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(B-01) PSYCHOLOGICAL RESOURCES MOBILIZED BY THE PERSONS WHEN FACED WITH THE CHALLENGE OF THE CORONAVIRUS

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Prevention strategies during the coronavirus pandemic were especially of medical type and physical distancing. During the pandemic, starting from the population's needs, psychological interventions have proven their importance. The consisted mainly in volunteer work and, with time, in governmental measures regarding psychological assistance, especially for children and adolescents. Scientific literature had highlighted psychological components involved in the reaction of the immune system, either specific or non-specific, in other disorders, similar to the infection with SARS-Cov-2 before the pandemic started. To find out what personal resources were mobilized by an experiential metaphorical exercise that might be used for primary, secondary or tertiary prevention. We used grounded theory in order to explore and conceptualize the personal perspective on the main resources used to face the new challenge and mobilized during an experiential exercise. The participants considered facing the virus, the illness situation and the pandemic with all the changes involved, all together, as a challenge. The illness experience included physical and psychological manifestations and significant concerns for the health of dear ones. Among the most frequent resources the participants used were: affection, trust in the personal immune system, hope, and being anchored in reality. Relationships with the significant persons and considering the community as a whole laid the foundations for preventive actions, completed by empathic concern, tenderness, courage, reading, connecting with nature, and educational activities. Connecting with significant persons by empathic relationships and anchoring to reality seemed to be associated with accessing a more abstract application of preventive measures.

(B-02) QUANTITATIVE ANALYSIS OF BACTERIAL LOAD OF *BORRELIA* SPP. AND *RICKETTSIA* SPP. IN TICKS COLLECTED FROM BIRDS IN DIFFERENT SITES OF REPUBLIC OF MOLDOVA

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Epidemiological knowledge on quantity data of pathogens loads in ticks scarce. Quantitative studies of bacterial loads in ticks collected from birds is even more rarely described. To reduce this gap of information, a 192 *Ixodes ricinus* nymphs collected from birds in Republic of Moldova were examined. DNA was extracted from individual ticks with subsequent PCR targeting *Rickettsia* spp. and *Borrelia* spp. The overall mono-detection mean bacterial load found was 3.53×10^3 for *Borrelia* and 1.23×10^5 *Rickettsia*. Ticks in which co-detection of both pathogens DNA was observed showed a mean of 9.47×10^4 bacteria, in proportion 2.83×10^3 for *Borrelia* and 9.19×10^4 *Rickettsia* genome equivalent per tick. *Rickettsia*-positive ticks had a significantly higher bacterial load than ticks with detected *Borrelia* DNA. The highest average bacterial loads were found in nymphs collected from blackbirds, and then in nymphs collected from starlings. No statistically significant differences were found when comparing the level of the bacterial load of Borrelia and Rickettsia in cases of mono-detection with the loads of *Borrelia* and *Rickettsia* in co-detected ticks.

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(B-03) ANTIBIOTIC RESISTANCE PROFILE OF THE NEWLY ISOLATED LACTIC ACID BACTERIA STRAINS FROM TRADITIONAL FERMENTED FOODS

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The use of antibiotics has become a serious problem worldwide and according to this, there is currently an increased public and scientific interest. Antimicrobial resistance has become one of the main issues of some of the organizations such as EFSA, WHO, FDA and FAO as it is developing rapidly and is an increasingly serious health concern in the world. Microbial resistance comes as a result of continuous exposure of microorganisms to antibiotics. By gaining the ability to adapt microorganisms survive and grow. Antibiotics are used by preventing their reproduction or through various inhibition mechanisms such as blocking the DNA copying process, protein synthesis, the synthesis of the cell wall or cytoplasmic membrane. LAB constitutes one of the most important groups of microorganisms present in several habitats, including the gastrointestinal tract of humans and animals and are part of the microbiota of some foods. They are historically known as GRAS (generally recognizes as safe) and QPS (qualified presumption of safety) status given by the FDA and EFSA authorities. Continuous exposure of LAB to environments with antibiotics may prompt them to become an intrinsic or extrinsic reservoir of antibiotic resistance genes. Knowledge of the antibiotic susceptibility of lactobacilli with probiotic potential is essential. Also, it is very important to determine the resistance profile of strains used in fermented foods.
Ten newly isolated strains from traditional fermented foods were used for determining the antibiotic resistance profile. The resistance to antibiotics varied among the examined strains and for some of the antibiotics results in complete resistance. Chromosomal DNA of

LAB was analyzed for the antibiotic resistance genes. Only five of eight vancomycin-resistant strains have shown the presence of the gene in chromosomal DNA. None of the genes resistant to other antibiotics have been shown to be present in chromosomal DNA.

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(B-04) NEW THERMOPHILIC *THERMOBIFIDA* STRAIN KB-T3 FROM ALGERIAN SAHARAN SOIL: ISOLATION AND POLYPHASIC TAXONOMY

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During a screening for the diversity of actinobacterial strains from Saharan soil samples collected from Béchar region (Algeria), one strain designated KB-T3 was isolated by dilution technique on chitin-vitamins agar medium. The taxonomic position of this strain was determined by using a polyphasic approach. Morphological and chemical characteristics of the KB-T3 strain were consistent with those of the genus *Thermobifida*. The KB-T3 strain had a white aerial mycelium with dictomically branched sporophores carrying coccoid secluded spores. The substrate mycelium was pale yellow, sterile, and non-fragmented. The strain is characterized by the presence of meso-diaminopimelic acid in the cell wall, the galactose in whole-cell, and phosphatidylethanolamine in the cell membrane. The unique characteristic of this strain was its abundant growth with the absence of NaCl and in temperature ranging from 40 to 65 °C, its capacity to decompose acetate, and its ability to use fructose, glucose and xylose as sole carbon source. Phylogenetic analysis based on 16S rRNA gene sequence revealed that the strain KB-T3 should be

classified in the genus *Thermobifida* and exhibited 99.79 % gene sequence similarity to *Thermobifida fusca* NBRC 14071^{T}.

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(B-05) EFFECTS OF SILVER NANOPARTICLES ON GROWTH PARAMETERS OF RADISH (*Raphanus sativus*) GROWN UNDER DEFICIT IRRIGATION

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In agricultural production, nutrient fertilization is vital in maintaining soil fertility and improving crop productivity and quality. In particular, the need for precise nutrient management and a chemical fertilization of horticultural crops is a major challenge worldwide. Intensive application of conventional fertilizers for long periods causes serious environmental problems such as groundwater pollution, deterioration of soil quality and air pollution. This has led to the search for particularly effective and environmentally friendly fertilizers. Recently, nano-fertilizers are considered as a promising fertilization alternative. Nano-fertilizers benefit nutrition management due to their strong potential to increase nutrient utilization efficiency. The present study aimed to determine the effect of silver nanoparticles (AG) on some growth parameters of radish grown under deficit irrigation conditions. The experiment was conducted by applying 4 irrigation levels (I0; 100% full irrigation as control application, I1; 20% deficit irrigation, I2; 40% deficit irrigation, and I3; %60 deficit irrigation) and 4 silver nanoparticle doses (AG0: 0 ppm, control; AG1: 20 ppm; AG2: 40 ppm, and AG3: 80 ppm) with three replicates in total of 48 pots as randomized plot design. The findings showed that root height, root diameter, root fresh weight and root dry weight significantly ($p<0.01$) decreased in deficit irrigation. While root parameters were significantly increased in Ag nanoparticle applications, the number of leaves were not varied statistically. The highest root height (33.21 mm) was determined in full irrigation treatment with AG3 (80 ppm). As a conclusion, it can be indicated that radish plant development in the silver nanoparticles under deficit irrigation conditions can be improved in considerable levels compared to the control application without silver nanoparticles.

(B-06) EFFECT OF IRON, BORON AND ZINC APPLICATIONS ON YIELD AND QUALITY TRAITS OF SOME SOYBEAN CULTIVARS (*Glycine max* (L.) Merr.)

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This research was conducted in 2019 at Tekirdag Namik Kemal University, Faculty of Agriculture, Field Crops Department, Research and Experimental area. It was aimed to determine of effect of iron, boron and zinc applications on yield and quality traits in some soybean cultivars. The experiment was carried out as a split plot design based on Randomized Complete Block Design with three replications, in which cultivars constituted the main plot with three cultivars (Arısoy, Safir and Bravo), and micronutrients and their combinations constituted the sub-plot (control, Fe, B, Zn, Fe+B, Fe+Zn, B+Zn and Fe+B+Zn). The micronutrients were applied to the plant by foliar spraying in the V3-V5 period. The plants have four/six nodes with three trifoliates fully unfolded in this stage. In the study plant height, first pod height, pod number per plant, seed number per pod, 100 seed weight, seed yield, oil content and protein content were investigated. The results showed that foliar micronutrients significantly increased the values for all traits. According to research findings, seed yield values of cultivars changed between 304.93-382.62 kg da^{-1}, oil content values 12.51-17.16% and protein content values 37.82-42.30 % and showed a wide variation. In terms of cultivar x micronutrient interaction, the highest seed yield was obtained from the Fe+B, Fe+Zn and Fe+B+Zn applications in Safir variety (395.01, 393.55 and 396.42 kg da^{-1} respectively). The protein content, which is the most important character in soybean, varied between 36.79-43.14%, but this difference was not found to be statistically significant for interaction. It was concluded that micronutrients had significant and positive effects on yield and quality characteristics of soybean.

(B-07) *CARUM CARVI* – A SPECIES OF FOOD INTEREST WITH ANTIMICROBIAL PROPERTIES. A SHORT REVIEW

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This paper is a short review of the *Carum carvi* L as a species of food interest, with many nutritional and functional benefits but also as a plant rich in bioactive compounds with antibacterial and antifungal action. For caraway the nutritional value and antimicrobial activity, we used different Databases and research papers.
The nutritional richness in organic compounds (especially carbohydrates), vitamins (dominated by vitamin C, folates, niacin, vitamin E) and minerals (especially calcium, phosphorus) are the basis for the use of this plant as a spice in the food industry and in various culinary preparations. *Carum carvi* L seeds have a high oil content and over 30 chemicals. The most important components are considered of carvone and limonene. Caraway oil is a promising antimicrobial agent against pathogenic, phytopathogene and fungal bacterial species, including species with produce mycotoxins and aflatoxins. Caraway is of interest in traditional medicine and food preservation, too.

