****Aydin UZUN<sup>1\*</sup>, Hasan PINAR<sup>1</sup>, Esra GUN<sup>1</sup>, Mehmet YAMAN<sup>1</sup>,  
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Stone fruits species are one of the most economically important fruits worldwide and Turkey. Turkey is the major producer country for apricot and cherry. Because of several problems (especially self-incompatibility), appear for fertilization and fruit set, researches on pollen quality and fruit set may be essential. In the present study some pollen quality parameters of three apricot and three cherry cultivars were investigated. Apricot cultivars were 'Casna Drenova', 'Ninfa' and 'Beliana', and cherry cultivars were '0900 Ziraat', 'Lapins' and 'Summit'. Pollen viability assessment was carried out using 1% 2, 3, 5 triphenyl tetrazolium chloride (TTC) test. Pollen germination capability was investigated agar in petri method by using 1% agar and 15% sucrose. In apricot, the highest pollen germination level obtained from 'Casna Drenova' with 38.63 %. The lowest germination level was assayed for 'Beliana'. There is no differences for pollen viability of cherry cultivars. Pollen germination of cherry cultivars was generally low. 'Lapins' was the best cherry cultivar for pollen germination, with 17.56%. On the other hand, '0900 Ziraat' had the lowest value of pollen germination (7.01%). According to results there was relatively high level of variation apricot and cherry cultivars studied for pollen quality parameters.

**(O-41) ONE HUNDRED YEAR OF PTERIDOLOGY IN ROMANIA****Liliana Cristina SOARE<sup>1</sup>\***<sup>1</sup>University of Pitești, Faculty of Sciences, Physical Education and Informatics, Department of Natural Sciences\* Corresponding author: [soleil\\_cri@yahoo.com](mailto:soleil_cri@yahoo.com)

In the last one hundred years, the pteridology domain had a spectacular evolution. In the first half of the century was noted the floristic and embryological researches; also, the editing of the RPR-RSR Flora (Pteridophyta, first volume, 1952) was realised. In the last two decades, new data have been added regarding: morphology and anatomy of the pteridophytes, somatic and zygotic embryogenesis, *ex situ* and *in situ* conservation of the pteridophytes biodiversity, evaluation of the fern extracts bioactivity, usage of the spores and gametophytes in the toxicity tests, *in vitro* bioaccumulation capacity of the heavy metal, phytosynthesis of the silver nanoparticles. Current research seeks to obtain extracts and phytosynthesized nano-architectures with practical applications in a field of great importance at national level: combating the main fungal diseases affecting the vineyard culture and apple culture.

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**(O-42) A NOVEL AND INTEGRATED APPROACH TO  
INCREASE MULTIPLE AND COMBINED STRESS  
TOLERANCE IN PLANTS USING TOMATO AS A MODEL**

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Tomato is a main EU agricultural commodity, cultivated all over Europe in open and protected field and in glasshouses, representing a biological and agronomical model crop. Combined water and nutrient stress is a major problem for tomato farmers and solutions are needed to safeguard yields, while preserving the environment. TOMRES will select, among over 10,000 available accessions, rootstocks and scions tolerating combined stress, while retaining fruit quality and yield, taking advantage of innovative screening approaches. Novel traits, in particular belowground, to be exploited in breeding, will be identified. The role of selected hormones (strigolactones and brassinosteroids) will be studied to identify further resilience traits. TOMRES will test and optimize sustainable crop management strategies such as legume intercropping, precision fertilization and irrigation techniques, manipulation of symbiotic microorganisms, and the use of rootstocks more suited to water and nutrient uptake from the soil. Novel genotypes X management strategies will be developed with the goal of reducing N and P application by at least 20%, water input by 40%, while granting environmental sustainability and economic viability of the solutions proposed.



**(O-43) LUNARIA A NEW AND PERSPECTIVE  
HORTICULTURE SPECIES****Olena BOIKA<sup>1\*</sup>**<sup>1</sup>Zaporizhzhia National University, Zaporizhzhia, Ukraine\* Corresponding author: [olena.boika.ua@gmail.com](mailto:olena.boika.ua@gmail.com)

Nowadays, it's very important to broaden an assortment of species, which can be used for human's needs. Some plants are perspective in multiuse. One of those crops is honesty. Honesty (*Lunaria* genus) is a perspective and useful plant. This genus belongs to *Brassicaceae* and consists of two species – *Lunaria annua* L. and *Lunaria rediviva* L. Both species grow in Ukraine. *Lunaria annua* L. is an annual (in some north regions biennial) cruciferous garden flower, which produces characteristic silver, translucent seed silicula ('Silver Penny'). It is commonly found along roads, in semi-shady places. *Lunaria rediviva* is a perennial plant. Type of plant development is one of the significant differences between these species. This two honesty species have different terms of flowering and doesn't produce interspecific hybrids under the natural condition. *L. rediviva* is blooming in the middle and late spring when *L. annua* just starts to germinate. There are also some morphological and physiological differences between *L. annua* L. and *L. rediviva* L. This plant has a good ornamental look and rare fatty acid composition of oil, so can be used in landscape design and for the pharmacology needs.

**(O-44) WHAT DO WE KNOW ABOUT RUDERAL FLORA  
AND VEGETATION IN BULGARIA AND ROMANIA?**

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The study summarizes and analyses the available data about syntaxonomical diversity of synantropic flora and vegetation in the whole territory of Bulgaria and Romania. We collected and analyzed all available data about synantropic vegetation from phytocoenological literature and databases – Balkan Dry Grassland Database, Balkan Vegetation Database and Romanian Grassland Database. All localities were georeferenced by Google Earth *a posteriori*, in case of missing GPS data. Mapping was done using ArcGis 10.0 software. We prepared groups of vascular plants, mosses and lichens, which distribution optimum is related to the synantropic vegetation.

Recent knowledge on ruderal flora, including mosses and lichens, in Bulgaria and Romania is quite limited. Until now, the ruderal vegetation in Romanian is represented by 7 classes, 16 orders, 36 alliances and 179 associations, whereas in Bulgaria it includes 5 classes, 11 orders, 21 alliances, 42 associations and 8 plant communities without rank. Recently about 4,000 relevés from synantropic vegetation are available from both countries. We plan to reveal much more of the existing vegetation and floristic diversity in the country during the 2018-2021 period, when many new relevés will be collected within the project “Study of ruderal flora and vegetation on the territory of Bulgaria and Romania”.

**(O-45) DIVERSITY OF VERTEBRATE FAUNA FROM  
„PRUTUL DE JOS” RESERVE, REPUBLIC OF MOLDOVA****Victoria NISTREANU<sup>1\*</sup>, Viorica PALADI<sup>2</sup>, Vladimir TURCAN<sup>1</sup>**<sup>1</sup>Institute of Zoology, ASM, Republic of Moldova<sup>2</sup> Prutul de Jos reserve, Republic of Moldova\*corresponding author: [vicnistreanu@gmail.com](mailto:vicnistreanu@gmail.com)

The reserve Prutul de Jos is located in the southern part of the R. Moldova, in Cahul district, in the flooded meadow of Prut river. Several types of ecosystems have been studied: aquatic, paludous, riparian, marsh, forest, open type biotopes. The terrestrial vertebrate fauna was monitored in all seasons of 2014-2017, the mammals were recorded after direct visual observations, after traces, using traps. Birds were observed by binocular on all phenological periods. Reptiles and amphibians were counted on routes of 2-10 km. During the study period 41 mammal species (6 orders), 196 bird species (17 orders), 7 reptile (2 orders) and 9 amphibian (2 orders) species were registered. Among mammals the ord. Rodentia is the best represented (15 species). The bird fauna is extremely rich especially in migration period, when representatives of ord. Passeriformes, Charadriiformes and Anseriformes dominate. In the Red Book of Moldova 13 mammal species, 37 bird species, 3 reptile and 5 amphibian species are listed. The reserve Prutul de Jos is an area of huge importance for fauna conservation, especially for migratory birds, and represent a unique ecosystem complex that need constant monitoring.

**(O-46) PRESENT LAND CONSOLIDATION PRACTICES  
OF TURKEY****Sedat KARAMAN<sup>1\*</sup>, Zeki GOKALP<sup>2</sup>**<sup>1</sup>Gaziosmanpasa University Agricultural Faculty Department of Biosystem Engineering, Tokat, Turkey<sup>2</sup>Erciyes University Agricultural Faculty Biosystem Engineering Department, Kayseri, Turkey\*corresponding author: [sedat.karaman@gop.edu.tr](mailto:sedat.karaman@gop.edu.tr)

In Turkey, agricultural lands are mostly composed of small, fragmented and scattered plots. Size of agricultural lands usually decreased through inheritance, then productivity of these lands decreased in time. As the number of plots increases, the area to be allocated for plot boundaries, roads, agricultural roads and irrigation canals also increases. Such an improper structure should be rearranged and efficient time, labor and capital use should be provided with modern agricultural practices. The objective in such practices should also be the optimum utilization of agricultural inputs to improve efficiency and yield levels in production activities and ultimately to improve life standards of rural people. Agricultural infrastructure should be rehabilitated to meet ever-increasing food demands of increasing population and to meet raw material needs of various industries. Rehabilitation of agricultural infrastructure requires integration and implementation of several inter-related economic policies. Among such policies, land consolidation and on-farm development services are the leading ones. In this study, present land consolidation practices of Turkey were generally assessed and recommendations were provided for better, reliable and sustainable implementations.

**(O-47) PRESENT PROBLEMS EXPERIENCED IN TURKISH  
RURAL SETTLEMENTS****Sedat KARAMAN<sup>1\*</sup>, Zeki GOKALP<sup>2</sup>**<sup>1</sup>Gaziosmanpasa University Agricultural Faculty Department of Biosystem Engineering, Tokat, Turkey<sup>2</sup>Erciyes University Agricultural Faculty Biosystem Engineering Department, Kayseri, Turkey\*corresponding author: [sedat.karaman@gop.edu.tr](mailto:sedat.karaman@gop.edu.tr)

Rural settlements are common in countries with economies largely dependent on agriculture and in countries where much of the population is employed in agricultural sector. Such settlements are also quite common in Turkey. Legal regulations on settlement-structuring are practiced exactly in the same fashion throughout the country in Turkey. Social, economic, geographical and environmental issues are not considered. Low life standards in villages due to insufficient social and technical infrastructure force rural people to migrate cities. The migration from rural to urban has still on-going since 1950s. Certain infrastructural services should be provided to rural settlements to keep them alive and allow them to perform functions and activities expected from them. Basic infrastructural services should be provided to rural people in order to let them to serve for the development of the country in concert with the other sections of the country. In this study, current status of rural settlements of Turkey was assessed, potential problems were identified and solutions were proposed for such problems.

**(O-48) WITH THE RUCSAC IN THE NATURE OF  
DÂMBOVIȚA COUNTY****Mihail DUMITRU<sup>1</sup>, Cornelia Mariana SĂVESCU<sup>1\*</sup>**<sup>1</sup> Colegiul Național "Ienăchiță VĂCĂRESCU" Târgoviște, Romania\*corresponding author: [csavescu2006@yahoo.com](mailto:csavescu2006@yahoo.com)

Surrounding nature is a source of material goods, a spring of health, joy, and human wealth. It opens up many interesting pages in front of whoever wants to look at it more closely, who seeks to understand it and calls us to know it and put it in value. Only by traveling we enjoy the beauties of nature, we can carry out interesting activities and researches. In this paper we highlight many rare, interesting objectives, some of them are considered natural heritage, but also the indifference and aggressive action of man on the entire county of Dâmbovița . There are many parks in the premises of former boyar houses, which preserve rare and secular trees. Within the churches there are preserved treasures of nature, worthy to be known. There are also remarkable, secular and large trees. Our work is also an urge to travel to identify the beauty of nature, but also the contrasts and negative phenomena.

**(O-49) MONITORING THE STURGEON BEHAVIOUR ON  
LOWER DANUBE. CASE STUDY: THE SECTOR BETWEEN  
KM 200 – 182**

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Sturgeon, fish species of high importance for the Europe biodiversity sensitive to hydromorphological changes, undertake migrations for breeding on Lower Danube from the Black Sea. They are species of great economic importance, being appreciated for the caviar called "the black gold of the Danube", which led to their overexploitation over time, leading to the decimation of populations to an alarming threshold. Researches in recent years has highlighted this issue, leading to the development and implementation of protection and conservation measures for the 4 sturgeon species that are still present on the Danube. This paper aims to highlight the behaviour of sturgeon on the Danube sector between km 200-182. The monitoring of sturgeon behaviour was possible by using ultrasonic telemetry involving tagging with ultrasonic tags and mounting of reception stations at key points. The sturgeon tagging was performed according to a method developed by INCDPM experts, and reception stations were mounted using the DKTB and DKMR-01T systems. The results from the study highlighted the preferred routes of ultrasonically tagged sturgeon in this sector and the highlighting of the flows at the confluence between the Danube and the Caleia branch. Also, was achieved the distribution of ultrasonically tagged sturgeon at the level of confluence between the two branches outlined above. The data obtained represent unique results in this area, so far no studies have been conducted in this sector.



**(O-50) ENVIRONMENT CONSERVATION AND  
SUSTAINABLE DEVELOPMENT IN COSTA RICA**

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The article presents the specific environmental situation of Costa Rica, a country that went through a period of environmental disaster and that can now be taken as an example of environmental recovery, to a point that today it can be considered one of the forerunners in environmental protection. On top of that, as of 2015, it is successfully on track to become the first fully carbon-neutral nation by 2022, drawing all of its energy needs from renewable sources.

**(O-51) PLANTS IN RADIATION BIOLOGY EXPERIMENTS**

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Following the Chernobyl and Fukushima Daiichi catastrophe, increasing attention is paid to ionizing radiations and its deleterious effects in living organisms. Many researches focused on the identification of the mechanisms involved in radioprotection of different organisms. The same type of radiation, at equal doses has different effects on different species. The effects on molecular level or at relevant endpoint, such as plant survival, seed production, and biomass were often put in evidence in radiation biology research.

For future radiation biology studies, there is a need to make a proper selection of the species most suitable for such experiments. The factors underlying sensitivity of organism to ionized radiation should be considered. In order to outline plants potential for radiation biology experiments we made a literature survey on radiation biology research that had plants as subject. The plants known to have radioprotective potential were also taken in consideration. We emphasis the effects observed on plants at different radiation doses. For scientometric data analysis we used the VOS viewer software.

**POSTER PRESENTATION****(P-01) ASPECTS OF SYNANTHROPIC FLORA AND  
VEGETATION IN THE CITY OF PITEȘTI****Valeriu ALEXIU<sup>1\*</sup>**<sup>1</sup> University of Pitesti, Faculty of Sciences, Physical education and Informatics\* Corresponding author: [alexiuvaleriu@gmail.com](mailto:alexiuvaleriu@gmail.com)

The paper presents a description of synanthropic flora and vegetation from the Pitesti city area. The studied synanthropic plant species and phytocenoses are located in the town's intravilan and extravilan area. Pitești municipality is located in the central-southern part of Romania, between the Southern Carpathians and the Danube, in the northwest of the informal Muntenia region. The town is at the confluence of the Argeș River with the Doamna River, at the intersection point of the parallel of 44° 51'30" north latitude with the meridian of 24° 52' east longitude. Pitesti city covers 40,73 km<sup>2</sup> and comprises green spaces with different ages and degree of structural diversity (vegetation cover and internal architecture). In this paper, we focus on synanthropic plant species having as topics: the most frequent herbaceous species from the Pitești area. The urbanization processes are intensified in time by the development of the human society. The urban biodiversity is a crucial component of the urban ecosystem and has an important ecological and cultural integrity. The plant species diversity has been recorded in areas shaped by man-made paths (asphalt alleys, walk paths, railway tracks). 124 synanthropic plant species have been identified. These have been analyzed from the point of view of biological forms, phytogeographical and ecological categories. Synanthropic vegetation from the Pitesti city is represented by 4 classes (Stellarietea mediae R. Tx., Lohmeyer et Preising in R. Tx. 1950, Artemisietea vulgaris Lohmeyer et al. in R. Tx. 1950, Galio-Urticetea Passarge ex Kopecký 1969 and Bidentetea tripartitae R.Tx. 1950).

**(P-02) NUTRIENT BALANCE EVOLUTION IN TOMATO CULTURE BASED ON LEAVES ANALYSIS AT DIFFERENT STAGES OF DEVELOPMENT****Andrei MOT<sup>1,2\*</sup>, Roxana Maria MADJAR<sup>3</sup>,  
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Worldwide, tomato culture occupies the first place as a percentage of the total area planted with vegetables. Knowing the requirements for growth factors is very important because cultivation technology must provide conditions as close as possible to the optimal levels. The research was carried out in Dâmbovița County during 2017. It aimed to establish the nutritional balance evolution on some tomatoes hybrids seedling (Prekos F1, Colibri, Zadurella V370, ISI-36629F1, Tolstoi F1, Grase) grown in a passive solar greenhouse, at different stages of development (3 leaves stage, 3-5 leaves stage, 5-7 leaves stage). The nutritional balance is given by the percentage ratio of the total content forms in nitrogen (N), phosphorus (P) and potassium (K) in leaves at different stages of the vegetation period. The results indicated that there are some imbalances given by the inadequate ratios of the N, P, K in the culture substrate. Based on the development stage, at 3 leaves is recommended to be 1:1.3:1, for the stage of 3-5 leaves of 1:1.4:1.6 and for the stage 5-7 leaves of 1:1.4:2.6. In conclusion, for tomato culture the culture substrate is well balanced if it correlates with the consumption of nutrients on the vegetation stages.

**(P-03) THE ECONOMIC EFFICIENCY OF A SUMMER-AUTUMN TOMATO CROPS IN THE VIDRA AREA, ILFOV COUNTY, IN 2016**

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The experiment, which aimed at controlling the pathogens that attack the summer-autumn tomato crops, included 5 variants. There were applied 5 treatments correlated with climatic factors. During the vegetation period we observed the appearance of the pathogens *Xanthomonas vesicatoria*, *Alternaria solani*, *Phytophthora infestans*, *Colletotrichum coccodes* and *Phytophthora parasitica*. The evaluation of efficacy of the variants was made in correlation with degree of attack (on the foliage) and frequency of attack (on the fruit) of the pathogens, and the economic efficiency was established according to the obtained yield. Experimental variants I (treatments: 1. Dithane M 45 0.2% + Champ 77 WG 0.3%; 2. Dithane M 45 0.2% + Cabrio Top 0.2%; 3. Melody Compact 49 WG 0.2%; 4. Melody Compact 49 WG 0.2%; 5. Melody Compact 49 WG 0.2% + Cabrio Top 0.2%) and III (treatments: 1. Polyram DF 0.2% + Champ 77 WG 0.3%; 2. Polyram DF 0.2% + Cabrio Top 0.2%; 3. Ridomil Gold Plus 42.5 WP 0.3%; 4. Ridomil Gold Plus 42.5 WP 0.3%; 5. Ridomil Gold Plus 42.5 WP 0.3% + Cabrio Top 0.2%) gave the highest profit (I-13,129.46 lei and III-12,734.78 lei/1000 sq.m.).

**(P-04) DATA SCIENCE IN BEEKEEPING**

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The collection, transmission, analysis and intelligent processing of collected bioprocess data is an important issue and challenge for researchers and IT specialists. Beekeeping is one of the agricultural sub-sectors where new technologies such as the Internet of Things (IoT) can be adapted and implemented successfully. Integrating data from different methods and technologies into beekeeping will improve beekeepers' knowledge of the behavior of individual bee colonies and help anticipate future events. The purpose of this article is to present a beehive monitoring system and the methods used to analyze and process collected data.

**(P-05) NITRATE REMOVAL POTENTIAL OF DIFFERENT MICROBIAL CONSORTIA, FEASIBLE FOR WASTEWATER TREATMENT IN RAS****M. IORDAN <sup>1,2</sup>, A.C. DUMITRACHE <sup>1</sup>, I.I. ARDELEAN <sup>1</sup>, Cristina MOISESCU <sup>1\*</sup>**<sup>1</sup> Institute of Biology Bucharest, Romanian Academy, Splaiul Independenței 296, Bucharest 060031<sup>2</sup> RAJA Strada Răscăleii 1907, 5, Constanța 900178\*Corresponding author: [cristina.moiescu@ibiol.ro](mailto:cristina.moiescu@ibiol.ro)

In Recirculating Aquaculture System (RAS) the water effluent from fish tanks is reused after cleansing with respect to organic substances, nitrate ( $\text{NO}_3^-$ ), nitrite ( $\text{NO}_2^-$ ), ammonia ( $\text{NH}_4^+$ ) and phosphorus ( $\text{PO}_4^-$ ) ions. One of the most used and promising cleansing techniques in modern RAS is the biological treatment of wastewaters performed by denitrifying bacteria which can convert the  $\text{NO}_3^-$  to  $\text{N}_2$ . In this study we estimated the aerobic denitrifying performances of different microbial consortia isolated from various sources, feasible to be further used in RAS. The kinetics of  $\text{NO}_3^-$  consumption in either batch or discontinuous conditions, on synthetic culture media with acetate or ethanol as sole carbon source and nitrate as the main final electron acceptor, has been characterized. The experimental data showed that the selected bacterial populations can clean water with efficiencies up to 90%, matching the requirements of international laws and making them suitable for employment in wastewater treatment in RAS.

**(P-06) BEHAVIOR OF OPRIȘOR VINEYARD VARIETIES OF  
BLACK GRAPES FROM WEST EUROPEAN WINE-  
GROWING COUNTRIES****Florin-Cătălin CROITORU<sup>1</sup>\***<sup>1</sup>University of Craiova\* Corresponding author: [croitorufiorincatalin@yahoo.com](mailto:croitorufiorincatalin@yahoo.com)

In this paper I analyzed the behavior in the Oprișor culture of varieties of grape varieties (Syrah) of French origin, (Primitivo and Dornfelder), the realization of the German researchers. All the results, observations and determinations made on these varieties were compared with those found at the same time in the varieties that were much soared in the area, Cabernet Sauvignon and Merlot. In the vineyard of Oprisor, data were collected and collected on: the evolution of the grape growth and maturation process, the physico-mechanical composition of the grapes, the recording of the grape production and the analytical and sensory characteristics of the wines. The chemical and sensory analysis of wines highlights the fact that in Oprisor the Cabernet Sauvignon, Merlot, Syrah and Dornfelder varieties give us the possibility to obtain the highest quality red wines, high alcohol, keeping enough acidity, but also by large contents of the non-reducing extract of anthocyanins. The wines are intensely colored and with a beautiful shade of color, they are balanced, authentic wines with great aging in order to get very nice characters, difficult to overlook.



**(P-07) BEHAVIOR IN CULTURE AT SEGARCEA, VINE VARIETIES, FOR BLACK GRAPES, FROM WESTERN EUROPEAN VINEYARDS****Florin-Cătălin CROITORU<sup>1\*</sup>**<sup>1</sup>University of Craiova\* Corresponding author: [croitoruflorincatalin@yahoo.com](mailto:croitoruflorincatalin@yahoo.com)

In this paper I analyzed the behavior in Segarcea culture of vines for black grapes (Syrah and Marselan), of French origin. All the observations and determinations provided in our research program for the two varieties have also been made on the Cabernet Sauvignon and Merlot varieties, also of French origin, but which have been part of the range of this area for a very long time and have offered the chance to obtain very fine red wines, contributing to the celebrity of these vineyards. Sensory analysis of wines has led to the appreciation that all four wines are among the top quality wines with a designation of origin, are authentic, with real aging properties. During the three years of study (2015-2017), from grape harvest to grape harvesting, the evolution of grain weight, acid content and sugars. The Syrah and Marselan wines, through their sensory composition and traits, recommend that the two varieties be extended to produce, which can produce very fine red and rosé wines and can be preferred partners for Cabernet Sauvignon in order to make new assortments, which can also bear the designation "Segarcea".

**(P-08) THE INFLUENCE OF CLIMATE FACTORS FROM  
SANDY SOILS ON STARTING THE MAIN PHENOPHASES  
AT SPECIES , PLUM, CHERRY AND SOUR CHERRY  
DURING THE YEARS 2015-2017**

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Climate change in the sandy soil area in the three experimental years has been manifested by increasing the average air temperature that led to early spring installation. On the sandy soils of Dăbuleni were recorded maximum temperatures of 29,4 ° C in the second decade of April 2015 and 30,1-31,4°C in the second decade of April in 2016, periods followed by days of rain that negatively affected the binding of fruits to plum, cherry and sour cherry. In these species phenophase of swelling buds and beginning bursting, starting in the last decade of March, in the sandy soil area of Dăbuleni, and the early phenophase starts in the second and third decades of April.

Under the condition 2015, at species plum, the first variety that flourished was 'Stanley' (11 IV), followed by 'Carpatin' and 'Tuleu Gras', (12 IV) and the last variety 'Minerva' 14- IV). In 2016, 'Stanley' was the first variety to flourish. Swelling buds at cherry in year 2015, took place between 27-29- III, in 2016 between 29-30 IV and in 2017 between 29-31, the bursting being in the first decade of April in all the studied varieties. At sour cherry species in year 2015 swelling buds took place between 21-23- III, in 2016 between 24-26, and in 2017 between 25-27, the bursting being in the last decade of March in all the studied varieties.

**(P-09) SENZORIAL AND PHYSICO-CHEMICAL  
CHARACTERISATION OF HONEY  
FROM MUNTENIA ZONE, ROMANIA**

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With a high nutritive value and healing properties, honey is a well known natural food product. Factors like floral source and climate condition influence the properties of honey. The study investigated sensorial and physicochemical characteristics of some honey samples collected directly from the beekeepers from Muntenia Zone, Romania. The colour, pH, moisture content, electrical conductivity, ash content, acidity and total sugar were evaluated. Moreover, these characteristics were compared with the International Standard of Codex Alimentarius. The results showed that all the honey samples had similar physico-chemical properties and respect the limits imposed by EU standards; in this way was proved that the honey from Muntenia Zone is a good quality honey. This standard could be sustained by regular training of local bee farmers in honey harvesting and storage.

**(P-10) THE DETERMINATION OF THE CONTENT OF  
PHENOLIC COMPOUNDS FROM DIFFERENT ROMANIAN  
WINES USING FOLIN - CIOCÎLTEU METHOD**

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It is well known that the bioactive compounds could have a benefic or harmful effects on human health. Recent studies point out the role of polyphenolic compounds in antioxidant activities. Wine polyphenols are considered the main responsible molecules present in wine to have beneficial effects on cardiac health and atherosclerosis, including neurological and carcinogenic illnesses. For this reason, in this paper we determined the content of polyphenolic compounds from different sample of red and white Romanian wines. It was used the Folin-Cocîlteu method. The obtained results are interpreted according to: grape varieties, agroecological conditions of vineyards (terroir), the vinification process, special winemaking procedures, microbial metabolism related to the fermentative process, climate conditions and other additional procedures like aging.