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(B-08) MORPHOLOGICAL VARIABILITY IN THE NEW VARIETIES OF TRITICALE, HAIDUC AND FDL BOLID

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Currently, new varieties of triticale show improved morphological characteristics, according to the requirements of practice. The new directions mainly concern the waist and the components of the ear. Recent research has shown that new varieties, which form chains with relatively lower heights, could be suitable for different levels of intensification. On the other hand, current studies on morphological characters are useful in the progress of variety improvement, characteristic of the current stage. The wide genetic dowry and growing conditions of triticale usually lead to the specific expression of plant morphology. In the autumn triticale varieties Haiduc and FDL Bolid, some new directions were found, these being recently improved. Thus, compared to the two varieties, the straw and its upper segments were shorter in Haiduc. The thickness of the straw at the base was 0.2 mm smaller at Bolid. Both the length of the spike and its weight were similar. The Haiduc variety dominated instead in the number of spikelets in a spike, 31 compared to 29 in the Bolid variety. The membranes that cover the spikelet had similar dimensions: the external glume of 9 mm, the lower palea of 12-13 mm, and at Bolid the awn was 2 cm higher. The two varieties of triticale were more obviously differentiated by the morphological characteristics of the grains. Thus, for the Bolid variety, the number of grains in an ear was higher by 10, and the weight was higher by 0.5 g. Instead, the grain length was higher in Haiduc. The dominant values of the mass of one thousand grains were in both varieties at 50 g. Specific and at the same time important correlations were obtained between the morphological characters of the varieties. Thus, the number of grains in an ear and their weight were positively correlated with all the studied characters, with higher values of the correlation coefficients obtained for the Bolid variety. Both varieties of autumn triticale have demonstrated by their morphological characteristics, a good adaptability to zonal conditions.

(B-09) THE USE OF A SELECTED FAST-SEDIMENTATION GREEN MICROALGA FOR WASTEWATER TREATMENT

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Use of microalgae in biotechnological processes, such as bioenergy production and wastewater treatment have been and continue to be of great interest. However, the commercialization of their potential is hindered due to various technical challenges, with biomass harvesting being the largest and most expensive energy consumer among them. Therefore, a major challenge is in finding an efficient harvesting method with high economic feasibility. In this study, a rapid-sedimentation freshwater green microalga was used for batch treatment of artificial wastewater. This strain, in addition to its ability to efficiently remove and use N, P as a source of nutrients, has the advantage of a fast-sedimentation innate feature which allows for a rapid biomass settling (less than 10 minutes) without the addition of any flocculant. This green microalgal strain grows in the form of macrocolonies that significantly favor harvesting by rapid natural gravitational sedimentation. Thus, as this microalga will not require centrifugal harvesting, which is expensive and energy consuming, its use at both bench and pilot scale could be a promising, cost-effective, and environmentally friendly approach for commercial applications.

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(B-10) THE INFLUENCE OF LIGHT ON THE BIOSYNTHESIS OF PT AND AU NANOPARTICLES BY *SHEWANELLA ONEIDENSIS* MR-1

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Shewanella oneidensis MR-1 is a metal-reducing bacterium widely used in dissimilatory reduction and recovery of precious metals. It has previously been used for the photo-induced reduction of Au(III) to Au(0), but to date there are no reports for the photo-induced reduction of Pt(IV). This study investigated whether light could be used to stimulate the synthesis of Pt nanoparticles (PtNPs) in *S. oneidensis* MR-1. The synthesis of AuNPs and PtNPs by *S. oneidensis* MR-1 under dark and white light illumination conditions was verified by UV-Vis spectroscopy and transmission electron microscopy (TEM). The results indicated that light significantly influences the synthesis of both Au and Pt nanoparticles. Under light conditions, the synthesis of AuNPs and PtNPs was induced within 24 hours, and their concentration increased exponentially over time. Under dark conditions, the reduction process appeared to be a much slower process (i.e., 48 hours for Au and more than 72 hours for Pt). The size and cellular localization of the NPs synthesized under light and dark conditions were also different.
To the best of our knowledge, this is the first report that the synthesis of PtNPs by *S. oneidensis* MR-1 can be induced by light, which could be a cost-effective and environmentally friendly alternative to chemical synthesis.

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(B-11) Changes in Microbial Intestine Flora of Brown Trout (*Salmo trutta fario*) Fed with Prebiotic Added Feeds

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In this research, Brown trout (*Salmo trutta fario* L., 1758) with 100±15 g from the fish production center of Aquaculture department of Fisheries Faculty at Ataturk university was used. The effects of addition of prebiotic (0 % prebiotic as control and 0.1 % prebiotic) to the fish diets was determined from a-90 days of feeding trial (Experiment 1) with 4 replications (2x4=8 tanks). Fish were distributed randomly to each group of tanks including 40 fish each. Fish were fed with experimental diets twice a day at 10±1°C water temperature. In the experiment treatment vs time interaction was investigated by taking samples from intestine for determination of intestinal bacterial flora and body proximate composition at 0, 30, 60 and 90. days.
Feeding fish with prebiotic showed that there were significant changes in the number of all bacteria counted from intestinal flora and percentages of chemical composition from fish fillets ($p<0.05$).

(B-12) EFFECTS OF HEAT STRESS ON SOME BIOCHEMICAL TRAITS OF SMALL REDDISH BEAN

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This study was conducted to investigate the effects of heat stress on small reddish bean (Phaseolus vulgaris L.) cv. Keklik leaves. For this purpose, the leaf samples were collected into pyrex tubes with caps closed and placed into water bath. After a 30-minutes habituation at 30ºC, the leaves were subjected to heat stress treatments in water bath at 35, 40, 45, 50, 55 and 60°C with gradual increments every half an hour. Samples were analyzed for malondialdehid (MDA) content, ascorbic acid (AsA), isoperoxidases, total soluble protein (TSP) and SDS-PAGE protein profiles. The results revealed that MDA content increased with elevated temperatures, especially after 50°C. Although there was fluctuation, the AsA content generally decreased with high temperatures. Besides, TSP content decreased after 50°C. Moreover, three asidic and four basic isoperoxidase bands were identified. Protein bands with molecu1ar weight of approximately 14.5-195 kDa were determined. In conclusion, especially 50°C and above causes oxidative stress in small reddish bean plant. Additionally, isoperoxidases and proteins may be an effective mean on heat stress tolerance.

(B-13) THE ROLE OF ANTIOXIDATIVE ENZYMES IN TOMATO LEAVES UNDER HEAT STRESS AT TWO DEVELOPMENTAL PHASES

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The role of antioxidative enzymes in response to heat stress tolerance (HST) of three tomato cultivars was investigated in this research. The leaves were obtained from tomato plants at the first bloom and yield stages and then were subjected to controlled high temperature treatments in water bath. The temperature in the water bath was increased 5 °C systematically for every half an hour from 35 to 60 °C to generate a heat-stressed condition. The plants in yield stage exhibited an increase in HST when compared with the plants in first bloom stage and heat stress increased hydrogen peroxide (H_2O_2) level in leaves. Among the performed enzyme analysis, only catalase (CAT) involved in HST of tomato cultivars, however it may not be correlated with the degree of HST. In addition, two acidic and one basic isoperoxidases appeared in relatively heat tolerant cultivars in the yield stage, therefore isoperoxidases may be associated to HST in tomato plant.

(B-14) BIOCONTROL BACTERIA AGAINST BOTRYTIS GRAY MOLD AND OTHER SRAWBERRY FUNGAL PATHOGENS

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Strawberries are listed among the functional foods. Beside their appreciated taste, they are rich in antioxidant compounds. Due to their sugars, fleshy pulp and thin skin, as well as dwarf habitus, they are exposed to various plant diseases, especially fungi. Botrytis gray mold is the most destroying pathogen, but there are other fungi that can cause losses in the field or after harvest. The aim of this study is to select some bacterial strains that could be easily formulated as biocontrol agents against various molds. These bacteria were isolated from winery compost and analyzed through specific microbiologic methods. Based on their *in vitro* antagonistic activity, two bacterial isolates were selected. These strains revealed up to 84.2% inhibition of *Botrytis cinerea* growth, and high antifungal activity against various other fungi, such as *Fusarium oxysporum*, *Macrophomina phaseolina* and *Sclerotinia sclerotiorum*. Qualitative enzymatic tests, as well as microscopic analysis of the microbial interactions revealed fungal degradative enzymes produced by the bacterial strains. As the selected strains were determined to be spore producing bacteria, long term preservation is an advantage for their formulation as plant protection inoculants. Moreover, these bacteria revealed no phytotoxic activity against test plants.

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(B-15) BACILLUS ORIGINATED TRANSGLUTAMINASE ENZYME: PROPERTIES AND USAGE

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Enzymes with various functions play a great role in different fields. Bacteria-originated enzymes are commonly used in agriculture, health, food and many other industries. Among them, transglutaminases (EC 2.3.2.13) are both intracellular and extracellular enzymes included in the transferase group that catalyse cross-links between proteins. Microbial transglutaminase enzyme is frequently used in food and pharmaceutical industry to alter the functional properties of proteins since it increases viscosity, elasticity and water holding capacity. Gelling, increasing the mechanical strength and reducing the structural deformations, is a particular positive effect in meat, dairy and bakery products. It also contributes to reduce the use of additives in diets with low protein and fat content. Furthermore, it reduces the time for cooking processes as well as enhancing sensory properties. Transglutaminase enzymes are also used in the other fields as tissue culture, biochemical and biomedical research, textile and leather industry. In this review, a broad perspective is presented on the literature dealing with bacterial transglutaminase studies, especially those belonging to the genus *Bacillus*. In *Bacillus spp*., transglutaminase gene was mostly reported in *B. subtilis, B. amyloliquefaciens, B. cereus, B. nakamurai, B. circulans* species and in whole genome of *Bacillus thuringiensis* (*Bt*) SY49.1 strain using the RAST database. It was determined that the *Bt* transglutaminase gene was 93% similar to that of *B. cereus* species. The presence of transglutaminase gene in agriculturally indispensable *Bt* strain can confer them a superficial characteristic for water holding capacity, yield and quality.

(B-16) INDOLE ACETIC ACID (IAA) PRODUCTION POTENTIAL OF PGPR BACTERIAL ISOLATES AND THEIR EFFECT ON SEED GERMINATION IN ZEA MAYS L.