**(P-11) USING SOME SOFT-SEEDED FRUIT TREES IN  
LANDSCAPE DESIGNS**

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Tuba DİLFİRUZ<sup>1</sup>, Ozlem Deger Demir<sup>1</sup>, Emrah UYSAL<sup>1</sup>**

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Landscape; when viewed from a point of view, natural and cultural beings that are able to enter into the frame of view are brought together to form a fountain. The materials that make up the live decor of the areas consist of especially the large trees of the plant kingdom, shrubs, undergrowths, ivies, single annual, biennial or perennial herbaceous plants, that is, roots consist of onion, lumpy or rhizomaceous herbaceous plants, grass plants and water plants which can be kept on the ground continuously. Among these, wild and cultured forms of soft-seeded fruits constitute an important place. In this study, the functional and visual use of wild plants such as wild pear, pear, apple, quince and their wild forms in different landscape designs have been investigated. In plantation studies, plants can be used in esthetic, functional or both ways to be more effective. It can also be growth for economic reasons. Economically cultivated species are particularly high economic values. However, they are often used for esthetic purposes outside of commercial assets, such as in other fruit trees. For this reason, the most common uses are to take advantage of both fruit and to benefit from the visual effect of flowers and fruit.

**(P-12) PROTECTION OF HUMAN HEPG2 CELLS AGAINST  
OXIDATIVE STRESS INDUCED BY GLUCOSE  
BY THE CHLOROGENIC ACID****Hattf Bazool FARHOOD<sup>1\*</sup>, Mihaela BALAS<sup>1</sup>,  
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Chlorogenic acids (CGA) are phenolic compounds formed by the esterification of cinnamic acids, such as caffeic, ferulic, and p-coumaric acids, with (-)-quinic acid. A series of health benefits have been associated with the consumption of CGA in the last few years, such as reduction of the relative risk of cardiovascular disease, diabetes mellitus. This study investigated the potential protective effect of CGA against oxidative stress induced by glucose on human HepG2 cells. Markers of oxidative status such as: reduced glutathione (GSH), malondialdehyde (MDA), advanced oxidation protein products (AOPP) were measured in HepG2 cells cultured in normoglycemic (NG) (5.55 mM), high-glucose medium (HG) (25 mM,) and HG in the presence of different concentrations of CGA (5, 10, 50  $\mu$ M). The results of the post- and pretreatment of CGA were visible on the intracellular GSH and MDA levels, which increased and respectively decreased after 24 h of pre- and post-treatment with low doses of CGA. At higher doses, the results were the opposite, suggesting a pro-oxidant effect of CGA. The exposure of HepG2 cells to high glucose levels induced also protein oxidation. In this case, it was observed that, the pre- and post-treatment with CGA reduced the level of AOPP in cells exposed to 25 mM glucose. After 24h of pre-treatment the levels of AGEs increased in HG medium in comparison with the NG one. The treatment with CGA reduced the AGEs levels, while the results of post-treatment showed a decrease in AGEs levels for all concentration in comparison with control. In conclusion, CGA counteracts to a certain extent the oxidative stress induced in HepG2 cells by exposure to HG medium.

**(P-13) CONTRIBUTIONS TO THE INTEGRATION  
OF THE AGRICULTURAL CADASTER  
IN THE GENERAL CADASTRE**

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The use of the maps has gained a new level due to the latest advances in digital technologies and geographic information systems (GIS). This study investigated a digital method as time to accomplish, errors of determination, solving the climate problem that often hinders effective field work, with the aim of making contributions to the integration of the agricultural cadastre (this time represented by the details of a fruit plantation ) in the general cadastre. The goreferencing consisted in positioning, or framing a representation, into a reference system given in a specific location. The details and points defined by arbitrary coordinates were transcended into the national reference of the stereographic projection. The basic condition was the knowledge of the position, given by the coordinates in the new location of four points in the geodetic network (detail). RTK (Real Time Kinematic) - kinematic determinations, Pentax W-822NX total station, TransDatRO version 4.04 program and AutoCad program were also used in the study. The investigation was positive, with the use of the conditioning method with a large-scale future implementation after the verification of other aspects of the agricultural cadastre.

**(P-14) STUDIES REGARDING THE VARIABILITY OF THE  
PLANT PRODUCTIVITY CHARACTERS OF THE BELL  
PEPPER (*CAPSICUM ANNUUM* VAR. *TETRAGONUM*)**

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The study tracked the evaluation of the characters that contribute to the plant production of a collection of bell pepper genotypes. The experimentation was done in the field, under the usual technological conditions. The data collected through biometric measurements was statistically interpreted by variance analysis and by setting the selection indices ( $S$ ,  $h^2$ ,  $\Delta G$ ). The biological material consisted of 20 landraces collected from the west of Romania. The Tomnatic II landrace is remarkable with its numerous and small fruits; also the Apateu I and Cenad with their significantly increased fruit weight on plant. Regarding the fruit weight, the differences between the populations can reach up to almost 100 g (Simian), which has the highest heritability (0.83), while to most populations, the heritability of this character is less than 0.50. The expected genetic progress for fruits number/plant can be up to 5.98 fruits (Tomnatic II). The most common values are between 2 and 3 fruits. The fruits weigh/plant can be improved by selection with a progress ranging from 21.43 g (Tomnatic I) to 340.73 g (Valcani). Considering these indices, the material that we collected is valuable for the selection process, but the duration of the selection must be longer.



**(P-15) COPPER EFFECT ON MORPHO-CYTOLOGICAL  
PROCESSES AT CUCUMIS SATIVUS L.****I. SARAC<sup>1\*</sup>, I. PETRESCU<sup>1</sup>, E. MADOȘĂ<sup>1</sup>, E. BONCIU<sup>2</sup>,  
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Our research has aimed at detecting copper-induced effects on higher plants in order to study morpho-cytogenetic changes in *Cucumis sativus* L. as an indicator of the degree of heavy metal pollution in soil in crop plants. It was followed: the determination of some morphological / phenotypic parameters for the overall assessment of the copper / cucumber influence; an appreciation of how morphological / cytological parameters reflect the influence of copper. The plant material used was the Crisan variety from the species *Cucumis sativus* L. Cucumber seeds are exposed from the beginning of the experiment to treatment at different doses of copper, the radicles being developed in the test solution. The cytological preparations obtained are studied under the microscope and are evaluated by calculating the mitotic index and analyzing the chromosomal aberrations observed in the different stages of mitosis.

**(P-16) HISTORICAL RESEARCH CONCERNING  
*LIGULARIA* GENUS**

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Year by year, many species and their populations are in danger of extinction, this situation being reflected in the decline of biodiversity. Numerous studies have been carried out in recent years on the numerical decline of rare species, following the correlation between factors that threaten the existence of populations in a particular habitat. The *Ligularia* genus includes species adapted to different climatic and environmental conditions on the European and Asian continent. This paper summarizes the studies on both *Ligularia sibirica* and *Ligularia* genus. The aim is to identify the following research steps needed for the characterization, monitoring and optimal conservation of *Ligularia sibirica* (L.) Cass. species. Based on the collected scientific material containing data on *L. sibirica*, the author found a total of 169 bibliographic sources, of which 110 belong to Romania. The number of scientific materials found in Romania is closely correlated with the distribution of the *L. sibirica* species in the country. In our country taxonomic studies prevails, as part of floral works, which need to be updated.

**(P-17) STUDY THE EFFECT OF TRICHODERMA SPORES  
LOADED ON ALGINIC AND 2% CMC WITH CHEMICAL  
FERTILIZER AND ORGANIC COMPOST AGAINST FUNGI  
*FUSARIUM OXYSPORUM* ON THE PLANT OF TOMATO  
IN THE FIELD**

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The study was conducted to determine the effect of the fungi *Trichoderma harzianum* and *Trichoderma koningii* loaded on alginic acid and 2% CMC in sterile and non-sterilized soil, treated with mineral fertilizer and organic fertilizer against pathogenic fungus *Fusarium oxysporum* on the plant of tomato in the field. The best results of the fungus *T.harzianum* and *T.koningii* loaded with alginic acid in sterile soil with organic compost against pathogenic fungus and improved plant growth. Where the growth indicators for the length of the plant were 186.66, 186.33, fruits weight were 3231.50, 3592.00 and number of fruits were 25.00, 21.00 for the two fungi *T.harzianum* and *T.koningii* respectively. While chlorophyll 69.33 and 69.66, nitrogen 6.57 and 6.54 and phosphor 0.591 and 0.585 for *T.harzianum* and *T.koningii* respectively, also the fungus *T.harzianum* and *T.koningii* loaded with alginic acid in sterile soil with organic compost improve photosynthetic process the results of photosynthesis 16.75 and 16.29 and respiration 6.53 and 7.25 respectively. This study was designed to determine the effect of bio fungi *T.harzianum* and *T.koningii* and their filters against the pathogen *F.oxysporum* in the laboratory and investigate the effect of *T.harzianum* and *T. koningii* loaded on alginic acid and 2% CMC on growth indicators.

**(P-18) COMPARATIVE STUDY ON THE OPTIMIZATION OF MEDICINAL AND AROMATIC PLANTS EXTRACTION METHODS**

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Medicinal and aromatic plants (MAP) have always been an important element in maintaining and improving human health and vitality. The study includes medicinal and aromatic plants such as *Liquiritiaria radix* and *Satureja herba* which have been selected for their high content of total phenols and antioxidant activity. Improvement of extraction methods is the main concern of the researchers for an efficient material exploitation and reduction of quantities of plant waste resulted from the extraction processes. Therefore, we have opted in this study for a comparison between five MAP extraction methods using both classical and modern methods. The optimization study consists in the usage of experimental design statistical techniques based on polynomial equations; the validation of these proposed optimization models is performed by evaluating the multiple regression coefficient, by performing the statistical analysis of the variance (ANOVA) or by plotting the answer surfaces. In this study, favorable conclusions can be drawn regarding the selection of the optimal extraction parameters for each method,

following an optimal ratio between the extraction results and material resources used in the process.

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**(P-19) QUALITY OF YIELD AT WHEAT, TRITICALE AND BARLEY SPECIES CULTIVATED IN THE ECOLOGICAL SYSTEM ON ARDS SIMNIC****Gabriel PĂUNESCU <sup>1\*</sup>, Gabriela PĂUNESCU <sup>1</sup>,  
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An assortment consisting of 10 wheat, 8 triticale and 7 barley varieties were cultivated for three years (2010, 2016 and 2017) in two systems of culture: ecological and conventional on the Simnic luvisoil. The quality of yield seen from the perspective of the protein content, test weight and the weight of 1000 grains were studied from the interactions: species x culture system and variety x culture system. The aim is to promote the species and varieties that are distinguished from the point of view of the quality of the production obtained under the conditions of cultivation in an ecological system, a system that ensures the quality of life by the fact that the yield does not use pesticides and chemical fertilizers. All the varieties experienced in all three species recorded diminished yields, statistically assured under ecological conditions in relation to those sown under conventional crop conditions. In terms of quality, only triticale varieties Titan and Oda obtained at all three quality indices (protein content, test weight and the weight of 1000 grains) simultaneously, values is in the ecological system at the level obtained in the conventional system. From the point of view of the quality of the obtained yield, it was shown that the wheat and triticale did not differentiate between ecological and conventional while the barley showed significant decreases in protein content and weight of 1000 grains under the same reported conditions.

**(P-20) RESPONSE OF AN WINTER WHEAT ASSORTMENT  
TO THE ECOLOGICAL CULTIVATION SYSTEM ON  
LUVISOIL FROM SIMNIC CRAIOVA****Gabriela PĂUNESCU <sup>1\*</sup>, Gabriel PĂUNESCU <sup>1</sup>,  
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Fifteen varieties of autumn wheat, most of them recently approved, were tested in an ecological system in the experimental field at ARDS Simnic. For two years (2016 and 2017) determinations have been made regarding height, number of spike/mp, yield, test weight, weight of 1000 grains, number of grains/ear, weight grains/ear and protein content, both in ecological and conventional systems, last as a reference base. The differences were presented percentually to see to what extent the ecological system influenced the determined characters. The control used were the average of all tested varieties and the Alex variety - that showed the highest average yield in the ecological system. In ascending order, the studied characters were affected by ecological system in relation to the conventional system, on average, as follows: yield (52.6%); weight grain/ear (69%); number grains/ear (69.1%); height (83.9%); number spike /mp (84.2%); protein content (89.6%); the weight of 1000 grains (96.9%); test weight (102%) - the only uninfluenced character. In relation to Alex variety, only Litera variety showed significantly higher reductions in terms of test weight, number of grains/ear and weight grains/ear. Compared to the average of the varieties, significant differences were noted only at the test weight in Miranda (+ 4.2%) and Ursita (-7.1%). The results suggest that the ecological system influenced the characters studied, indifferent of the varieties tested.

**(P-21) THE VIABILITY OF SALMONELLA ENTERICA VAR. POONA IN FILTERED AND UNFILTERED SEA WATER MICROCOSMS AT DIFFERENT TEMPERATURES****Roxana Gabriela CRISTINA <sup>1</sup>\*, Ioan ARDELEAN <sup>1</sup>**<sup>1</sup> Institute of Biology Bucharest, Romanian Academy\* Corresponding author: [roxy\\_mvb@yahoo.com](mailto:roxy_mvb@yahoo.com)

This study focuses on the determination of the viability of *Salmonella enterica* var. poona sub-population submerged in indoor sea water microcosms for a period of five days. The usage of bought filtered and unfiltered sea water and two different temperatures (4°C and 37°C) aimed to establish the importance of biotic and abiotic parameters of the microcosms in the dynamic of the *Salmonella enterica* var. poona cells. The collected probes were analysed via fluorescent microscopy with respect to total cell density and the number of dead and the cultivability capacity of the bacteria cells which was assessed by CFU determination on selective culture media (Luria Bertani and *Salmonella* Shigella Agar). The results obtained in this study show that in this five days period the temperature of the sea water and the presence of concurrent bacteria and protozoa are contributing significantly to the decrease of viability and multiplication capacity of *Salmonella enterica* var. poona that undergone a hypo-osmotic shock after the passage in the indoor microcosms. Low temperature (4°C) and protozoa predation (unfiltered sea water) seemed to be the most harmful microcosm configuration regarding bacterial survivability leading to near annihilation of the cultivability capacity at the end of the five days studied time.



**(P-22) GENETIC RESOURCES FOR SWEET AND SOUR  
CHERRY BREEDING COLLECTED *EX SITU***

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The aim of this paper were to evaluated of some autochthonous sweet and sour cherry genotypes in the Romanian North Eastern area conditions. In period 2016-2017 studies were done, having as research material that eight sweet cherry ('Amar Adamache', 'Amar 15 Iași', 'Crăiești de Camarna', 'Perișoare de Comarna', 'Pletos de Camarna', 'Iosifan', 'Bălăi timpurii' and 'Amar Mărculești') and seven sour cherry genotypes ('Mocănești 104/24', 'Mocănești 32/20', 'Focșani 3', 'Suraia', 'Crișane 11/6', 'Bizighești' and 'Selecția Cotea') which were in *ex situ* collected. The climate factors, frost resistance expressed in percent from total sectional buds, phenological stages, fruit, peduncle and stone features were analyzed. In the climate conditions of the studied years, the smallest fruit of the sweet cherry genotypes showed 'Amar Mărculești' (1.87 g) while the largest one was 'Iosifan' (7.85 g). Smallest fruit of the sour cherry genotypes showed 'Mocănești 32/20' (4.51 g) while the largest one was 'Mocănești 104/24' (6.72 g). Stone range between 0.24 g ('Amar Adamache') to 0.37 g ('Amar Mărculești') at studied sweet cherry genotypes while at sour cherry genotypes range between 0.28 g ('Mocănești 104/24' and 'Crișane') to 0.38 g ('Mocănești 32/20').

**(P-23) IDENTIFICATION AND OPTIMIZATION  
OF FIBER EXTRACTION METHODS  
FROM OLEAGINOUS PLANTS**

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Globally, oleaginous plants (OP) production has recorded significant growth, due to their large applications in biofuels industry or vegetable oil production for cosmetics, pharmaceuticals, dyes or industrial applications. The oleaginous plants chosen for this study are *Carthamus tinctorius* L., *Silybum marianum* L., *Linum usitatissimum* L. and *Helianthus annuus* L., which are renowned for their high oil and fiber content. In order to optimize the methods for determining the total fiber content and the global digestion process of the non-cellulosic components of these oil plants, experimental design statistical techniques have been developed using statistical models such as multiple regression with variance analysis applied using the ANOVA test. The present study aims at a comparative statistical analysis on the identification and optimization of fiber extraction methods in the four OP chosen. Moreover, the study allowed the identification of the optimal values of the experimental parameters and the 'desirability' function to be used to evaluate the final responses. In conclusion, this study helps us to found a favorable way of obtaining fibers using modern extraction methods.

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**(P-24) STUDY OF BACTERIAL RHIZOSPHERE STRAINS  
AS BIOCONTROL AGENTS**

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Plant growth promoting rhizobacteria (PGPR) are a heterogeneous group of bacteria that can be found in the rhizosphere, at root surfaces and in association with roots, which can improve the extent or quality of plant growth. In last few decades a large array of bacteria including species of genera *Pseudomonas*, *Bacillus* and *Azotobacter* have reported to enhance plant growth. Biological control is a non-hazardous strategy to control plant pathogens and improve crop productivity. A large group of the active strains of the genus *Pseudomonas* and *Azotobacter* was described as biocontrol agents as a result of their general ability to produce different potent antifungal metabolites. The antifungal activity of three studied *Pseudomonas* strains and a strain *Azotobacter vinelandii* were screened against *Aspergillus flavus*, *Penicillium claviforme*, *Rhizopus arrhizus* and *Fusarium* sp. The antifungal activity could be associated with some lytic enzyme activities such as proteolytic activity, chitinolytic activity and siderophore production well expressed by tested strains. From the results obtained, it can be noted that strain *Ps. putida* Or5 exhibited very low activity against *Aspergillus flavus*, while the strain *P. chlororaphis* 1S4 completely inhibits the growth of this test mold. The same inhibition effect was detected for *P. chlororaphis* 1S4 against *Penicillium claviforme* and *Rhizopus arrhizus*. *Azotobacter vinelandii* expressed almost 50% antifungal activity against *Aspergillus flavus*. It is important to note the detected inhibition effects of the three *Pseudomonas* strains against maize rhizospheric isolate *Fusarium* sp. More of the species from genus *Fusarium* are known as a plant pathogen that causes

various diseases, such as root, stem or fruit rot in corn, pea, soybean, potato, watermelon etc. *Fusarium* head blight or head scab is one of the most important diseases of wheat, oats, barley, spelt and other grain crops. For strain *Azotobacter vinelandii* there was no effect of suppressing or delaying the growth of *Fusarium* sp. Two of studied *Pseudomonas* strains demonstrated inhibition effect at the level from 21% to 25%. Only for the *Ps. chlororaphis* 1S4 was established more pronounced inhibitory effect of 74.29% against *Fusarium* sp.

**(P-25) INVESTIGATION OF RHIZOSPHERIC *BACILLUS* STRAINS AS ANTIFUNGAL AGENTS**

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Rhizosphere microorganisms are beneficial to plants and used to enhance crop yield and could be used as alternatives to chemical fertilizers and pesticides. The aim of this study is to investigate ability of five *Bacillus* strains to produce lytic enzymes and suppress growth on pathogens. All studied *Bacillus* strains have ability to produced lytic enzymes such as: chitinases, proteases, cellulases, pectinases and amylases. As a results of these study is important to note, that studied rhizospheric *Bacillus* strains have specific activity against test molds. The strain *Bacillus subtilis* 6VR have strong antifungal activity against *Aspergillus flavus*, *Fusarium sp.* and *Penicillium claviforme* respectively 100%, 67.8% 58.3 % inhibition effect. Strain *Bacillus pumilus* 9VR demonstrate the highest inhibition effect against *Penicillium claviforme* (70.83%) and *Rhizopus arrhizus* (22%). All *Bacillus* strains have different antagonistic activity which make them potential biological agents for biocontrol.

**(P-26) STUDY, VALORIZATION AND PROMOTION  
OF CULTURAL HERITAGE ARTIFACTS  
USING NUCLEAR TECHNIQUES**

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The need for preservation, especially preventive, of cultural heritage comes from the inexorable perishable state of materials that are part of the cultural heritage, both mobile and immobile. In order to select the proper conservation/restoration methods, the first stage should always consist of a thorough analysis of the selected artifacts. The analysis methods selected should meet several criteria, out of which the most important is that they should have a non-destructive character, or if not possible, they should be at least micro-destructive. The most suitable methods for analysis, fulfilling the non-destructive request, are the nuclear techniques. The present paper aims to present the experience of our group in using the nuclear techniques for the study of cultural heritage artifacts, techniques often used in methodologies including other non-destructive or micro-destructive methods.

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**(P-27) DEVELOPMENT OF APATITIC MATERIALS FOR APPLICATION IN CULTURAL HERITAGE PROTECTION****Radu Claudiu FIERASCU<sup>1\*</sup>, Irina FIERASCU<sup>1</sup>,  
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Apatitic materials, with different morphologies and properties, used as simple nanoparticles or in different decorated or substituted forms can be used for various applications, from biomedical ones to building materials. Thus, it can be stated the apatitic materials represents a truly versatile solution for a very large number of applications. By using other metals (for example silver or copper), the antimicrobial activity of substituted hydroxyapatite could be enhanced, as these metals possess themselves an important antibacterial activity. The materials obtained can be used not only as an anitmicrobial agent, but also for the consolidation/restoration of cultural heritage artifacts. Development of recipes based on these materials would provide not only a very efficient solution but also an affordable one. The present paper aims to present the experience of our group in the synthesis and characterisation of new apatitic materials, as well as their potential use in applications related to conservation of cultural heritage artifacts.

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**(P-28) CHARACTERISATION METHODS FOR CATALYTIC MATERIALS USED FOR THE REMOVAL OF ENDOCRINE DISRUPTING CHEMICALS FROM WATER SOURCES**

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Endocrine disruptors (ECD) are chemicals that mimic hormone function and, once in the body, alter hormonal balance. Advanced oxidation processes are primarily intended for the removal of organic pollutants or for their transformation into non-toxic and / or biodegradable byproducts. AOPs are suitable for effluents containing non-biodegradable pollutants at relatively low concentration. With all the advantages of this technique, there are still a number of issues that need to be refined to achieve an efficient and environmentally friendly method. The central element of the process is the catalytic system that has the role of generating hydroxyl radicals by converting dissolved ozone. The properties of the catalyst must be adjusted so that the amount of radicals generated is optimal because a surplus leads to an inefficient consumption of ozone and a lower amount does not allow the depollution targets. The present paper presents the characterization of such catalytic systems, using state-of-the-art analytical techniques, such as X-ray Diffraction, X-ray Fluorescence, Inductively coupled plasma-atomic emission spectrometry, thermal analyses, determination of specific surface area.

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**(P-29) DEVELOPMENT AND CHARACTERIZATION OF  
NEW ADSORBANT MATERIALS FOR THE DEPOLLUTION  
OF WATER RESOURCES**

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Due to the diversity of industrial and agricultural activities, anything can come across in the polluted aqueous effluents like: heavy metals, dyes, phenols, detergents, pesticides, PCBs etc. Oxidation processes cannot be effective in the purification of a large part of industrial effluents. In spite of great success in treatment of water and wastewater, the existing bottlenecks (high costs to obtain adsorbents, diffusion limitation which hinder the process, large amount of solid waste after use) limits the application of adsorption processes. In order to improve the process performance, a new approach is required. In this context many, literature data shows that nanotechnologies can be harnessed to solve critical development problems. The present paper presents the synthesis, characterisation and application of nanoadsorbents with magnetic core.

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**(P-30) PHYTOSYNTHESIS OF METALLIC  
NANOPARTICLES USING INDIGENOUS VEGETAL  
MATERIALS: FROM PREVIOUS EXPERIENCE TO  
FUTURE APPLICATIONS**

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The area of nanomaterials phytosynthesis has grown in the last decades, due to its „green” character (thus reducing the use of potential hazardous substances), easy-to-scale and cost-efficient character. Our group previously demonstrated the potential of several vegetal extracts to synthesize mono and bimetallic nanoparticles, with various sizes and shapes, having enhanced antimicrobial potential. The present paper aims to describe the previous experience of our group, as well as the potential applications that will be developed in the research project „Development of vegetal extracts and innovative phytosynthesized nanostructured mixtures with phytotherapeutic applications to reduce biocenotic stress in horticultural crops”, part of the complex project “Increasing the institutional capacity of bioeconomic research for the innovative exploitation of indigenous vegetal resources in order to obtain horticultural products with high added value” (BIOHORTINOV).

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**(P-31) APPLICATION OF NANOTECHNOLOGY FOR  
SAFEGUARDING THE CULTURAL HERITAGE****Radu Claudiu FIERASCU<sup>1</sup>, Irina FIERASCU<sup>1\*</sup>, Ioana POPITIU<sup>2</sup>, Gabriel RUSTOIU<sup>3</sup>, Alina ORTAN<sup>4</sup>**<sup>1</sup>Emerging Nanotechnologies Group, The National Institute for Research & Development in Chemistry and Petrochemistry - ICECHIM, Bucharest, Romania<sup>2</sup>Museum of Dacian and Roman Civilization Deva, Hunedoara, Romania<sup>3</sup>National Museum of the Union Alba Iulia, Alba, Romania<sup>4</sup>University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania\* Corresponding author: [dumitriu.irina@yahoo.com](mailto:dumitriu.irina@yahoo.com)

Cultural heritage represents one of the most important legacies inherited from our ancestors to be passed to our heirs. However, due to various factors (such as natural and man-made disasters, negligence, etc., but also because of the acceleration of global changes, in the most general sense), this invaluable heritage is permanently endangered, being estimated that Europe has lost much of it. Its protection is thus a major concern for decision-makers, stakeholders and citizens of Europe. The nanotechnology provides the best tools for developing new recipes for safeguarding the cultural heritage artifacts, allowing the adaption of the recipes to the unique character of each such artifacts. The present paper aims to describe the previous experience of our group in this area, as well as the applications to be developed in the research project „Nanotechnology – an innovative approach with development of materials and techniques for safeguarding the cultural heritage”, part of the complex project “Multidisciplinary complex project for monitoring, preservation, protection and promotion of the Romanian cultural heritage” (RO-CHER).