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The study was conducted to determine the presence of indole-3-acetic acid (IAA) in PGPR isolates using PCR reactions and biochemical tests. Positive isolates were tested under *in-vitro* conditions for germination efficiency on maize (*Zea mays* L.) seeds. Salkowski method was used for IAA tests on 30 bacterial isolates with PGPR properties. The KH14.3 and KH24.1.2 isolates were biochemically active in terms of IAA test. The absorbance readings were made at 595 nm of an Elisa reader and resultant values were compared to an IAA standard. IAA productions varied between 0.42 - 6.3 µg/ml. For germination experiments, 20 maize seeds were coated with IAA- positive isolates (1.3x107 cfu/ml) in petri dishes in triplicates according to the randomized plot design. The germination test was monitored for 7 days in an incubator at 25°C. Experimental data were subjected to analysis of variance (one-way ANOVA) in SPSS software. The difference between the bacterial coating and control group was significant ($P \leq 0.05$). Germination efficiency was determined as 99.9% for KH14.3 and 2.7% for KH24.1.2. Present findings revealed that KH14.3 was ACC deaminase-, phosphatase-, and siderophore-positive and KH24.1.2 was positive for ACC deaminase and phosphatase. These two isolates were also

biochemically active in terms of IAA and could increase germination success by coating on seeds. Further research is recommended on the other seeds.

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(B-17) LIQUID INOCULUM - PROMISING TECHNOLOGY SEQUENCE FOR PRODUCING THE SPAWN OF *PLEUROTUS OSTREATUS* AND *PLEUROTUS COLUMBINUS* STRAINS

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Edible and/or medicinal mushrooms are well-known and appreciated for their nutritional, gastronomic and therapeutic qualities, which give them the status of functional foods. A relatively new alternative is using mycelium grown in submerged cultures – liquid inoculum/spawn - which has some advantages such as: a faster colonization of cereal grains and reduced risk of contaminations, ease of flasks handling, superior purity and uniformity of the spawning biological material. In this paper we present our first results in the use of liquid inoculum to obtain the spawn of two species of lignivorous fungi*: Pleurotus ostreatus* and *Pleurotus columbinus*, the latter being a new species for the variety grown in our country. When measuring the amount of fresh/dry submerged obtained biomass, *P. ostreatus* strains proved to be more productive than *P. columbinus*. The growth capacity of the liquid mycelium was tested on several variants of lignocellulosic substrate. Some of the liquid inoculum was used to inoculate the wheat grains and obtain the spawn. Finally, a test of the fruiting capacity of the three strains with the spawn produced in this way was performed

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(B-18) RESEARCH ON OBTAINING *LIQUID* MYCELIA FROM *PLEUROTUS* SPP. STRAINS AND TESTING THEIR FRUITING POTENTIAL

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The paper focuses on the obtaining biotechnology and *in vitro* propagation of edible and/or medicinal macromycetes mycelia from the genus *Pleurotus* in submerged cultures in order to produce the biological "seeding" material - spawn. The quality and biological purity of the spawn is critical to the success of mushroom production and productivity. Starting from stock cultures from the collection of the RDIVFG Vidra, the mother cultures were obtained, the biological material being represented by two strains of *Pleurotus ostreatus* and one strain of *Pleurotus citrinopileatus*, each of them being cultivated in PDB + K_2HPO_4 (1,5g/l), pH 6.5 medium at differt stirring speeds (0/100/150 rpm). The submerged growing biomass was used to inoculate wheat caryopsis, that evolved into spawn after complete colonization. The lignocellulosic substrate was obtained from wheat straws with the addition of nutritional supplements (wheat and maize bran and sunflower middlings) and distributed in the polypropylene bags. Their yielding capacity was verified in the fruiting chamber of the laboratory micro-mushroom farm test facility.

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(B-19) THE EFFECT OF CHLORELLA SOROKINIANA UTEX 1230 AS A BIOFERTILIZER ON TOMATO CULTURE ROMEC 554J VARIETY CULTIVATED ON SANDY SOILS AT RDSPCS DĂBULENI

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In a world of rapid change, the use of microalgae provides a solution to meet the challenges of agriculture, food and renewable energy. A major area of application is the use of microalgae in agriculture.
The aim of this paper is to study the influence of the application of *Chlorella sorokiniana UTEX 1230* inoculum on the evolution of soil chemical composition, as well as the ability of microalgae, as a biofertilizer, on the growth and development of tomato plants, including the influence on plant physiological indices. Ground determinations, at 60 days after application of *Chlorella sorokiniana UTEX 1230* inoculum indicated higher values of nitrogen, phosphorus, potassium and organic carbon content in the soil. The results regarding the growth and development of the plants obtained in the protected area (solar greenhouse), for the *Romec 554j* tomato variety showed differences between the variants studied. The *Romec 554j* tomato variety recorded a higher rate of photosynthesis in the version treated with the inoculum of *Chlorella sorokiniana UTEX 1230*, compared to the control version and the technologically fertilized version (12,66 µmol CO_2 / m^2 / s, compared to 11,82 µmol CO_2 / m^2 / s in the control version and 12,48 µmol CO_2 / m^2 / s in the technologically fertilized version), but the values were not statistically assured.

(B-20) EXTRACTION TIME INFLUENCE ON THE PHENOLIC AND CAROTENOID LEVEL, AND DYNAMICS OF ANTIOXIDANT ACTION OF CHOKEBERRY DRY RESIDUE

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This study aimed to analyze the extraction time influences on some phenolic and carotenoids determined in the chokeberry dehydrated residue. In addition, the dynamics of the DPPH· radical reduction under the influence of the different amounts of chokeberry extract and reaction time were registered. For this purpose, fruits belonging to the 'Melrom' and 'Nero' cultivars grown in the experimental plots of the Research Institute for Fruit Growing Mărăcineni-Argeș were harvested at full maturity, in the middle of August 2021 and pressed for juice extraction. The resulted residue was subjected to convective dehydration at 45ºC. Values of 12286.11-165660.88 mg GAE/100g DW for TPC, 6567.96-9428.90 mg GAE/100 g DW for TTC, and 3293.74-5109.63 mg EC/100 g DW for TFC were obtained. Lycopene ranged between 0.78-1.43 mg/100 g DW, and beta carotene between 0.21-0.37 mg/100g DW. Raising the extraction time by at least 24 hours resulted in higher amounts of analyzed compounds. The lowest radical activity (A% = 18.35-22.44) was determined for the maximum extract dose (60 µL). In this case, A%

was minimal after 20 minutes of the DPPH reduction reaction (10.13-14.75%), but not significantly different compared to the values determined after the first 6 minutes of reaction (19.93-24.60%).

(B-21) IDENTIFICATION OF THE NUTRITIONAL STATUS OF A REPRESENTATIVE GROUP OF CHILDREN AGED BETWEEN 12-15 YEARS OLD

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The period of an individual's life between 12-15 years is very difficult and it is marked by a series of multiple physical and mental transformations, by the development of the identity and by the acquisition of the capacity of a deeper reasoning. As it is a period of rapid growth, proper nutrition is crucial to reaching the full growth potential. A market research was performed on a representative sample at national level of 124 people, in order to identify the nutritional status of children in this group. Computer assisted telephone interviews, using the database of people pre-recruited through face-to-face dialogue, was the data collection methodology, used to perform the market research. Despite a varied diet of children in this representative group, some deficiencies related to the number of daily servings for certain food categories were found, thus:
- the fish consumption is very low (1 serving every 2 weeks) and it should be increased;
- daily consumption of low fat dairy products should be also increased;
- vegetable consumption is low and children need vegetables every day;
- consumption of sweets should be limited.

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(B-22) ROMANIAN KIWIFRUIT BREEDING PROGRAM - PRELIMINARY STUDY OF FIFTEEN MALE HYBRIDS FOR SELECTION AS POLLINATORS

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Kiwi is a new fruit that can be grown in Romania. A common Italian-Romanian kiwifruit breeding program was initiated in 1993. For pollinator (male) kiwi plants, breeding programs involve the selection of elite plants with long flowering period and high pollen germination rate. The aim of this study was to evaluate the pollen grains from fifteen Romanian kiwifruit hybrids for identifying the most suitable pollinators for kiwi female selections released from our breeding program. The fresh pollen grains collected during 2019 and 2020 pollination period, in Petri dishes, were maintained at room temperature for 12 hours, and then placed in 15% sucrose solution for germination. At different time interval: 4, 8, 12 and respectively, 24 hours, several measurements were done. Four genotypes – R0P3, R0P6, R2P8 and R3P9, which recorded over 90% germinability after 24 hours, have been selected for further field tests, including artificial pollination and compatibility tests with the kiwi female selections.

(B-23) INFLUENCE OF CULTURE SUBSTRATE PH ON CORDYCEPS MILITARIS MUSHROOM CORDYCEPIN CONTENT, GROWN ON DIFFERENT SOLID SUBSTRATES

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The Tibetan mushroom (*Cordyceps militaris*) has been known and used in traditional Chinese medicine for its therapeutic properties for thousands of years. This mushroom is rich in nutrients and biologically active components, such as: cordicepic acid, glutamic acid, mannitol, proteins, amino acids, polysaccharides, magnesium and calcium. These substances make Tibetan Mushroom an extraordinary means of restoring health and increasing the vitality of the body. In the study, we used a solid culture substrate with 3 degrees (based on brown rice, wheat and barley) with a pH of 7 degrees (4.5-7.5). It was found that the pH of the culture substrate directly influences the production of cordycepin, so at a pH value of 5 the cordycepin content begins to increase, reaching its highest level at a pH value of 5.5 (362 mg / L), then at pH values above 6, the cordycepin concentration begins to decrease.

(B-24) THE INFLUENCE OF CORDYCEPS MILITARIS CULTIVATION TEMPERATURE, CULTIVATED ON DIFFERENT SOLID SUBSTRATES, ON THE CORDYCEPIN CONTENT

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Cordyceps, also known as "medicine gold", is a type of Tibetan mushroom that has been used in Chinese alternative medicine for over 1,000 years. Cordyceps is part of a family of fungi with over 400 species, many of which are parasitic, living on insects. Cordyceps has a nutritional content rich in over 80 ferments, vitamins, minerals, and amino acids. Three types of solid substrate (wheat, barley and brown rice) were used in the study, and the growth of the fungi was monitored according to temperature (12, 15, 18, 21, 24, 27 and 30 °C), over a period of 10 days. It has been found that fruiting temperature is a factor that directly influences the production of cordycepin, so at 24 °C the highest value of cordycepin (358 mg / L) was recorded, which begins to decrease with increasing temperature above this valuation.