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**(P-32) THE MANAGEMENT OF *EX SITU* GRAPEVINE  
GERMPLASM COLLECTIONS**

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This paper deals with the main issues related to the management of grapevine germplasm collections, meaning specific decisions for: obtaining plant material (accessions), establishing the germplasm collection with this material, applying the specific and adequate technology to ensure survival and preservation of plants, characterization and evaluation of the accessions to identify each individual and determine their usefulness, information and documentation (activities of recording), and finally, germplasm utilization. All these decisions are explained and exemplified by concrete results from grapevine germplasm collection owned by the NRDIBH Stefanesti. A complete characterization of each accession by ampelographic descriptors and molecular methods is essential to evaluate the genetic diversity of *Vitis* genus and to identify the traits for resistance to biotic and abiotic stresses or for oenologic and marketing importance. Well organized activities, with complete documentation and identification the proper performance indicators are essential for making decisions. The final results are: efficient use of preserved plant material (accessories) in breeding activities, providing the basic material for establishing new vineyards, maintenance and protection of endangered varieties.

**(P-33) COMBINING MICROSATELLITE MARKERS  
AND AMPELOGRAPHY FOR BETTER MANAGEMENT  
OF ROMANIAN GRAPEVINE GERMPLASM  
COLLECTIONS**

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Aiming to investigate the correspondence of phenotypic variability and molecular markers, 50 varieties of *Vitis vinifera* ssp. *vinifera*, ancient grapevine varieties grown on Romanian territory, were selected to be analyzed. All varieties were subjected to ampelographic analyses with OIV descriptors and also to molecular analyses with 13 microsatellites. The morphology description with recommended methods corresponded with the reference literature, proving the correct registration of the varieties at the moment of acquisition. Aiming to evaluate the markers efficiency in evaluation the genetic diversity among studied varieties, were calculated: number of alleles per locus (Na), observed heterozygosity (Ho), expected heterozygosity (He), the polymorphic information content (PIC) and the probability of identity (PI). Beside the nine recommended SSR markers, were remarked the ISV4 and VMCNG4b9 markers which displayed the highest diversity levels regarding the expected heterozygosity with some of the highest values of PIV and the lowest values of PI. Comparing the SSR profiles of the 50 Romanian grapevine varieties with the profiles from the Eu databases, were revealed: confirmation of 10 synonymies mentioned in old documents, not confirmation of 3 synonymies mentioned in old reference literature, for 4 accessions were found the synonyms, new synonyms which will be added to the previous mentioned in the literature were found for 4 accessions, for the first time in our literature were documented the synonymies in three groups of accessions, was proved the unicity of three Romanian accessions ('Moroștină', 'Negru mare' and 'România') and for 15 varieties the genetic profiles were identical to those already recorded in the databases.

**(P-34) STUDY OF THE ICHTHYOFAUNA DIVERSITY IN  
THE ROMANIAN SEASIDE AREA**

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In last years it has been major changes in the quantity and diversity of fish caught in the Black Sea. The study of fish species diversity caught in Romanian seaside area was carried out in June 2016, the data being compared with the 2004-2006 period. In 2004-2006, 10 species were identified from 10 fish families, and in 2016 were identified 20 species from 15 fish families. In 2016, the eudominant species were Mullet (*Mullus barbatus ponticus*), Scad (*Trachurus mediterraneus*), Round goby (*Neogobius melanostomus*), European anchovy (*Engraulis encrasicolus*), dominant was Whiting (*Merlangius merlangus*), and rare were Black Sea shad (*Alosa tanaica*), Bluefish (*Pomatomus saltatrix*), Garfish (*Belone belone*), Long-snouted seahorse (*Hippocampus guttulatus*), Black scorpionfish (*Scorpaena porcus*). In 2004-2006, the eudominant species were Round goby (*Neogobius melanostomus*), European sprat (*Sprattus sprattus*), Mullet (*Mullus barbatus ponticus*), dominants were Scad (*Trachurus mediterraneus*), European anchovy (*Engraulis encrasicolus*), Turbot (*Psetta maeotica*), and rare were Starry sturgeon (*Acipenser stellatus*), European flounder (*Platichthys flesus*), Common sole (*Solea solea*). The percentage of global similarity within the specific composition between the samples collected in 2016 and 2004-2006 was 36%. In the two analyzed periods, the common species were Scad, European sprat, European anchovy, Whiting, Round goby, Mullet and Common sole.

**(P-35) EFFECT OF DIFFERENT PRIMING TREATMENTS  
ON SEEDS GERMINATION AND EARLY SEEDLINGS  
GROWTH OF TOMATO****Elena Delian<sup>1\*</sup>, Elena Săvulescu<sup>1</sup>, Carmen Lupu<sup>2</sup>**<sup>1</sup>University of Agronomical Sciences and Veterinary Medicine from Bucharest; Romania<sup>2</sup>Research and Development Centre for Plant Protection, Bucharest, Romania\* Corresponding author: [delianelena@yahoo.com](mailto:delianelena@yahoo.com)

Germination is one of the main stages of a plant's life cycle. Since seed hydration by imbibition is a prerequisite for germination, seed priming techniques provide not only water that is absolutely necessary for the initiation of processes related to strict germination, but also additional physiological effects due to the qualitative and quantitative composition of the solution used. The objectives of this study were to evaluate the effects of some priming treatments (Hydropriming, ASFAC and Diatomaceous earth) on seeds germination and vigour of tomato (*Lycopersicon esculentum* Mill.) seedlings. The effects of treatments have been differentiated in terms of germination process characteristics and / or early seedlings growth, in close interdependence with the concentration of the substance used and especially in relation with the effects of their chemical nature on physiological and biochemical processes. Tomato seeds priming with ASFAC 0.5 % assured some benefits on germination efficiency and early seedling vigor. We appreciate the need to further studies to investigate more varieties, more treatments times and a wider range of concentrations.

**(P-36) CHARACTERIZATION OF THE AQUATIC  
BIOTOPES OF THE SIRET RIVER AND PRUT RIVER IN  
THE CONFLUENCE AREA WITH THE DANUBE RIVER**

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Often, in the studies for the evaluation of fish stocks, the abiotic and biotic habitat characteristics of the environment are very briefly described, but a good knowledge of this environment is indispensable for the ecological interpretation of the observations made on fish populations and then for the development of appropriate management measures. The aquatic ecosystems investigated and described in the 4PS / 2017 project are presented in this paper, with the name of: the Danube Study Area (ZS Danube), the Siret Study Area (ZS Siret), the Prut Study Area (ZS Prut). The ZS Danube stretches between the confluence with the Siret River and the Cotul Cobului area. This sector has about 26 km long with an average width of 800 m, such that the total area covered is 20.8 km<sup>2</sup>. ZS Siret stretches between Sendreni village and the confluence with the Danube. This sector of approx. 12 km long, with an average width of 100 m, has a total area of 1.2 km<sup>2</sup>. ZS Prut, stretches between Cîșlița village and the confluence with the Danube. This sector of about 10 km long, with an average width of 50 m, covered a total area of 0.5 km<sup>2</sup>.

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**(P-37) ACTUAL BIBLIOGRAPHIC REFERENCES  
ON THE ICTHYOFAUNA OF THE SIRET RIVER  
AND PRUT RIVER IN THE CONFLUENCE AREA  
WITH THE DANUBE RIVER**

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Studies on the diversity of the ihtiofauna in the Prut and Siret rivers show fluctuating values of irregular character, due in part to the difficulties of collection, the fish being extremely varied as waist and highly mobile, and on the other hand due to "problematic" taxonomic groups from a systematic point of view. The list of fish species in the lower course of the Siret River and its tributaries, assessed in August 2000, consisted of 23 species. The ichtiofaunistic diversity of the Prut River within the lower sector (downstream of the Stâncă - Costesti reservoir to the confluence with the Danube River) was established in 2008 from 41 species of fish. The number of fish species of community importance that are found in the area ROSCI0105 The Prut Lower Floodplain is of 9 species, and in the area ROSCI0162 The Lower Siret Floodplain is of 11 species. The fish species extracted from the current bibliographic references are presented in this paper from the point of view of ecological preferences, of economic and conservative importance, making a parallel between the two rivers.

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**(P-38) THE INCIDENCE AND ANTIBIOTIC RESISTANCE  
OF BACTERIA INVOLVED IN RESPIRATORY TRACT  
INFECTIONS IN ARGES POPULATION**

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The common bacterial pathogens for respiratory tract infections are *Staphylococcus aureus*, *Streptococcus pyogenes* and *Streptococcus pneumoniae*. The aim of this paper was establish the incidence and antibiotic resistance of these bacterial pathogens involved in upper respiratory tract infections in 2016 - 2017 in Arges population. 539 subjects were investigated and the antibiogram was performed for bacterial strains. The most frequent bacteria were *S. aureus* and 20% from all strains were resistant to meticilline. The cases of staphylococcal and streptococcal infections were more frequent in man than in women, for children under 15 years and adults over 50 years. The *Str. pyogenes* strains were sensitive to penicillin and the *Str. pneumoniae* strains were sensitive to al tested drugs. So, the main concern of medical world and entire population regarding the causes of respiratory tract infection still is the staphylococcus and its antibiotic resistance, but the streptococcal infections are important, too.

**(P-39) THE FLORISTIC DIVERSITY OF THE SCREES OF  
THLASPIETEA ROTUNDIFOLII Br.-Bl. 1948 CLASS FROM  
MERIDIONAL CARPATHIANS (ROMANIA)**

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*Thlaspietea rotundifolii* class includes phytocoenoses that vegetate on the limestone or silicate screes formed through rocks disaggregation in the mountain, subalpine and alpine level. The cormoflora of the screes from Meridional Carpathians was characterized taking into account the taxonomic analysis, types of life forms, floristic elements, ecological indices and zoological categories. The inventory of plant species characteristic to screes from Meridional Carpathians included 508 species distributed in 233 genus and 70 families. Out of these taxa, 85 species are registered in the Red List of vascular plants from Romania as rare, vulnerable or not threatened. The families with the highest number of species were: Asteraceae (62 sp.), Poaceae (59 sp.), Caryophyllaceae (38 sp.), Brassicaceae (32 sp.), Scrophulariaceae (28 sp.), Lamiaceae (27 sp.), Rosaceae (21 sp.), the remaining ones including less than 20 species. The most representative species were hemicryptophytes (62,59%), followed by camephytes (10,82%), terophytes (4,92%) and hemiterophytes (4,13%). The geoelements structure emphasized the existence of the basis fund of the Eurasian (25,98%), European (10,03%) and Central European species (10,62%). As regards the ecological factors, the highest percentage have registered the photophytes (31,88%), eurithermophytes (26,77%), eurionics (24,8%), eurnitrophytes (21,25%) and species that prefer the moderate humid and slightly wet soils (27,16%).

**(P-40) NATURAL HABITATS FROM ANINEȘU AND  
GODEANU VALLEYS (GRĂDIȘTEA MUNCELULUI–  
CIOCLOVINA NATURAL PARK- ROMANIA)**

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Grădiștea Muncelului–Cioclovina represents a protected area with status of natural park, focused on sustainable conservation of natural resources, landscape and local tradition, as well as encouraging the tourism based on these values. This area includes a wide range of natural, cultural and historical values. This paper describes five natural habitats identified in 2017 on Anineșu and Godeanu Valleys, as follows: 6430 Hydrophilous tall-herb fringe communities of plains and of the montane to alpine levels, 6520 Mountain hay meadows, 91V0 Dacian beech forests (*Symphyto-Fagion*), 9150 Medio-European limestone beech forests of the *Cephalanthero-Fagion*, 40A0\* Subcontinental peri-Pannonic scrub. The natural habitats were characterized by considering the following aspects: code and name, correspondence with plant associations, site description, structure of phytocoenoses, floristic composition and conservation status.

**(P-41) THE HARMFUL EFFECT OF SALT ON HUMAN HEALTH****Aurelia NICA<sup>1\*</sup>**<sup>1</sup> „DUNAREA DE JOS” UNIVERSITY OF GALATI, Romania\* Corresponding author: [anica@ugal.ro](mailto:anica@ugal.ro)

Human nutrition is one of the fundamental pillars of its construction. The health and balance of everyone is in direct correlation with food. Getting an adequate diet brings along with other good behavioral elements a healthy life. The salt is an essential nutrient in the human diet, but excessive consumption favors the occurrence of important health problems such as cardiovascular disease, osteoporosis or cancer of the stomach. Scientists warn that many of us do not have an exact vision of either the maximum admissible quantity or the one we actually eat daily. Nutritionists give green light for a maximum of 5 g daily. This also includes hidden salt in foods such as bread, biscuits, cans, etc. Studies show, however, that most of us do not follow this recommendation and we sometimes reach twice as much as we are allowed. This work reviews the harmful effect of salt consumption on people's health.

**(P-42) ECOLOGICAL RESEARCH ON THE *PARECTOPA*  
*ROBINIELLA* POPULATION**

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This article presents an ecological research carried out during 8 years on the population of *Parectopa robinella* living in the Northern area of the Arges county inhabited by black locusts. This article presents information regarding the type of distribution, variation, density, the effects of the attacks, the effects of parasitoids, correlations between the dynamics of the population and climatic factors. Besides the species we studied on black locust leaves, we also identified the *Phyllonorycter robinella* and *Obolodiplosis robiniae* species which allowed us to calculate the niche overlap.

**(P-43) *DIANTHUS BARBATUS* „GREEN TRICK” NEW  
ASSORTMENT USED IN FLORAL DESIGN**

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The emergence of new varieties within the *Dianthus barbatus* species grown in protected areas and used worldwide in floral art implies their promotion also in our country. The production of Turkish carnations in our country in greenhouses is a novelty and requires the knowledge of modern technologies of forced cultivation, as well as suitable assortment for this type of culture. The species *Dianthus barbatus* cultivated under the conditions of our country is present in the gardens and park gardens for a shorter period, abundantly blooming, but globally it is increasingly used as a cut flower under forced culture conditions. The present paper presents general aspects of the *Dianthus* genus as well as aspects related to morphology, biology and culture in protected areas of the species *Dianthus barbatus*, “Green Trick” variety. Nowadays, it is worth investing more and more to invest in modern technologies or in new plant varieties, even if this sometimes requires patience and much skill. Also, in the present paper we tried to highlight the importance of Turkish carnations and the possibilities of using them in floral design. Floral art is the realization of a floral composition based on visual effects, in harmony and contrast, inspired by the beauty of nature.

**(P-44) RESISTANCE OF LOCAL VARIETIES OF WALNUTS  
TO THE PATHOGEN *GNOMONIALEPTOSTYLA* (FR.)  
CES.ET DE NOT. UNDER THE CONDITIONS OF THE NE  
OF ROMANIA**

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The purpose of this paper is to observe the resistance of local varieties of walnut ('Velnița', 'Miroslava', 'Anica') to the attack of the pathogen *Gnomonialeptostyla* (Fr.) Ces. et de Not. The observations were made in 2017, in the walnut experimental field located on the Sârca experimental plot, having as research material three walnut genotypes, in the 8<sup>th</sup> year after planting, being grafted on *Juglansregia* L. as rootstock. The research was conducted in two experimental variants: in the case of the first variant, no foliar treatments only cultural hygiene measures were applied; in the second variant, warning treatments were applied to fight walnut diseases and pests, and a number of six treatments with copper-based substances (Bouille Bordelaise), Folicur Solo, Dithane M45. Based on the observations made the frequency and severity of the attack on the three varieties studied were calculated in both experimental variants. Under the conditions of the agricultural year 2017, the frequency of the anthracnose attack was influenced both by weather conditions and by the genotype studied. Thus, the frequency of anthracnose attack, *Gnomoniajuglandis* oscillated between 1.5% in the variant treated, at 'Anica' and 9.5% in the untreated variant at 'Velnița'.



**(P-45) THE INFLUENCE OF THE SPROUTED WHEAT KERNELS (SWK) ON THE AMILOLYTIC ACTIVITY OF THREE WHEAT VARIETIES, CULTIVATED IN ROMANIA**

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The Falling number FN (s) and the Sprouted Wheat Kernels SWK% (ISO 3093, SR ISO7979:2001) were analyzed for 3 varieties of wheat, Dropia, Flamura85 and Fundulea4, mainly cultivated in the southern region of Romania. The descriptive statistics highlighted the extremely high variability coefficients of SWK, namely: 182.93% at Dropia, 99.35% at Flamura85 and 152.60% at Fundulea4 variety. The t test did not reveal significant differences between SWK means and between FN means in the three varieties, with the exception of FN means between Dropia and Fundulea4 ( $t=2.410^*$ ;  $F$  ratio=1.246\*;  $p<0.05$ ). The Shapiro-Wilk normality test of FN and SWK distributions, highlighted that FN distribution at Dropia, SWK at Flamura85 and SWK at Fundulea4, were not normal ( $w=0.871^{***}$ ,  $0.784^{***}$ ,  $0.638^{***}$ ,  $p<0.001$ ). Spearman correlations between FN and SWK were negative significant in all wheat varieties ( $-0.521^{**}$  at Dropia,  $-0.373^*$  at Flamura85 and  $-0.688^{**}$  at Fundulea4). The best regressions models, describing the relationship between FN and SWK in Dropia and Fundulea4 varieties, were exponential respectively logarithmic ( $r^2=0.75$   $r^2=0.59$ ). For the Flamura85 variety, no suitable regression model was identified ( $r^2=0.15$ ). The maximum SWK level at which minimum wheat bakery quality was achieved (FN=min 180 s) was 2.95% for Dropia and 1.86 % for Fundulea4.

**(P-46) STUDIES ON THE MAIN COMPOSITIONAL  
PARAMETERS AT SOME ORGANIC WINES**

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It was analysed white and red wines from 5 ecological varieties cultivated in the Dragasani vineyard: *Cabernet Sauvignon*, *Novac* and *Negru de Dragasani* – varieties for red wines; *Tamaioasa Romaneasca* and *Sauvignon blanc* – varieties for white wines. The wines were analyzed in terms of physico-chemical characteristics: alcoholic strength (vol% alcohol), residual sugar content (g/L), total acidity (g/L sulfuric acid), total dry extract (g/L), acidity volatile (g/L acetic acid) and glycerol. At the analyzed red wines, we also see the content of wines in polyphenols, anthocyanins, as well as their main chromatic characteristics. All analyses were performed by the standard methods (Tardea C., 1980). Determination of volatile aromatic compounds in white wines was performed by GC/MS using a Hewlett Packard 5890 gas chromatograph series II coupled to a mass spectrometer Hewlett Packard 5972 series II. The results of the analyses show significant differences between conventional and organic wines for all wines analysed.

**(P-47) THE BALANCE OF HUMUS AND NUTRIENTS  
OF CROP ROTATION WITH THE APPLICATION  
OF PLANT RESIDUES AND FERTILIZERS IN SMALL  
DOSES ON CALCAREOUS CHERNOZEM OF MOLDOVA**

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The balance of soil fertility in the current conditions of agriculture has a topical interest. The basic objectives of the research were to assess the possibility of obtaining a non-deficit balance of the main indicators of soil fertility (humus and nutrients) in Calcareous Chernozem of Moldova using small doses of mineral fertilizers and the return of plant residues of cultivated crops. The mass balance that comprises inputs and outputs for humus, nitrogen (N), phosphorus (P) and potassium (K) from cropland of the cereal crop rotation in the period 2001-17 in the long-term stationary experience was analysed. We found deficit in N ( $-1.2 \text{ kg} \cdot \text{ha}^{-1} \cdot \text{yr}^{-1}$ ) using of crop residues on experimental plot without fertilization (since 1950) and a positive balance for P and K ( $5.7 \text{ kg} \cdot \text{ha}^{-1} \cdot \text{yr}^{-1}$  and  $43.8 \text{ kg} \cdot \text{ha}^{-1} \cdot \text{yr}^{-1}$ ). The combined use of plant residues and mineral fertilizers in small doses ( $\text{N}_{47}\text{P}_{46}$ ) on previously fertilized backgrounds helps maintain the positive humus and N-P-K nutrient balance of crop rotation on Calcareous Chernozem.

**(P-48) GREEN PAINTINGS – PLANT ART FOR STYLE  
DESIGN**

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Green paintings are the decorative components of landscaping which exploits the reduced spaces. Can be used in indoor and outdoor settings and contributes to the physical and mental comfort of people. It is made from ornamental plants through leaves or flowers, resistant to moisture, which is planted in a special substrate.

**(P-49) RESEARCH ON THE ENVIRONMENTAL QUALITY  
IN TELEORMAN RIVER****Alina – Mihaela TRUTA<sup>1\*</sup>**<sup>1</sup> University of Pitesti, Faculty of Science, Physical Education and Informatics, Pitesti, Romania\*Corresponding author: [alina\\_vladutu@yahoo.com](mailto:alina_vladutu@yahoo.com)

The main purpose of the study was to determine the quality of Teleorman River. The present paper was based on the bibliographic material as well as the field research carried out during 2016-2017. The research objectives were the following: identification of qualitative and quantitative structure of phytobenthic biocenoses in the established monitoring points; determination of the phytoplankton algae families in the monitoring stations; identification of the structure of benthic biocenoses in the monitoring points; establishing saprobity indices for each species identified and incorporation of the monitoring sections into the appropriate saprobity class; determining the quality of Teleorman River according to the Water Framework Directive 2000/60/EU. We have identified 54 species in the phytobenthonic samples, grouped in three phyla: Cyanobacteria, Bacillariophyta and Chlorophyta. We have also identified 47 species in the structure of benthic zoocenosis belonging to 25 families from 8 genera. The main benthic invertebrate groups in the Teleorman River were: Ephemeroptera, Plecoptera, Chironomidae, Trichoptera, and Gammaridae. Buzoiesti and Vulpesti recorded a high quality ecological status, while Magura station had a good ecological status.

**(P-50) LAUGHTER AND WELL-BEING****Nicoleta RĂBAN-MOTOUNU<sup>1\*</sup>**

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From the well-known controversy over the relationship between expressive behavior and emotion (“I’m joyful because I laugh” or “I laugh because I’m joyful”) research data has showed that it is far more complex than anticipated approximating the complexity of the human being. So, it seems that a specific biological mechanism is activated during laughing in order to help the organism to accommodate the extension of the reaction: Maximal trunk compression may appear during moderate duration laughter. Also, EEG showed refreshing effects of laughter in the parietal area. Many studies have highlighted the positive effects of laughter where health is concerned, leading to using humor when confronting with serious illness, like cancer (special rooms where comical films are projected or clowns visiting the patients), Parkinson’s disease. While the overall effects are positive, the genuine amusement (expressed by Duchenne smile, or laughter) is correlated with higher level of positive emotions and transcendence. The functional integration of both cerebral hemispheres is encountered especially in semantic processing of homographic puns, arguing in the favor of finding a meaning, by perspective changing. The ability to find the humorous aspects in a difficult situation is considered to be a significant resource, compared with the spiritual values.

**(P-51) GROUP CONSTRUCTIVE CREATIVE  
IMPROVISATION THROUGH SANDPLAY****Ileana-Loredana VITALIA<sup>1\*</sup>**<sup>1</sup> University of Pitești, Department of Psychology, Communication Sciences and Social Assistance\*Corresponding author: [ileanavitalia@yahoo.com](mailto:ileanavitalia@yahoo.com)

Sandplay is considered both a therapy and a therapeutic or counseling technique that functions as a non-verbal and non-threatening mediator between the unconscious and the outer reality of the participant. The sandtray provides a free and protected space for individuals to express their inner world, allowing them to work safely through unconscious experiences, while protecting their conscious mind. So, the sandplay and sandtray are mostly beneficial to heal the innerpain of clients who had difficulty in expressing themselves verbally. The technique is particularly valuable for children with limited language skills, and is specifically effective with those who have a low self esteem, exhibit poor academic progress, depression, anxiety and/or behavioural problems. In recent years, the sand play has been used as an assessment tool when working in a cross-cultural, or language learner context. Moreover, many proffesionals from different backgrounds incorporated this method into their practice to adress aspects of personal development. The present study aims to investigate the effects of a creative group improvisation through sandplay on the social skills of college students. We suppose that working together in the sandplay process allows the group member to improve their communication skills and become more adaptive in their social environment.

**(P-52) COMPARATIVE STUDIES ON THE *PELARGONIUM*  
GENUS**

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In our country Pelargonium are well known and cultivated in both towns and villages. Improving technological links to Pelargonium species in greenhouses covered with plastic film is one of the main concerns of the flower growers, which leads to the production of high quality and low production costs for the decoration of gardens and balconies. As a result of the widening of the variety of Pelargonium varieties, it is necessary to constantly study them in comparative crops to see how they express their genetic dowry in the conditions of the areas in which they are grown and to recommend the best to the growers.



**(P-53) ELABORATION OF ALTERNATIVE  
TECHNOLOGIES FOR THE PRODUCTION OF PEPPERS**

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Varieties and hybrids of peppers can be grown in different ways with a different vegetation period. The peppers have always been a research topic for researchers to obtain high varieties and hybrids. This paper highlights the behavior of hybrids with undetermined growth peppers grown in greenhouses covered with plastic, densities and different ways to control plant. Taking into account that the peppers have a significant share in human nutrition, new varieties and hybrids, new cultivation technologies or different ways of preparing them will always appear. Here are just a few research reasons in this area.

**(P-54) RARE, VULNERABLE AND PROTECTED BIRD SPECIES IN THE AREA OF THE RESERVOIRS FROM THE MIDDLE BASIN OF THE ARGES RIVER AND MEASURES TO PROTECT THEM**

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The present paper provides the results of the ecological research conducted over 16 years on the avifauna of the reservoirs located in the middle valley of the Argeș River.

Biodiversity protection is becoming more problematic, paradoxically due to thoughtless human interventions. Of the 10,000 species identified so far, one third are in danger of extinction worldwide. With reference to the Bern Convention on the Conservation of European Wildlife and Natural Habitats, 199 species (96.13%) identified in the area under research are included in its annexes. One hundred species are recorded in the annexes of the Bonn Convention. Fifty-two species (*Aythya nyroca*) are enlisted in Annex 1 of the Birds Directive. An important role in preserving biodiversity is played not only by natural lakes and meadows but also by reservoirs, many of them host to a quantitatively unique and diverse fauna. A necessary measure for the protection of most vulnerable bird species is the preservation of their habitats through the identification, conservation and global expansion of valuable areas – *Special* Protection Areas (SPA). Awareness on the importance and management effectiveness of these protected areas becomes mandatory in the context of the international and national strategies for the protection and conservation of nature.