(B-25) THE NUTRITIONAL RESOURCE POTENTIAL OF ORGANIC MANURE AND ITS RISK ON THE ENVIRONMENT

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The livestock sector is an important component of agriculture that involves the breeding of various types of domestic animals. Although animal husbandry is a key activity in global food production, providing food for human society, income, jobs, nutrients, etc. it also has negative consequences, being the second largest polluter after the power industry. An important issue related to the livestock sector is manure produced by animals. The purpose of this paper is to understand the potential of organic manure nutrients as well as the negative effects they can have on the environment. In order to carry out the study, investigations were required regarding the calorific value and the elementary analysis (C, N, H, S, O) for five different types samples of manure from: poultry, sheep, cow, horse and pig. All types of manure have a moisture content of between 40-60% and can be used for composting. With manure we can produce biogas, but is necessary to know the correct way of managing manure in order not to lead to pollution.

(B-26) APPLICATION OF SPECTROSCOPY IN ANALYSIS OF SOME FLORAL HONEY SAMPLES PRODUCED IN ARGES AND CALARASI COUNTIES IN THE SOUTH OF ROMANIA IN 2021

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Honey is a concentrated aqueous solution of sugars, especially glucose and fructose, and minor amounts of dextrin, enzymes, volatile oils, organic acids, ethers, and minerals. Honey samples vary in quality according to various factors, such as climate diversity, geographical characteristics, floral supply period, and packaging and storage conditions, which can compromise the quality of the hive's final product. The assessment of honey quality is a major concern that has gained interest internationally because honey has always been subjected to various fraudulent practices. Consumers, beekeepers, and regulatory bodies are interested to have reliable analytical tools and information to allow the detection of adulterated honey. The UV-Vis and infrared spectroscopy techniques are two of the most common analytical methods used to analyze the quality of honey nowadays, hydroxymethylfurfural being used as a standard for testing honey's freshness.
The present study was conducted to assess the quality of some floral honey samples (sunflower, rapeseed, acacia, and polyfloral honey) produced in Arges and Calarasi counties in the south of Romania. Data were subjected to analysis of variance ANOVA ($p \leq 0.05$) and Duncan's Multiple Range Test (DMRT) to measure specific differences between sample means.
Our results indicated that honey is a valuable source of bioactive compounds, especially phenolics and tannins.

(B-27) INFLUENCE OF EXTRACTION TIME ON SOME BIOCHEMICAL CONSTITUENTS OF BLUEBERRY FROZEN FRUITS

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Among the berries, blueberry (Vaccinium corymbosum L.) has gained high popularity mainly due to its appreciated taste and multiple uses. The biochemical composition of blueberries is responsible for their health and nutrition traits. It is well documented that bioactive compounds can reduce the risk of many diseases. This study aims to quantify the total content of some bioactive compounds, such as polyphenols, flavonoids, anthocyanins, tannins and carotenoids, along with the content of vitamin C, total sugar and total titratable acidity in various frozen blueberry extracts. Five blueberry cultivars ('Azur', 'Delicia', 'Duke', 'Northblue', 'Simultan') and two advanced selections ('4/6', '6/3') were studied. The plants were cultivated at the Research Institute for Fruit Growing, Pitesti, Romania in the open field trials in randomized block design with three repetitions plots (5 plants/genotype/repetition). Different solvents like ultrapure water, methanol, hexane: ethanol: acetone mixture, and hydrochloric acid were used. The results allowed us to establish the optimal extraction condition for each of the previously presented compounds.

(B-28) PRELIMINARY RESULTS REGARDING THE TOTAL SUGAR CONTENT OF GENITORS BLUEBERRY AND HYBRID PROGENIES

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Blueberry belongs to the Vaccinium Genus, Ericaceae Family, Ericales Order. The highbush blueberry (Vaccinium corymbosum L.) is classified as a commercially-grown berry. The berries' have both pharmacological properties and biologically active functions. This study objective was to determine the total sugar content in frozen fruits of the highbush blueberry genotypes used as genitors ('Simultan', 'Delicia', 'Duke', 'Azur', 'Northblue', '4/6', '6/38') and 95 hybrid progenies 'Simultan x Duke', 'Simultan x 6/38', 'Simultan x Northblue', 'Azur x 6/38', 'Azur x Duke', 'Azur x 4/6', 'Delicia x Duke', 'Delicia x 4/6'. The total sugar content of frozen fruits was analyzed by the phenol - sulfuric acid method. The results showed that the total sugar content of the genitors varied between 2.83 and 3.81 g glucose/100 g. The fruits of 'Simultan' cv. had the highest total sugar content (3.81 g glucose/100 g), while the total sugar content of 'Azur x Northblue' progenies fruits ranged between 2.61 and 3.61 g glucose/100 g, with an average value of 3.11 g glucose/100 g. The highest total sugar content, 5.48 g glucose/100 g, was found in a 'Simultan × Duke' hybrid.

(B-29) THE INFLUENCE OF POTATO SLICE SIZE ON THE ACRYLAMIDE LEVEL OF POTATOES FRIED UNDER FAST FOOD CONDITIONS

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The aim of this study was to investigate the influence of potato slices (7, 9, 11 mm- Queen Anne variety) fried in palm oil in a fryer set at 190°C, for different periods of time (6, 8, 11 min) on the acrylamide level and color parameters of French fries.
The experimental samples were processed by the SPE technique and analyzed in terms of acrylamide level by GC-MS/MS.
Results showed that the acrylamide level is significantly affected by the size of the potato slices and by the frying times: for 6 min of frying it varied from 222.90 µg/kg (7 mm) to 217.81 µg/kg (9 mm) and 192.36 µg/kg (11 mm), respectively; for 8 min of frying it ranged from: 842.44 µg/kg (7 mm) to 416.233 µg/kg (9 mm) and 343.19 µg/kg (11 mm); for 11 min of frying it was between 2636.06 µg/kg (7 mm) to 1114.41 µg/kg (9 mm) and 906.70 µg/kg (11 mm), respectively.
A reduction in the acrylamide level was obtained by about 14%, 59%, 66% for 6, 8, 11 min of frying at the size of 11 mm, compared to those divided at the size of 7 mm.
The acrylamide formation in French fries was significantly reduced with larger the size of the potato slices and with shorter periods of frying.
When increasing the potato slice size, positive linear correlations were obtained between the acrylamide level and the color parameters a^* and b^* (R^2 = 0.54 - 0.99) and negative linear correlations with the color parameter L^* (R^2 = 0.68 - 0.99).

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(B-30) FOOD ALLERGIC AND HYPERSENSITIZATION DERMATITIS

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One of the most common diseases encountered in a dog's life is dermatitis. Wet dermatitis, seborrheic, dermatitis and atopic are just a few of the common cases in the canine species. A particular dermatitis that can be considered trivial, but difficult to treat is food dermatitis. This is the most difficult to detect because there are no specific tests that can indicate the source of dermatitis, as can be identified, for example in flea dermatitis caused by contact skin with its saliva. The common and the first clinical sign of all dermatitis is pruritus, regardless of the nature or secondary infection preceded by the inflammation. Food allergic dermatitis can be treated by testing and eliminating every nutrient in the animal's diet. To see if the food is good or not for the body it takes a few months of administration and any change in it can lead to other eczema, even if it has been treated before. The purpose of writing this article is to know the skin pathology of the animal and to give the right food.

(B-31) THE MARKERS OF THE CANINE NUTRITION SYSTEM

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The markers of the canine nutrition system represent a very important aspect in choosing a proper diet for the animal. They are distinguished by the use of age, waist and physiological condition as determinants in the diet of a dog. It is also necessary to know the nutritional value and the components of each type of food in order to achieve the biological needs of each organism, depending on the individual representative medical needs. For a healthy body, depending on the needs, a balanced diet should consist of a source of protein with a high nutritional value, a small amount of carbohydrates that will lead to proper nutrition, without the presence of food allergies. Increased attention is paid to the nutrition of dogs, seniors, over the age of 9, where the appearance of various diseases is observed with advancing age (heart disease, lung disease, liver and kidney disfunction) trying to avoid large amounts of fats and the use of foods low in sodium, potassium and phosphorus that can attack the already weakened liver and kidneys. The purpose of writing this article is to review nutritional markers and analyze the nutritional components of diets, depending on various factors.

(B-32) *TANACETUM VULGARE* L - A NEW AND PROMISING SOLUTION IN STAPHYLOCOCCAL INFECTIONS

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Therapy of infectious diseases caused by *Staphylococcus aureus* is going through a major crisis, due to the magnitude of the phenomenon of antibiotic resistance (AR) which has reached alarming levels. Antibiotic resistance is a global public health problem that requires concerted action plans. In this paper we aimed to highlight the antibacterial properties of a plant widespread in our country, *Tanacetum vulgare*. Although it is recognized in the local tradition as a plant with multiple therapeutic properties, *T vulgare* is a little studied plant. The volatile oil obtained from the aerial parts of *T vulgare* was obtained by the classical method of hydrodistillation, from which we made dilutions with DMSO to determine the MIC. The tested *S aureus* strains were isolated from various infections from patients with multiple diseases, hospitalized at the C.C. Iliescu Institute of Cardiovascular Diseases, Bucharest. Genotyping of *S aureus* strains was performed by the classical PCR method. Virulence genes of type clfA, clfB, fib, fnbA, hlg and antibiotic resistance genes of type A, mec I, CIF2, RIF5, ccrC, SCC mecIII J1, kdp-strain MRSA type V were identified. For the identification and isolation of chemical compounds from *T vulgare* we used the CG-MS method. The main isolated chemical compounds were: β-

Thujone = 30.26, trans-Carvely acetate = 34.44, Germacrene = 3.03, α-Thujone = 3.47, trans-Sabinyl acetate = 4.6, Eucalyptol = 2.47. The MIC of T vulgaris extract against MRSA strains of *S aureus* had values between 15,125-250 µl / ml. The strong inhibitory activity of *T vulgare* extract against *S aureus* MRSA strains is of major importance in infectious therapy with hopeful health in difficult cases. *T vulgare* extract can be considered a new and promising solution in staphylococcal infections.

Acknowledgments
I thank Prof Dr Anton Ficai for his support in achieving the objectives of this research paper.