**(P-55) PHYSICOCHEMICAL PROPERTIES AND  
CYTOGENOTOXIC POTENTIAL OF SURFACE WATER – A  
CASE STUDY OF ARGEŞ RIVER, ROMANIA**

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The study presents the assessment of water qualities along the Argeş River, Romania. Water samples were collected from 7 selected sites to monitor potential anthropogenic impact. Water samples were analyzed for temperature, pH, dissolved oxygen, electrical conductivity, chemical composition and heavy metal content as well as for genotoxic and cytotoxic potential. The genotoxic and cytotoxic potential of water samples was evaluated using the *Allium cepa* L. test system. The physicochemical assessment indicates a heterogeneous influence of environment in all the sites studied. The cytogenotoxic evaluation has shown that the mitotic index was significantly decreased and the frequency of chromosomal and mitotic aberrations was increased in root meristem cells treated with water from sites where anthropogenic impact is higher.

**(P-56) STUDY ON WATER TEMPERATURE EFFECT IN  
EXPERIMENTAL INTOXICATIONS WITH INSECTICIDES  
ON PERCH****Maria Cristina PONEPAL<sup>1\*</sup>, Gheorghita BRÎNZEĂ<sup>1</sup>,  
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This paper aims was to investigate the changes of some important physiological indices (energy metabolism, respiratory rate, number of red blood cells, blood glucose level, survival) for perch (*Perca fluviatilis* L.), exposed to the action of three insecticides (Talstar One, Reldan 40EC and Actara 25WG) under different temperature conditions (18-20°C, and 6-8°C). All three insecticides tested had a similar effect on the oxygen consumption, translated into a stimulating phase, particularly for samples adapted to room temperature, usually in inverse proportion to the concentration, followed by a slower reduction period or stabilization of the physiological indices. The average number of red blood cells decreased after 14 days from the fish immersion in insecticides. The fish adapted to temperatures of 6-8°C recorded significant decreases in the number of red blood cells and increases in blood glucose levels. Talstar One increased the blood glucose level, while Actara and Reldan diminished the energy reserves after two weeks, which could be related to behavioural changes in the first hours of exposure. The three insecticides had a higher toxicity at room temperature, which could be concluded from the evolution of at least three parameters, although, as outlined above, Talstar One was more toxic at low temperatures. Depending on the percentage of survival, Talstar proved more toxic at low temperatures; the mortality rate was higher in Actara samples at room temperature. There were no significant differences in Reldan 40 EC as regards the mortality rate at the two heat levels.

**(P-57) COMPARATIVE STUDY OF SOME  
GEOMECHANICAL PROPERTIES OF THE LIMESTONES  
AND SHISTS IN THE SCREES OF LEAOTA MASSIF  
(SOUTHERN CARPATHIANS, ROMANIA)**

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The purpose of these studies is to understand which is the importance of the two rock type (limestone and shists) in the cryoclastic processes in Leaota Massif and also how it influences some geomechanical properties of rocks the main ecological factors as relative humidity and temperature in the screes. The main representatives of the cryo-nival relief are the screes, which in the literature of speleology are called *shallow subterranean habitats* (SSHs) or *mesovoid shallow substratum* (MSS). These screes are defined by a series of peculiarities of the main ecological factors (temperature and relative humidity) and they are a type of subterranean habitat with an important ecological role, with a characteristic invertebrates fauna. The variation of the main environmental factors causes changes in the type of fauna hosted by the MSS. To determine the geo-mechanical proprieties of limestone and metamorphic crystalline shist as the apparent density, the real density, the freeze – thaw compression resistance, the coefficient of reduction of compressive strength after freeze-thaw cycles (also called softening coefficient), the degree of the gelivation (the rate of weight-loss by freeze-thaw), the percentage change of apparent volume after freeze-thaw and the capillary water absorption coefficient we used methods that meet the adopted and applied European and Romanian standards regarding the rocks. These geomechanical properties of the two types of rocks determine directly or indirectly a different susceptibility to disaggregate, but also to maintain specific values of relative humidity and temperature in the different types of MSS (limestone or shists).

**(P-58) RARE AND VALUABLE SPECIES AND APPROACHES  
FOR THEIR CONSERVATION****Olena BOIKA<sup>1</sup>\***<sup>1</sup>Zaporizhzhia National University, Zaporizhzhia, Ukraine\* Corresponding author: [olena.boika.ua@gmail.com](mailto:olena.boika.ua@gmail.com)

Possibly more than anywhere else in the world the European landscapes have been changed by human activities so natural and semi-natural habitats surrounding urbanized areas. This modification has obviously also placed great pressures on wildlife and species. Biodiversity loss is an enormous challenge in the EU today, with around one in four species currently threatened with extinction. What is a way to save diversity? First step is a review of rare and valuable species, second one – creating a List of this species for each region and creating a reservation at their habitats. After that we must find a way for restoration (for example via biotechnology methods) and relocated rare and valuable species to the similar territories. Also we can store genetic materials in the Storage Bank and ex-situ in the Botanical Gardens. It is important to conserve both inter- and intra-specific genetic diversity to ensure that the full range of genetic diversity of a species is protected and available for utilization for crop improvement.

**(P-59) THE PHENOTIPIC AND BIOCHEMICAL  
VARIABILITY IN SOME ROMANIAN BASIL  
(*OCIMUM BASILICUM* L.) LANDRACES**

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Basil (*Ocimum basilicum* L.) is an aromatic and medicinal herb. In the last years the potential uses of basil essential oil, as antimicrobial and antioxidant agents has been investigated in different areas, pointed out the importance of local landraces. Five Romanian landraces were analyzed for phenotypic variability ex situ, in comparison with commercial sorts. The landraces were also analysed for chemical composition, enzymatic and antioxidant activity. There was observed phenotypic variability between landraces concerning stem height, shape and colour, leaves shape and colour, inflorescence type and number of ramifications, flower colour. There were registered significant differences in enzymes activity (catalase, peroxidase, succinate-dehydrogenase, malate-dehydrogenase). Total antioxidant activity in basil landraces was determined as Trolox equivalent antioxidant capacity (TEAC) and varied from 0.16 to 1.59 mM Trolox. Romanian basil landraces possess valuable antioxidant properties for possible medicinal use.

**(P-60) MACROMYCETES FROM “THE FORESTS IN THE  
SOUTHERN PART OF THE CÂNDEȘTI PIEDMONT“,  
A ROMANIAN NATURA 2000 PROTECTED ARIA**

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In the paper are presented the macromycetes species identified between May - October 2014 in the site Natura 2000 “The Forests in the southern part of Cârdești Piedmont” (Dâmbovița county, Romania). For each species is indicated the habitat of community interest in which it was identified, occurrence, ecological category, practical importance (edibility, toxicity). We also analyzed the distribution of species according to substrate, nutrition, occurrence and practical importance.



**(P-61) CONSIDERATION REGARDING ROOT SYSTEM  
MANAGEMENT IN VINEYARDS****Gheorghe Cristian POPESCU<sup>1\*</sup>**<sup>1</sup> University of Pitesti, Department of Environmental Engineering  
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Grapevine (*Vitis vinifera*), one of the most important fruit crops, is a perennial horticultural plant that is cultivated in many environments of the world. Vineyards are important agricultural ecosystems with great economic, cultural and symbolic value to produce grapes and many others products using these fruits, seeds, leaves and others botanical parts of this species. Water-use efficiency and climate changes are important for root system management in vineyards. The root system of the vine explores a large volume of soil, having mainly a nutritional space given by the depth of the soil profile and the planting distances. Taking in consideration the multiple function of root systems and the role for ensures quality and quantity of grapes production, root management become an integral part of the crop management system. Root growth and production is influenced by several ecological factors, irrigation, fertilizers and other agricultural practices. The soil maintenance system has a major impact on the development of the root system in vineyards. Morfological, anatomical and agricultural studies of root systems of grapevine cultivars are needed to provide effective solutions for the rational use of soil water and for good production.

**(P-62) ROMANIAN LEGISLATION OF WATER  
RESOURCES MANAGEMENT IN ENVIRONMENTALLY  
FRIENDLY WAY**

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Water resources are directly involved in ensuring the quality of life and sustainable development. The need for water is constantly increasing and thus effective management of water resources through an environment-friendly approach is a priority. Romania has very extensive legislation dealing with water resources management in environmentally friendly way. The main rules on water protection are represented by the Emergency Ordinance No. 195/2005 approved by the Law No. 265/2006, as subsequently supplemented and amended, as well as by a *number* of subsequent regulations particularly related to environmental assessment, and Waters Law no. 107/1996. According with national legislation, the protection, evaluation and sustainable development of the water resources are actions of general interest. At the level of the European Union and Romania, legislative instruments have been promoted for the sustainable protection of water, management of water resources, and for environmental quality standards in the field of water policy. Many laws, as well as government ordinances, decisions and various bilateral, regional and international conventions and treaties ensure the management of water resources in environmentally friendly way.

**(P-63) COMPARATIVE STUDIES ON INFLUENCE  
OF *ASCOPHYLLUM NODOSUM* L. SEAWEED EXTRACTS  
ON TOMATO PLANTS RESPONSE TO SALT STRESS**

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Various commercial products from seaweeds are currently used. Products obtained from seaweeds have many and different uses, perhaps the most known being use as a stimulant of agricultural production. Worldwide, the stress caused by increased salinity is a key factor in decreasing the intensity of physiological processes and biochemical parameters. In our work we studied the influence of two products obtained from *Ascophyllum nodosum* L., Alga Special and SuperFifty® 0-0-8, on bean seeds maintained in saline stress conditions. The two natural products tested, obtained from seaweeds, produced a significant reduction in saline stress during germination process of tomato seeds.

**(P-64) EFFECT OF HEAT PROCESSING ON THE C  
VITAMIN CONTENT OF LEMON, ORANGE, GRAPEFRUIT,  
LIME AND MANDARIN JUICE**

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Ascorbic acid, also known as C vitamin is water soluble, with six Carbon compound wich occurs in both reduced as well as oxidized forms, in nature C vitamin is very essential for the growth and maintenance of the human body. It is necessary for the formation of protein collagen, which is an important constituent of skin and connective tissue. C vitamin is present in most fresh fruits, in different concentrations. The C vitamin is very sensitive to heat, light, air and strong alkali. Most part of C vitamin is lost during heat treatment (processing) like blanching, boiling, cooking and sterilization of foods. The juices were heated to 50, 60, 70, 80, 90 and 100°C for different periods of time: 10, 20, 30, 40, 50, 60, 70, 80, 90 and 100 minutes in constant temperature. As the time of heating increase, the loss of C vitamin increase. The maximum loss of C vitamin was being found in the first 20 minutes of heat.

**(P-65) DEVELOPMENT OF MUSHROOM POWDER AND ITS APPLICATION IN FOOD INDUSTRY****Sándor RÓZSA** <sup>1\*</sup><sup>1</sup> University of Agricultural Sciences and Veterinary Medicine,  
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From a long time, edible mushrooms have been in human consideration as a food, from the nutritional point of view and as a drug from therapeutic point of view. Edible mushrooms are a significant food item, regarding health, human nutrition and disease prevention. They are a rich source of various components mainly protein and dietary fibres. Edible mushrooms can be incorporated in various products due to high nutritional values. In general, edible mushrooms are highly perishable products and they must be processed into less perishable by-products very quickly after harvesting. Taking into account that many of the edible and cultivated mushrooms have attributed medicinal properties including antiviral, antibiotic, anticancer activities, blood lipid lowering effects and strengthening the immune system. This research was carried out to determine the possibility of using the mushroom powder in pastry products. Farinographic properties of composite flour such as water absorption, dough development time, stability time were observed. Values of water absorption, dough development time increases and stability time decreases with increase in level of mushroom powder. Mushroom powder showed significant effect on proximate composition of pastry products such as increased moisture content and fat content, significantly increased protein and fibres content.

**(P-66) THE *CORDYCEPS MILITARIS* MUSHROOM  
MYCELIUM GROWTH ON GLUCOSE, FRUCTOSE,  
LACTOSE, MALTOSE AND SUGAR CULTURE MEDIA**

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Mushroom mycelium is a biological preparation that is obtained under sterile laboratory conditions and which, in an optimal microclimate, can reproduce the fungus from which it originates. In nature, mycelium of the *Cordyceps* spp. is a vast network of interconnected cells that penetrate the soil and live perennially. It also carries the name of the resident mycelium and produces only fructification bodies, commonly called mushrooms, in optimal conditions of temperature, humidity and nutrition. For the most part, the parent mycelium has only one purpose, to ensure the survival of the species, by releasing a huge number of spores. This is done by mushrooming. Carbon is an essential element for all biological systems because it enters a series of organic and inorganic combinations. Carbon is the source of energy for aerobic organisms and the second important element in cell protoplasm. In the presence of carbon, the cell structure is formed with the release of significant amounts of organic acids, enzymes and vitamins into the medium. Mushrooms are lower plants that do not contain chlorophyll pigments, different carbon materials or substances are added to the culture medium. The largest mycelial growth was recorded for the maltose environment.

**(P-67) THE CARBON DIOXIDE CONCENTRATION  
INFLUENCE ON *CORDYCEPS MILITARIS* MUSHROOM  
MYCELIUM GROWTH**

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Mycelium is a thin and branched filament system that makes up the vegetative appliance of most mushrooms species. This is a biological preparation that is obtained in sterile laboratory conditions and which, in an optimal microclimate, can reproduce the fungus from which it originates. For growth or incubation, mushrooms mycelium requires certain concentrations of carbon dioxide with optimal growth limits and lethal values.