(B-33) ASPECTS REGARDING THE ATTACK OF SOME BIODETERIOGENS ON SOME CULT OBJECTS FROM ARGES COUNTY

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Cultural heritage has a cultural significance, which refers to the aesthetic value of the heritage asset, the historical or social value of monuments for past, present or future generations. In conservation areas where there are open environment conditions, there are ecological producers (autotrophic bacteria, algae, lichens and higher plants). In terms of trophic relationships and the main food chain, the presence in the conservation environment of collections from archives, libraries and museums of excessive food resources for biodeteriogenic pests determines the possibility of the absence of producers, which is why most populations settled in the environment conservation of movable cultural heritage goods are consumers (egs insects) and destroyers (bacteria and fungi). In the present study, various fragments of cultural heritage goods taken from cemeteries, churches, for the purpose of analyzing biological patinas and establishing the etiopathogenic complex were subjected to analysis. Fungi of the genera Alternaria, Penicilium, Aspergillus, etc., various bryophytes, lichens and blue-green algae have been identified.

(B-34) THE JOURNEY OF PERSONAL DEVELOPMENT

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This study aims to explore the effects of a personal development program based on the technique of therapeutic metaphor on adolescent anxiety.
The unique experiences that fill the adolescent period produce sudden changes in emotions and give rise to emotional patterns that can deeply affect the personality that begins to take shape, mainly due to anxiety.
The applicative objective of this paper is to implement a personal development program, based on the technique of therapeutic metaphor, to help the adolescent to access emotions in an empathic way, to know his own self, to discover resources, in order to reduce anxiety.
The personal development program includes techniques such as creative meditation, role play, art therapy, drama therapy, Dixit cards and storytelling, applied to an experiential group of 12 teenagers and the psychological effects of this program will be evaluated both quantitatively and qualitatively.

(B-35) EXPLORING THE RESOURCES OF COMPASSION AND NATURE CONNECTEDNESS TO DEVELOP PROACTIVE COPING STRATEGIES

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This article discusses the complexity of proactive coping strategies in the light of the research of the psychological constructs of compassion and nature connectedness. The proactive coping process was conceptualized as a positively-focused striving for goal. It is regarded as future-oriented, goal management and positive motivated. The dynamic of this process involves resources accumulation, preventing resource depletion and mobilizing resources when needed.
The present study aims to explore the link among compassion (towards the humans as well as towards the environment), nature connectedness (as a basic human psychological need) and proactive coping strategies. It is expected that if someone is compassionate and has a psychological/emotional connection with nature, it is more likely to deal successfully with present and future threats to personal goals, health or well-being.
Statistical results confirmed this hypothesis. The results of the present research could be used to design personal optimization and development interventions to promote proactive coping strategies in the field of counseling and psychotherapy.

(B-36) PHYTOTOXICITY OF *HELLEBORUS ODORUS* WALDST. & KIT. EX WILLD. EXTRACTS

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The species from *Helleborus* genus are used as ornamental and medicinal plants in Europe and USA. They have been used for medicinal purposes for a very long time to treat various diseases and their phytopreparations have immunostimulatory properties. The aim of this study was to assess the phytotoxicity of methanolic and ethanolic extracts obtained from *Helleborus odorus* rhizomes with and without silver nanoparticles on wheat seeds. The extracts (5%, 10%, and 15% concentration) were obtained using a modern microwave technique and for the silver nanoparticles $AgNO_3$ was used in different concentrations (1, 2 and 3 mM) and temperatures (40^{o}C and at room temperature). In order to induce germination and roots growth, the seeds of *Triticum aestivum* (Miranda variety) were immersed in distilled water for an hour and a half and then placed on filter paper in Petri dishes in the dark. The test solutions were sprayed on the 3-day roots. After 72 h of exposure the measurements (root and stem length, fresh and dry biomass) were performed. The methanolic and ethanolic extracts with and without nanoparticles significantly inhibited the root growth. The inhibitory effect was lower in the case of stem growth. The phytotoxicity of ethanolic extracts on the stem was higher compared to methanolic extracts. Fresh biomass has been diminished as a result of significant root and stem growth inhibition.

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(E-01) ECO-DENDROMETRIC CHARACTERIZATION OF *PISTACIA ATLANTICA* STANDS IN THE STEPPE REGION OF NAÂMA (ALGERIA)

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The Atlas pistachio tree (*Pistacia atlantica* Desf.) is a tree of good pastoral quality that grows in all types of soil, it supports drought and winter cold. It has become rare because of its abusive exploitation. It is frequent in the Mediterranean area and in a small part of Asia, in Algeria it is found in the different bioclimatic floors.
The population of *Pistacia atlantica* de Gaâloul remains one of the best at the national level. Four groves were the subject of our study. Two methodological aspects were addressed; floristic study and dendrometry.
The analysis of the floristic data allowed us to distinguish 69 species divided into 24 botanical families and 54 genera, with a recovery rate of 25% and a predominance of therophytes. For the dendrometric approach, we found a dominance of the "medium wood" diameter class and the "5 to 10 m" height class with the exception of the first grove. We also notice a good natural regeneration with 40% of regenerated subject. We found a significant correlation between crown height and total height. The correlation between bole height and total height is negative.
The species of *Pistacia atlantica* remains unknown and therefore absent in reforestation operations despite its resistance to the difficult conditions of arid and semi-arid regions. For this reason, it has become necessary to restore, rehabilitate and protect this species, with the intensification of scientific research on this species to discover the environmental and natural secrets of this rare tree.

(E-02) **Floristic study and seed germination test of *Hammada scoparia* (Pomel) steppe species from the Naama region**

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This work was carried out in the region of Naâma, the objective of which is to test the germination capacity and to identify the accompanying flora of Hammada scoparia, a characteristic species of the Oran Saharan Atlas. The germination test of Hammada scoparia seeds under different temperatures (5°, 18°, 25°, 30°C), allowed us to determine the optimum temperature which is 5°C after pretreatment of the seeds in cold (0°C) with a rate of 45%. The floristic surveys carried out in two municipalities (Ain Sefra and Asla) show a degradation and poverty of the steppe rangelands due to overgrazing and the low rainfall which characterized the Naâma region during the period (2019-2021). Thirty species have been identified in total of this flora belonging to 30 genera and 16 botanical families with a predominance of therophytes (46%). Through this floristic study, we were able to draw the accompanying species of Hammada scoparia in the different study stations which are: Peganum harmala, Retama reatam and Thymelaea microphylla. These plant formations are of environmental and agropastoral importance in the Saharan Atlas and the steppe region of Naama.

(E-03) LONG-TERM HYDROLOGICAL DROUGHT ANALYSIS IN AGRICULTURAL IRRIGATION AREA: THE CASE OF DÖRTYOL-ERZIN PLAIN, TURKEY

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In recent years, with the effect of the climate change, drought is accepted as one of the most important natural disasters. In the planning, development and management processes of water resources, studies on the analysis of past droughts and the decreasing of possible negative effects in the future, have become even more important. The best adaptation to drought risk can only be achieved by adopting holistic approaches. In this study, Dörtyol-Erzin Plain, which is located in the south of Turkey and covers the fertile agricultural lands of the Asi River Basin with a drainage area of approximately 7800 km^2, was preferred as the case study for hydrological drought analysis. The drought phenomenon starts with meteorological drought, continues with agricultural drought, followed by hydrological drought and finally socio-economic drought. Nowadays, especially fluctuations in temperature and precipitation regimes and unusual climatic activities have threaten natural living environments. In the literature, it is stated that there is a slow drought progress for the Asi River Basin. It is highlighted that decreasing trend in groundwater and increasing trend in evaporation and temperature parameters are remarked. Since the agricultural irrigation of Dörtyol-Erzin Plain is dependent on groundwater and surface resources, hydrological drought analysis over the long period will be beneficial for the future studies. Accordingly, Streamflow Drought Index (SDI) method was used for the hydrological drought analysis by using 35 years of flow data between the years of 1986-2020. The open source "SPI_SL_6.exe" program via National Drought Mitigation Center (NDMC) was operated in the

calculations. In this software, the streamflow data were implicated instead of the precipitation data. Drought results were analyzed at different time scales of 3, 6, 12, 24 and 48 months, afterwards relevant graphs and tables were created. Consequently, the longest dry period has been determined between 2008 and 2012 water years, while the wet period has been evaluated between 2003 and 2007 ones. Furthermore, it is concluded that SDI values decreased as the monthly time periods increased, while the maximum indice values were obtained with SDI-3 in all drought periods. When all graphs are examined detailed, it can be expressed long-term droughts for certain water years are notable.

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(E-04) STUDY OF PLANT DIVERSITY IN THE RANGELANDS OF *STIPA TENACISSIMA* L: CASE OF SFISSIFA AND EL BIODH REGION, (SOUTH WEST ALGERIA)

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The floristic diversity analysis made it possible to distinguish 42 species listed in 30 genera and 17 families in the Sfissifa station and 34 species classified in 23 genera and 15 botanical families in the El Biodh station. The most representative families in the Sifissifa station are: Asteraceae (14,28 %), Amaranthaceae and Brassicaceae (11,90 %) Poaceae (7,14 %), Lamiaceae and Cistaceae (7,14 %). The dominant families in El Biodh station are Asteraceae (17,64 %), Poaceae (11,74 %), Amaranthaceae, Brassicaceae, Lamiaceae and Cistaceae (8,82 %). The other remaining families have only one or two species with estimated rates ranging from 2,38 % to 4,76% in Sfissifa and 2,94 % to 5,88 % in El Biodh.The study of biological types shows the abundance of therophytes in the two stations with 42.86 % at Sfissifa and 50 % at El Biodh, which reflects the importance of the anthropologic action and the xericity of the climate. The analysis of the biogeographical spectrum shows the dominance of native species of the Mediterranean (19 species in

Sfissifa and 15 species in El Biodh). The AHC analysis of the data revealed the main factors controlling the distribution of plant formations in the two studied stations including overgrazing, salinity and desertification. The combination of prolonged droughts and anthropogenic pressures exerted on the studied areas results in the extension of species of low pastoral value and the appearance of vast expanses of bare soil reaching the stage of desertification.