In the natural environment of mushrooms, an excessive amount of 0.1% carbon dioxide delays the mushrooms mycelial growth. In the growing period the mushroom mycelium consumes oxygen through the breathing process and releases carbon dioxide that can accumulate if there is no minimum ventilation. On the other hand, the concentration of carbon dioxide is an important ecological factor in the development of microorganisms, when its concentration increases, a protective barrier forms for harmful microorganisms which grow very poorly or even perish. *Cordyceps militaris* mushroom mycelium growth is stimulated at concentrations at concentrations of 0.16-0.22%, but the 0.36% concentration inhibits the micellar growth and development.

**(P-68) DETERMINATION OF WATER IN THE ROMANIAN  
SECTOR OF THE DANUBE RIVER****Adina POPESCU<sup>1\*</sup>, Daniela Cristina IBĂNESCU<sup>1</sup>,  
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The purpose of this paper is to estimate the effects of water quality on composition and biodiversity of macroinvertebrates. The water quality by benthic invertebrates and biodiversity of macroinvertebrates communities were established in the Romanian Danube River sector (2 sampling points: Bala Branch and Epurașu Island). Biodiversity environment relationships are becoming better understood in the context of species richness and species composition, whereas other aspects of biodiversity. Benthic invertebrates are important components of stream ecosystems, and are often used as indicator species for the assessment of river ecology. The biological indicators of water pollution are saprobes, organisms that have adapted to live in polluted waters. Thus, the level of water pollution can be determined by the presence and quantity of saprobes. Through biodiversity indices, such as: H'S – Shannon-Weiner index, EH – Shannon equitability, 1-D – Simpson index, E1-D – Simpson equitability. Water quality is assessed using the saprob system methodology using the Pantle-Buck method (1955) to determine the saprobic index. After the qualitative processing the quality of the samples there were identified seven taxa (species represented 11), namely: Oligochaeta, Gastropods, Bivalves, Ostracods, Amphipoda, Tricoper, Diptera.



**(P-69) LEAF FRACTAL DIMENSIONS  
IN ECOTOXICOLOGICAL ASSESSMENT****Corneliu Mihăiță POHONTU<sup>1\*</sup>**<sup>1</sup>“Ștefan cel Mare” University of Suceava, Department of Forestry and Environmental Protection, Faculty of Forestry, University Street, No. 13, 720229, Suceava, Romania\* Corresponding author: [corneliu.pohontu@yahoo.com](mailto:corneliu.pohontu@yahoo.com)

Toxicity testing represents one of the methods used in environmental technology with predictability in risk assessment. These have a great deal of efficiency in quantification of pollutants after its interaction with the biotic and abiotic environment as integral parts of an ecosystem. The study was conducted by assessed response of plants (*Populus* spp.) to phytotoxic compounds which can be interpreted by morphological and physiological parameters of test organism. Leaf length and, especially, fractal dimension are shown to be good indicators of plant response to toxicants in their environment. The source of toxic pollutants was landfill leachate the composition of which is very complex with a high degree of toxicity because it contains a diversified spectrum of heavy metal ions, ammonia, persistent organic pollutants or xenobiotic compounds. Plants were exposed to landfill leachate solutions. Phytotoxicological experiments were conducted during 4 weeks on the cuttings poplar (*Populus* spp.) using five successive concentrations of landfill leachate (6,25%; 12,5%; 25%; 50%; 100%), in triplicate and keeping the control of process with tap water representing 0% reference solution. The tolerance of plants was determined by quantification of morphological parameters of leaves including their fractal dimension simultaneously with to determine the range of values (LOEC) the lowest effective concentration causing toxic effects and (NOEC) no-toxic effect concentration. Digital images have been analyses using softwares in close correlation with the leaf fractal dimensions and the following leaf parameters: length, width, area, weight. It can be observed that with the increase of landfill leachate concentration determined increase in fractal dimension (Df) of cuttings poplar leaves.

**(P-70) HISTOPATHOLOGICAL CHANGES IN  
*DENDROBAENA OCTAEDRA* INDUCED BY XENOBIOTICS  
SUBSTANCE**

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The presence of soil contaminants disturbs the major physiological functions of earthworms, such as survival, nutrition, immunity, growth and reproduction, and these effects depend on the exposure time and the types and quantities of environmental pollutants. Like other invertebrates, earthworms are based on innate defense immunity. The natural barriers of earthworms represent the first line of protection. The tegmen is the first protective barrier of earthworms, made up of epidermis and a thin cuticle that covers the whole body. The cuticle contains mucopolysaccharides that act as a microbial barrier. The study highlights the histological changes caused by the action of some pollutants in the soil on the species *Dendrobaena octaedra*. Two pesticides were selected for toxicity tests: a contact fungicide (Dithane M45) and a systemic fungicide (Alleato 80WG). Exposure of earthworms to various concentrations of Dithane M45 produced an epithelial hyperplasia characterized by increased cellular layers. This layering can prevent the diffusion of nutrients and water from the environment into the body, knowing that the tegmen plays an important role for vital functions. There has also been an epithelial hyperplasia characterized by the presence of small cuboid cells, including few mucus-secreting caliciform cells and sensory cells. The highest concentration of Alleato 80WG induced pathological changes of the epithelium, consisting of the cuticle crack and shape distortions of the epithelial cells and longitudinal muscle cells and a slight dislocation of the longitudinal muscles in the circular muscles.

**(P-71) HISTOPATHOLOGICAL CHANGES INDUCED BY  
SEVERAL FUNGICIDES UPON GALL-BLADDER  
STRUCTURE IN *PELOPHYLAX RIDIBUNDUS***

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The histopathology of three fungicides on gall-bladder structure in frog *Pelophylax ridibundus* were investigating by light microscopy. The frogs were experimentally exposed to sub-lethal concentration of the fungicides. The toxic substances were administered by intraperitoneal shots, one shot every two days, in a scheme of 3 weeks. Tissues samples were fixed in 8% neutral formalin and processed using histological method. The epithelial metaplasia was observed as response to the harmful action of the toxic and the presence of leukocyte infiltrations.

**(P-72) THE EVOLUTION OF THE HAEMATOLOGICAL INDICES AT NMRI ALBINO MICE EXPERIMENTALLY POISONED WITH PARACETAMOL AND TREATED WITH VEGETABLE EXTRACTS OF SILYBUM MARIANUM**

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The aim of this paper is to investigate the effects produced by the vegetal extracts of *Silybum marianum* on the haematological index at NMRI Albino mice within experimental poisoning with Paracetamol. We established the number of haematites and leucocytes, as well as their morphological dimension and aspect on the blood smear. In order to fulfill the purpose of the paper, thistle was administrated as hydralcoholic extracts to animals, i.e. albino mice-NMRI strain. We used paracetamol solution for infusion known as Perfalgan (Bristol-Myers Squibb). The dose used was 400mg/kg/body substance, and we administrated ethanolic extracts of *Silybum marianum* after the paracetamol poisoning. The results obtained showed that there are no significant changes of the number of haematites and leucocytes in comparison with the witness lot. However, the results showed a slight decrease of hematites, and respectively, of hemoglobin after 7 days of paracetamol administration, fact which suggest a reduction in the oxygen-carrying capacity of blood and the amount of oxygen – carrying capacity of blood and the amount of oxygen delivered to the tissues, and also could suggest a possible occurrence of anemia. Following the administration of the vegetal extracts of *Silybum marianum*, we notice a comeback of the haematites' number, which demonstrates the beneficial effect of the *Silybum marianum* extracts. Paracetamol caused non-significant changes in body weight of NMRI Albino mice after treatment with Paracetamol, which means that Paracetamol was not toxic to the animals.

**(P-73) CHANGES IN SOME HAEMATOLOGICAL INDICES  
IN EXPERIMENTALLY INDUCED ALCOHOLIC  
INTOXICATION ALBINO NMRI MICE**

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Ethanol consumption can have a number of adverse consequences. As a central nervous system depressant, alcohol likely plays a causative role in many accidents, but the diverse cellular effects of alcohol and its metabolites can also negatively alter the physiologic response to injury. This study was conducted in order to observe the effects of alcohol administration for two weeks at ALBINO NMRI mice by determining its influence on some haematological indices. To highlight the results produced by induced ethanol intoxication, we determined the number of erythrocytes, leukocytes and compared the obtained data. Intoxication was achieved by administering by oral gavage 8 g / kg body weight / day of ethyl alcohol 21% v / v for two weeks. Thus, 12 mice with weights ranging from 30 to 42 g were divided into two experimental lots: a control lot and a lot with alcohol-induced intoxication mice. Compared to the control lot, the obtained results indicated an increase in the number of erythrocytes, which was strongly linked to the hematocrit value.

**(P-74) LIVER HISTOPATHOLOGY AT INDUCED-  
DIABETES MICE TREATED WITH VEGETAL EXTRACT  
OF *SYLIBUM MARIANUM***

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In this study we have followed the changes in the histopathologic structure of the hematopoietic organ, the liver, at CD line mice (re-derived mice from a non-consanguineous stem) with alloxan-induced diabetes, treated with vegetal extract of *Sylibum marianum*. We established the weight of the liver after removing it and the changes that appear in its histological structure. Thus, 15 mice with weight ranging from 20 to 25 g were divided into three experimental lots, a control lot, a lot with alloxan- induced diabetes mice and another lot with diabetes treated with vegetal extract of *Sylibum marianum*. Diabetes was induced by administering two doses of Alloxan monohydrate 0,2 ml (130 mg/kg body dissolved in physiological serum), following which we administered through gavage, during two weeks, 0,2 ml vegetal extract of Aronia. The results obtained for the blades with liver removed from the diabetes mice revealed the presence of hepatic steatosis; following the administration of the vegetal extract to the mice, we could notice a diminishing of the blisters full of neutral lipids (hepatic triglycerides), which proves the beneficial activity of the vegetal extract of milk thistle.

**(P-75) ORNITHOLOGICAL RESEARCH IN THE LEAOTA MOUNTAINS****Adrian MESTACĂNEANU<sup>1</sup>\***<sup>1</sup> Argeş County Museum, Pitesti, Romania\* Corresponding author: [mestecaneanua@yahoo.com](mailto:mestecaneanua@yahoo.com)

In this paper are presented the results of the researches carried out in the Leaota Mountains in the year 2016. From 1 May to 31 September, in the area, except for orchards, meadows and the human settlements at low altitudes, 86 species of birds were observed, out of which 17 are protected (*Aquila chrysaetos*, *Pernis apivorus*, *Milvus migrans*, *Circus aeruginosus*, *Falco peregrinus*, *Tetrao urogallus*, *Bonasa bonasia*, *Crex crex*, *Strix uralensis*, *Picus canus*, *Dendrocopos leucotos*, *Picoides tridactylus*, *Dryocopus martius*, *Lullula arborea*, *Lanius collurio*, *Ficedula albicollis* and *Ficedula parva*), being included in Annex I of the Birds Directive. In the breeding season, 81 species were identified, 77 of which were nesting. Also, other considerations are made regarding the vertical distribution of species, the occupation of the main habitat categories, the monthly presence, the degree of protection and the role of the birds as bioindicators of the ecosystem health. In order to maintain or enrich the avifaunistic diversity of the studied area, the importance of taking adequate conservation measures for the natural habitats and bird species that populate them is emphasized.

**(P-76) OBSERVATIONS ABOUT THE FAUNA OF INVERTEBRATES FROM TINCA AREA (BIHOR COUTY, ROMANIA) DURING THE COLD SEASON 2017-2018****Aurelian Leonard ILIE <sup>1\*</sup>, Mariana MARINESCU <sup>2</sup>**<sup>1</sup> Nicolae Jiga Theoretical High School Tinca, Bihor County, Republicii Str., No 36/A, Romania<sup>2</sup> University of Oradea, Didactic Staff Training Department, University Str., No.1, Romania\* Corresponding author: [aurelian.ilie@yahoo.fr](mailto:aurelian.ilie@yahoo.fr)

In this work are presented data about the fauna of invertebrates from Tinca area (Bihor county) during the cold season 2017-2018. There were identified 47 species belonging to seven classes. The winter 2017-2018 could be considered the warmest from the history of Tinca village with diurnal temperatures between 0 – 17° C. In this way, there identified premature activities, even copula in some species. There are identified 47 species belonging to seven classes. The most represented class is Insecta - 41 species. There were identified two species in copula - *Lumbricus terrestris* L. and *Culex pipiens* L. The *Sympecma fusca* VdL. species is mentioned for the first time in Tinca area and in the Bihor county. We noticed some phenological anomalies at four species.



**(P-77) NEW DATA ABOUT THE GALLS FROM TINCA AREA (BIHOR COUNTY, ROMANIA)****Aurelian Leonard ILIE <sup>1\*</sup>, Mariana MARINESCU <sup>2</sup>**<sup>1</sup> Nicolae Jiga Theoretical High School Tinca, Bihor County, Republicii Str., No 36/A, Romania<sup>2</sup> University of Oradea, Didactic Staff Training Department, University Str., No.1, Romania\* Corresponding author: [aurelian.ilie@yahoo.fr](mailto:aurelian.ilie@yahoo.fr)

The study presented the species which induce galls, identified in Tinca area during 2003-2017. These species (93) belongs to different taxonomic groups: insects, acari, fungus. The biggest percentage is held by insects-76 species, followed by Acari-11 species and Fungus-6 species. The most represented family is Cynipidae-36 species. The distribution of the orders of gall inducing insects is the next-Diptera-39 species, Hymenoptera-30 species, Homoptera-6 species, Coleoptera-1 species. Within the fungi, the distribution is the next-Ascomycetae-1 species, Erysiphaceae-1 species, Peronosporaceae-2 species, Hypocreaceae-1 species, Pucciniaceae-1 species.