(E-05) CONSIDERATION OF DENDROMETRIC AND ECOLOGICAL CHARACTERISTICS AS INDICATORS OF REHABILITATION OF ATLAS PISTACHIO STANDS (*PISTACIA ATLANTICA* DESF.): CASE OF THE SOUTHWESTERN REGION OF NAÂMA (WESTERN ALGERIA)

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The Atlas pistachio tree (*Pistacia atlantica* Desf.) commonly called El Betoum is a woody, spontaneous and endemic species of North Africa. The Atlas pistachio tree is a fairly common species in Algeria, but it finds its optimum in arid and semi-arid steppe regions. The species, is one of the non-cultivated plants protected in Algeria by executive decree number 12-03 of January 4, 2012.
The data used in this study come from 4 groves located in the Gaaloul region (province of Naâma).
A total of 368 trees were subjected to dendrometric characterization. Ecologically, all species present in the four chosen groves has been identified and classified into vegetation strata.
The results obtained reflect the presence of pure preforest formation of Atlas pistachio with a regular structure dominated by a single diameter class (very big trees). The natural regeneration rate is estimated at 12.87%. The stands of *Pistacia atlantica* studied host a floristic diversity classified into three strata: tree strata, shrub strata and herbaceous strata.

(E-06) USE OF SATELLITE REMOTE SENSING FOR THE CHARACTERIZATION OF THE EFFECT OF DEFORESTATION IN THE SEMI-ARID REGION : CASE OF THE SENALBA CHERGUI, DJELFA FOREST (ALGERIA)

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This present study is interested in a pilot area of the Algerian forest, it is that of Senalba Chergui (province of) Djelfa. It is about an area where the pastoral activity constitutes, since always, the basis of the social organization and the main economic resource. Today, vis-a-vis the disorganization of social fabric, with the phenomena of turning into a desert and erosion, the steppic areas know an intense degradation which puts in mortgage the future of the pastoral activity.

To this end, we have developed a methodological approach which aims to characterize current ecological situation of this forest, using the spectral indices since they are considered synthetic, numerical variables that characterize the intensity or extension of a phenomenon too complex to be decomposed. Into a manageable number of parameters. Thus we combined the ACP data with those obtained by the transformation into NDVI for the creation of new images

The results obtained show that the study area is seriously exposed to the phenomenon of degradation, all the units that make up our area have experienced degradation, it is estimated between 7.49% and 22.85%. On the other hand, despite the regression of the plant cover, an encouraging biological recovery has been recorded.

(E-07) TEMPERATURE EFFECTS ON THE ENTOMOPATHOGENIC FUNGI *BEAUVERIA BASSIANA* STRAIN CNMN-FE-01: VEGETATIVE GROWTH, SPORULATION, GERMINATION RATE

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As part of an approach for selecting potential mycoinsecticides for biocontrol control of weevils, the physiological properties of the strains are to be considered. The paper aimed to investigate the temperature effects on the vegetative growth, conidia germination, and viability of the fungal strains *Beauveria bassiana* CNMN-FE-01. As a result of the provided analyses, it was shown that the radial growth of the investigated strain follows a linear model. Based on the rate of average radial growth data, the optimum temperature growth at 25°C was determined, while at 35°C, the growth stops. Furthermore, it was found that the maximum rate of sporulation and germination of *B. bassiana* strain CNMN-FE-01 are at 25°C. At this temperature, the strain maintains the viability of the spores in a proportion of 86% for 90 days. However, temperatures above 25°C significantly reduce the viability of spores. The inhibition in growth of the investigated strain *Beauveria bassiana* CNMN-FE-01 at 30°C and higher and considerable reduction of its spore viability after extended exposure to 30°C testify to the need for repeated application when used as a biological control agent.

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(E-08) IMPACT OF INVASIVE PLANT SPECIES ON ECOSYSTEMS, BIODIVERSITY LOSS AND THEIR POTENTIAL INDUSTRIAL APPLICATIONS

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Invasive plant species may cause not only several health problems, but also economic and environmental negative impacts – a gradual decrease of biodiversity and decline of soil fertility, issues that have recently come into the attention of several organizations including the research ones, in order to limit the spread of such species. The control methods of invasive species are often effective on the short term and include the probability of ecosystem imbalance over time, so that an efficient and sustainable management method that could add value to products or improve some industrial processes are strongly required. This study describes the potential of alien plants to maintain the quality of human life through different types of valorization, such as pharmaceutical, agriculture or food industry applications, energy production, paper technology and natural dyeing of various materials. Invasive plant species represent a global problem, accelerated by the current level of pollution and the rapidly-evolving society. Knowledge of chemical composition of different plant parts of invasive species, their potential for developing new products and their health effects will contribute to an efficient control, mechanical, chemical or biological, and an integrated management.

(E-09) PRELIMINARY RESULTS REGARDING THE DISTRIBUTION OF HERPETOFAUNA OF COMMUNITY INTEREST FROM ROSCI0065

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Our study was conducted in Tulcea County between August 2019 and November 2021.
Herpetofauna was identified in the dig-mal flood zone of the Danube River, between Grindu locality and Tulcea city and in the area ofthe Somova-Parches aquatic complex. The herpetofaunal study consisted of extensive transect surveys. The transects were made at distances that allow us to identify and monitor the target species according to the approved working methodologies.
During the investigation, seven species of amphibians and three species of reptiles were identified. For each species, the status of species protection has been established in accordance with the Habitats Directive 92/43 EEC, GEO 57/2007 and the EU Status.
This case study presents the distribution and abundance of species of community interest (Emys orbicularis, Bombina bombina and Triturus drobrogicus). A total of 534 individuals were identified during this period. Therefore, this study is a contribution to the knowledge of the distribution of species of Community interest in the area of ROSCI0065.

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(E-10) PRELIMINARY RESEARCH ON THE EURASIAN OTTER (*LUTRA LUTRA*, LINNAEUS, 1758) POPULATION IN THE ROOSCI 0065 PROTECTED AREA

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The eurasian otter (*Lutra lutra*) is a semi - aquatic mammal species strictly protected under national and international law. It is a species of carnivore that is at the top of the food chain and is considered an important bioindicator of the well - being of aquatic ecosystems both in terms of water quality and riparian habitat. In Romania, the otter is widespread throughout the country, especially in lakes and valleys of large waters, which have rich food resources (fish, shellfish and amphibians) but especially in ponds and the Danube Delta (Brehm, 1964).
The present paper aims to present a case study, conducted between october 2019 - october 2021 in the floodplain (dam – shore) of the Danube River (between the Grindu village and Tulcea city) and Somova - Parcheș aquatic complex.
This paper presents aspects of the abundance of signs of presence, the preference of defecation for the type of substrate, their temporal and spatial distribution.
The abundance of the signs of presence found shows us that this species has an intense activity in the studied area.

Acknowledgments
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(E-11) STUDIES ON CENTIPEDE ECOLOGY (MYRIAPODA: CHILOPODA): A BIBLIOMETRIC REVIEW

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As predatory soil macroinvertebrates, the centipedes are often considered for soil community studies. However, researches that targeted centipede ecology are less frequent. The paper scrutinises worldwide publications on centipedes ecology, with an overview of works carried out in Romania. We combined standard literature review with scientometric analysis on articles published after 1990 and available in Web of Science collections under Ecology Research Area. As also supported by the authors' keywords co-citation networks, classical aspects of centipedes ecology, such as environmental requirements and tolerances of a particular species, are hidden mainly within taxonomy and faunistic papers. Community ecology approaches are instead better delimited under the umbrella of biodiversity. Among these, ecotoxicology and food webs topics stand out, the latter being the subject of some of the most cited papers. We found even fewer papers on ecology subjects from Romania. Zachiu Matic explored the altitudinal distribution of centipedes in two mountain ranges (Fagaras and Retezat) and extracted elevation limits for some species. He also extracted synecological data on centipedes communities from oak forests. More recently, Radu Gava quantified and compared the diversity of centipedes in oak, beech and alder forest, the beech forest proving to hold the most diverse centipedes species communities.

(E-12) STUDY OF FISH COMMUNITIES IN THE MIDDLE AND LOWER BASIN OF THE ARGES RIVER (ROMANIA)

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The current study is a part of a more comprehensive study in the Arges River basin, and it was conducted in 2006-2007.
The biological material has been sampled in 37 sampling sites, by electrofishing, according to the current environmental Romanian legislation, following the principles of protection for the rare species. Thirty one of the sampling sites are placed on the Arges River tributaries, and just 6 of them on main course of the river.
The taxonomic analysis revealed the presence of 31 fish species, two of them being non-native: *Pseudorasbora parva*, and *Lepomis gibbosus*.
This study contains data concerning the fish communities from the perspective of the ecological analysis, also taking into account the human pressures in the last decades (hydro power plant, and household pollution) reflected in the fish communities' structure, both qualitative and quantitative.
A special attention has also been paid to quantitative structure of fish communities assessed by determining fish stocks and to biodiversity indices as well.
The study area overlaps the Mediterranean barbel riverzone, and the chub riverzone. Consequently, the most common fish species are *Squalius cephalus*, *Barbus meridionalis*, *Gobio obtusirostris*, and *Alburnus alburnus*.

(E-13) AQUACULTURE IN TURKEY

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The world's resources dedicated to fisheries and aquaculture are predicted to remain stable at their maximum utilization rate. Many intensive fish farms with recirculation production systems are needed in order to achieve sustainable output. Combined or integrated production projects are needed for sustainable production and to meet the high demand for food supplies. However, due to a substantial migration problem from rural areas to metropolitan centers, labor may be a concern in the aquaculture business. Turkey is still improving technology in order to maximize resource utilization while minimizing disruption to aquatic systems. With the growth of aquaculture, some environmental issues have been identified. Based on the present study, it was predicted that Tukey will produce 700,000 tons of fish by 2050. The purpose of this paper is to provide an overview of the current situation, as well as studies on sustainability and future developments in the field.

(E-14) CHARACTERIZATION OF SOME PARAMETERS FROM THE DISCHARCED WATERS IN THE VALSAN RIVER

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The Vâlsan, although a minor river in comparison to other European rivers, is of vital importance. This is because is the only river that supports the fish species Romanichthys valsanicola. The species is regarded the most endangered species of European ichthyofauna given its small habitat range and low surviving numbers.
The Vâlsan originates in the Făgăraș Mountains, where its source is a trough-shaped glacial hollow located between the Picuiata and Scărișoara Mare mountains. The river flows for a mere 84.6 kilometers. Its course runs parallel to the Argeș River. The main polluters of the Valsan River are hydropower plants, which significantly affect the river's ecosystem. Other polluters are the Bradetu Dairy Factory and the Bradetu Recovery Hospital, but also the households of people who dump wastewater into the river.
Studies with a spectrometer, using 3 different collection points, showed that samples taken from the factory and Bradetu Hospital contain small quantities of nitrates, while the downstream sample, close to people's households, contains 2,658 ml / l NO3.
Regarding the conductivity of the water, it is lower for the samples from the two collection points downstream, respectively 200 µs / cm (Diary Factory) and 206 µs / cm (Bradetu Hospital).

(E-15) CLIMATE ANALYSIS AND WEATHER FORECASTING WITH DATA MINING: THE CASE OF ADANA PROVINCE IN TURKEY

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In recent years, with the effect of the climate analysis and weather forecasting are accepted as one of the most important natural topics. Adana, which is located in the Mediterranean region, has a Mediterranean climate and is one of Turkey's most rough city. Because of its Mediterranean climate, different weather conditions are seen in every season of the year in Adana. In this paper, it is aimed to make the monthly average weather forecast for the next 12 months in Adana. The dataset used in this study was collected from two different weather websites and includes Adana's daily weather values including max temperature, min temperature, humidity, wind speed, etc. since January 2019. The Weather Forecasting was made on this data set with linear regression method by using Weka data mining tool. While predicting the weather with the linear regression method, it is provided that the relationship between the variables is calculated, and an equation between them is established in order to make predictions. According to the results obtained, it has been observed that good results cannot be obtained when day-based forecasting is requested, but almost the same results are obtained when the monthly average are requested. Also, the results of the estimations were approximate and the result of the study was found as 0.9832 Correlation Coefficient. As a result of the study, it was concluded that while forecasting the weather the linear regression, which is a technique of data mining, gives positive results when the forecast is made with the monthly average.

(E-16) BIOLOGICAL RISKS OF WASTE WATER FOR IRRIGATION

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Increasing activities in the World, enhance the pressure on freshwater resources. The most important solution to reduce this pressure is the use of treated wastewater. The use of wastewater is becoming increasingly common on a global scale. Wastewater used irrigation, especially in agriculture and landscape areas. It can use some industrial activities such as cooling, washing, boiler feeding and fire extinguishing. Wastewater is generally used directly or by creating a wetland after physical pre-treatment. Changes in living standards have diversified wastewater contents. In recent years, domestic wastewater contains substances, which are extremely harmful to living health, that cannot be treated with physical processes, and require expensive and complex treatment techniques. Heavy metals, microorganisms and endocrine disruptors in wastewater pose serious health risks to life. In this study, biological risks in the use of wastewater in irrigation will be evaluated. In the study, the biological risks that the pathogenic microorganisms and endocrine disruptors contained in the wastewater may cause in irrigated areas and suggestions for their solution are given.

(E-17) USE OF ACTIVE MICROORGANISM IN IMPROVING POND WATER QUALITY: CASE STUDY OF BEYTEPE POND

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Water resources have been seriously polluted in terms of quality in the last hundred years, especially due to anthropogenic effects. The quality of the water in the storage structures (dam, lake, pond, etc.) has started to deteriorate due to the deterioration in the drainage basin, especially the insufficient feeding. In recent years, researches on the protection and improvement of the quality of water in storage structures have begun to increase. In this study, it was aimed to improve the water quality of Beytepe Pond located in the campus of the Turkish National Botanic Garden Directorate (TNBG) by using Active Microorganism (EM) in laboratory conditions. In the study, Baykal EM1, active microorganism, was used. For improvement water quality was used aerobic and anaerobic systems in containers with a volume of 10 liters. EM was administered in 3 doses as 5, 10 and 20 ml L^{-1}. pH, conductivity (EC), Dissolved Oxygen (DO), Chemical Oxygen Demand (COD) and chlorophyll-a values were measured in the pond water. Beytepe Pond water is 3rd class according to the US salinity laboratory salinity classification

(USSL). COD and chlorophyll-a values exceed eutrophication limit values. At the beginning of the study, the raw water COD value was measured as 263 mg L^{-1}. It was determined that 5 ml L^{-1} EM application was reduced up to 2 mg L^{-1} in anaerobic system application. The same application provided the best improvement in chlorophyll-a values. As a result of the study, it was observed that the EM application provided an improvement in the quality of the Beytepe Pond water.

Acknowledgments

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(E-18) PADDY PRODUCTION WITH DRIP IRRIGATION AND ECONOMIC ANALYSIS: CASE STUDY OF CANAKKALE-TURKEY

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In traditional paddy production, large water losses may occur due to drainage, evaporation and deep percolation (groundwater is highly polluted). In addition, while production costs increase, it also decreases in production areas. In this study, it has been researched together the usability of drip irrigation method for reduce the global footprint of water in paddy production and its economic analysis. In the experiment, two irrigation intervals (2 and 4 days), four irrigation water levels (75, 100, 125 and 150% of cumulative Class A Pan values) and three different paddy genotypes (Baldo, Osmancik and Ronaldo) were investigated. In the research, irrigation water between 513-820 mm was applied to the subjects. Evapotranspiration (ETa) values are 565-855 mm; The Water Utilization Efficiency (WUE) ranged from 0.84-1.35 kg ha^{-1} m^{-3} and the Irrigation Water Utilization Efficiency (IWUE) ranged between 0.95-1.49 kg ha^{-1} m^{-3}. Water productivity (WP) was calculated between 0.79-1.24 \$ m^{-3} and cost benefit (B/C) ratio was calculated between 1.11-2.33. When the traditional cultivation method, the ponding method in the pan, is compared to the province, it has been determined that water savings are between 70-81%. Yield according to branches was measured as 4882-10305 kg ha^{-1}. According to the results of the research, up to 29% yield increase was achieved under the condition of applying 150% of the cumulative evaporation every 2 days.

(E-19) THE EFFECT OF EXCESSIVE SODIUM ON IRRIGATION WATERS CONTAINING ON SOIL INFILTRATION RATE

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Due to the increasing demand for limited source water, the pressure on irrigation water used in agricultural production is also increasing. One of the alternative solutions to meet the irrigation water needed in agricultural production is the use of low-quality water resources. However, the use of these waters can cause serious problems for the environment, especially for soil and plants, in the short, medium and long term. The sodium concentration of the irrigation water affects the structure of the soil, infiltration rate and hydraulic conductivity properties, as well as negatively affects the nutrient uptake of the plants. In this study, the effect of irrigation water with excess sodium content on the infiltration rate, which is one of the important parameters for the design and operation of irrigation systems and sustainable agricultural production, was researched. The infiltration rate was measured by the double-ring infiltrometer method. In the study, irrigation water with four different Electrical Conductivity (ECi = 0.6 [control], 5, 10 and 15 dS m^{-1}) and Sodium Adsorption Rate (SAR) (1, 20, 40 and 50) was used. Cumulative infiltration values varied between 360-446 mm, and a 9-19% reduction was determined compared to the control application, depending on the increasing ECi and SAR ratio. The steady-state infiltration rate of the treatment varied between 24.5-36.5 mm h-1 and decreased by 24-34%. In response to increased EC and SAR in irrigation water, the infiltration rates and cumulative infiltration values of soils decreased.

(E-20) ANALYSIS OF SOIL QUALITY FOR DIFFERENT LAND USE PATTERNS USING PHYSICAL, CHEMICAL, AND BIOLOGICAL INDICATORS

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The present study aimed at analysis of soil properties along with growth assessment of plant, grown on three different soil types/land usage patterns namely as forest soil, barren soil, and agricultural soil. The selected physico-chemical parameters i.e., pH, soil organic carbon (SOC), electrical conductivity (EC), and soil organic matter (SOM) were analyzed in this study. In addition, two biological indicators namely as biodiversity analysis and biomass estimation were determined for the investigated soils. Furthermore, the growth of Spinach plant, grown on these soils, was investigated using parameter of interest such as chlorophyll content, crop growth rate, dry matter, and leaf area index. The results revealed that the SOM content ranged between 4.44%-1.60%, pH was observed between 6.7-7.2, SOC ranged between 0.64%-2.58%. Maximum isolated colonies were found in the nutrient agar media reflecting dominance of the mesophiles in all the samples. The Biomass value of soil sample was observed in the range of 0.3-0.45 g/50 gm. Agricultural soil has the fastest crop growth rate, followed by forest and barren soil. Overall, the findings of this study led us to the conclusion that, despite the high SOM concentration of forest soil, agricultural production is influenced by other factors.

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(E-21) ASSESSMENT AND CHARACTERIZATION OF BIOAEROSOLS EMITTED FROM A LAB-SCALE WASTEWATER TREATMENT SYSTEM: A CASE STUDY OF TECHNICAL UNIVERSITY, INDIA

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In this study, investigations on a lab-scale wastewater treatment systems (WWTS), adopting a sequential batch biofilm process and fed with synthetic municipal wastewater, were done to understand the characteristics of emitted bioaerosols species. The microbial diversity of captured bioaerosols, collected through conventional particulate matter samplers, was identified on the basis of their metabolic properties using analytical profile index (API), biochemical tests, and other media specific growth patterns. Monitoring and analysis results of air quality in control and experimental period revealed that emission of bioaerosols from bioreactor increased the PM_{10} and $PM_{2.5}$ levels up to 26.49 ± 4.18 μg/m^3 and 12.84 ± 2.48 μg/m^3 from an initial level of 17.26 ± 4.58 μg/m^3 and 8.70 ± 1.84 μg/m^3, respectively. Microscopic observations and staining characteristics revealed that cocci shape gram-negative and bacilli shape gram-positive bacteria dominated the bioaerosols with quantitative contribution as 70% and 9%, respectively. Based on the morphological and biochemical characterization, dominant isolated genera of opportunistic pathogenic bacteria in bioaerosols were identified as *Escherichia coli*, *Bacillus cereus*, *Bacillus subtilis*, and *Pseudomonas sp.* with % dominance as 38.46, 13.46, 9.61, and 25, respectively.

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(E-22) SENSORY LANDSCAPING PROPOSAL FOR AN ACADEMIC GREEN SPACE

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Several research studies indicates that landscape design have a direct effect on the 5 human senses and the benefits of connecting with plants, nature, and gardening include an increased sense of belonging, responsibility, and connectedness to the environment. In accordance with this, a landscape analyses were carried out at UASVM CN, followed by the landscaping proposal of a sensory arrangement, engaged a part of the civil society in the activity of landscaping. The design concept of the landscape layout was to identify a suitable space in the university campus, in which the planting was chosen in correlation with the way people perceive them in the landscape, through visual, olfactory, auditory, tactile and taste analyzers. The selected species of perennial ornamentals presents various sensory valences and economic advantages in terms of landscape sustainability, offering sensory experiences throughout the year. As a result of the present study, landscape analyses highlight the possibility of integrating sensory layouts and the sensory plants used in landscaping have an aesthetic and functional potential and a strong influence on the human mental, physical and emotional well-being.

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(E-23) ASSESSMENT OF THE INFLUENCE OF SOIL, CLIMATE AND CULTIVATION TECHNOLOGY ON WOODY BIOMASS ACCUMULATIONS IN PAULOWNIA TOMENTOSA X FORTUNEI (SHAN TONG)

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Paulownia is a deciduous tree capable of reaching very high growth rates in favorable climatic conditions and advanced technology. Paulownia species are indigenous to China and have been used as a tree of agrosilvic interest for over 2600 years due to their particular attributes and multiple uses. The objective of the research aimed at evaluating the accumulation capacity of the woody biomass of the interspecific hybrid Paulownia tomentosa x fortunei, in the pedo-climatic conditions specific to the Timis River Low Plain, through different management of fertilization. The evaluation of woody biomass accumulation was made in a cycle of 1+3 years (2017-2021), by measuring the stem length of the plants, the trunk diameter at the soil level and at 130 cm high, under the conditions of the variation of the nitrogen quantity per hectare as such; 64 (control), 100, 150 and 200 kg/ha active substance on a fixed phosphorus and potassium background of 64 kg a.s./ha applied annually. The obtained results showed a high growth rate of woody biomass in favorable climatic conditions, by applying high doses of nitrogen (150-200 kg/ha), especially in the last 2 years of experimentation. It was also established the existence of strong positive correlations between the amount of fertilizers, the size and the diameter of the plants.

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(E-24) ASPECTS REGARDING THE APPEARANCE AND EVOLUTION OF THE PEST *TUTA ABSOLUTA* (LEPIDOPTERA: GELECHIIDAE) IN TOMATO CROPS IN GREENHOUSES

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The most important vegetable crop in the world in greenhouses is tomato (*Solanum lycopersicum* L.) with an yield of 182 MT per year. *Tuta absoluta* (Meyrick) (Lepidoptera: Gelechiidae) commonly known as ”tomato leafminer” or ”South American tomato moth” is the main pest in tomato crops in greenhouses, that can cause economic losses of up to 80-100%, if appropriate control measures are not taken. The experience was carried out during 2 years (2020-2021), between July and September, in greenhouse conditions in Vărăști village (Giurgiu county). The pest population was dynamically monitored by placing pheromone traps in the tomato crops in the high plastic tunnel, the average of the captured adults being 3367.5. In both years, the climatic conditions were favorable for the appearance and evolution of the pest attack. To prevent the spread of the attack, chemical treatments were applied at intervals of 7-10 days. In 2021, the yield obtained was with 4.76% higher than in 2020.

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(E-25) ROMANIA'S NATIONAL AND NATURAL PARKS AND THEIR ECOLOGICAL AND ECOTURISTIC IMPORTANCE

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Ecotourism is essential for the protection and conservation of the natural and cultural heritage, for the socio-economic development of local communities and for the increase of environmental education. In order to conserve biological diversity, many protected natural areas have been established in Romania (over 7% of the country's surface or about 18% if Natura 2000 sites are taken into account). Romania has 32 protected natural areas of national interest: the Danube Delta Biosphere Reserve, 13 national parks and 18 natural parks. In addition to these major protected areas, there are 941 scientific reserves, nature monuments and nature reserves nationwide with an area exceeding 300,000 hectares. Although Romania has a significant ecotourism heritage with great potential for valuation and an adequate legislative framework, ecotourism is still a fairly narrow segment of tourism market, faced with many problems, such as: poor local cooperation, modest national and international promotion, limited supply, poor diversification, poor development of ecotourism infrastructure in protected areas, labor migration, low level of training of those employed in the field. Using a proper management and infrastructure, these protected areas could receive more visitors, which would increase tourism revenue and improve the current precarious situation of financing protected areas.

(E-26) THE INFLUENCE OF PEDOGENETIC COATING AND FOREST SITES ON PHENOTYPIC CHARACTERISTICS OF SPRUCE TREES

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Picea abies (L.) Karst. (Norwegian spruce) is one of the most important tree species of the European forests. Spruce spreads over approximately 30 million hectares and it has a significant role in the society and economy. This paper aims to influence the pedogenetic coating and forest resorts on some phenotypic characteristics of spruce stands in four seed reserves from Romania, namely: Măria Mică (Bistrița-Năsăud county), Făina (Maramureș county), Aluniș (Harghita county) and Putnișoara (Suceava county). The soil through its physical and chemical characteristics influences the forest species development. In the studied areas, four types of soil were identified as follow: typical eutricambosol, typical districambosol, skeletal districambosol (cambisols class) and calcaric rendzina (cernisols class). Regarding the phenotypic characteristics, significantly higher values were registered in the stands from the Măria Mică provenance on eutricambosol followed by Făina provenance. The results of this study will be of interest for the management of genetic resources for these species.

(E-27) RATIONAL USE OF OFF-SEASON RAINFALL AND WATER CONSUMPTION IN IRRIGATED CROPS IN THE CONDITIONS ON THE UPPER BASIN OF THE RIVER PRUT

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Water consumption of agricultural plants can be considered one of the main elements of the assessment needed for irrigation. Covering water needs during the growing season is done by applying irrigation. Quantitative studies on evapotranspiration performed on maize and sunflower crops showed different values. The average water consumption calculated according to the Thornthwaite method recorded the highest values in June, July and August. For the maize crop, the highest water consumption was reached in July (1480 m3 / ha or 27.1% of the total consumption), during which time the pollination, the growth of the cobs and the formation of the grain take place. In sunflower cultivation, the highest consumption was recorded in July (1302 m3 / ha or 28.2% of total consumption) and correspond to the phases of growth of the flowering head (inflorescence) and seed formation. The purpose of this paper is to establish the need for hydro-amelioration arrangements through a correct irrigation regime during the growing season following the results obtained based on water consumption in the crops studied. The present paper presents the results of water consumption in maize and sunflower crops, calculated according to the Thornthwaite method, as well as the correction coefficients for potential evapotranspiration conditions on the upper Prut River basin.

(E-28) THE MAIN NON-TIMBER FOREST PRODUCTS FROM ALBA COUNTY

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Abstract: Non-timber forest products have a lot of other terms which are more or less synonyms like "natural products, wild products". Non-timber forest products (NTFP) represent a category of products which are provide of wild plants and animals from the forest or from any other natural vegetation types. Around the world humans harvested NTFP from the oldest time. The most common types of NTFP at global level are forest fruits, medicinal plants, fauna of hunting interest and edible mushrooms. Romania has a high potential regarding the harvesting of these types of products due to big diversity of forest and forest site conditions. The aim of this study was to highlight the most important non-timber products from Alba county. First of all was made a selection of most common non-timber products and then were realised a ranking using a set of 19 criteria. The study conclusion was that the most important NTFP from Alba county are honey and hazelnuts follow by Chanterelles (*Cantharellus cibarius*) and Christmas tree.

(E-29) ASPECTS REGARDING THE IDENTIFICATION OF THE MICROFLORA PRESENT ON FOREST SEEDS INTENDED FOR SOWING IN SPRING 2022

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Forest crops (nurseries and plantations) impose difficulties on foresters, the main cause being disturbing or harmful factors that compete and interact in different directions, but whose result is the weakening of seedlings, culminating in their death. Given that the number of seedlings in nurseries and plantations is high compared to the unit area, the risk of disease and pest attacks is very high. For this reason, it is necessary to monitor the annual forest crops, both in terms of biological material and soil, in order to control or eliminate possible sources of infestation.
In order to achieve the proposed objectives, ash, maple and lime seeds were harvested from Mihai Viteazu Nursery, spruce seeds from Voivodeni Nursery, Forest district Someșu Rece, Forest district Beliș and larch from Forest district Beliș.
Specific phytopathological analyzes of the seed samples were performed on the seeds in order to accurately determine the possible pathogens. In the analyzes, the pathogens *Fusarium oxysporum*, *Alternaria alternata* and *Botrytis cinerea* were identified on both deciduous and coniferous seeds.

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(E-30) A SURVEY OF PRESERVED SPECIMENS OF THE GENUS *FESTUCA* L. (*POACEAE*) IN ROMANIA

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The genus *Festuca* L. is a genus of flowering plants belonging to the grass family *Poaceae*, being one of the largest in *Gramineae* with ±450 species in temperate and alpine regions of both hemispheres with a cosmopolitan distribution occurring on every continent except Antarctica. They are evergreen or herbaceous perennial tufted grasses with a height range of 10–200 cm.
The specimens of *Festuca* are preserved in the Al Beldie Herbarium from INCDS Marin Drăcea Bucharest.
This Herbarium hosted 309 vouchers with 52 Festuca species, most of them belonging to *Festuca gigantea* (28), *Festuca versicolor* (27) and *Festuca arundinacea* (22). The oldest specimens were collected in 1773 and 1788. Most of the herbarium specimens were generally in very good (199) and good (76) condition except for a smaller number of specimens which were damaged (35).
The aim of this article is to describe some *Festuca* species which are very good preserved.

(E-31) STUDY CONCERNING ALIEN FLORA FROM DÂMBOVIȚA COUNTY (ROMANIA)

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A comprehensive analysis of alien flora from Dâmbovița County (Romania) was performed both on data from literature and personal observations in the field. The assessment of alien flora was focused on taxonomy, species origin, way of introduction, invasiveness status, introduction period, lifespan, bioforms, characteristic habitats and population size.
There were identified 187 alien species of which 70 taxa are invasive and potentially invasive. A number of 138 species were intentionally introduce in the area of Dâmbovița County, most of them being neophytes. 11 alien taxa have more than 500 individuals/sq.m, as follow: *Ambrosia artemisiifolia, Sorghum halepense, Amaranthus retroflexus, Erigeron canadensis, Xanthium orientale* subsp. *italicum, Reynoutria* x *bohemica, Solidago gigantea, Reynoutria japonica, Erigeron annuus* subsp. *annuus, Robinia pseudoacacia, Eriochloa villosa*. The largest populations of alien species were recorded in natural and anthropogenic habitats such as: railway embankments, roadsides, vacant lands, abandoned arable lands, wastelands, croplands, riparian habitats and degraded grasslands.
The information regarding the habitats, size of populations and spreading of alien species are useful in order to take specific measures for their control.

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(P-01) COULD AFFECT THE ROOTING OF TWO *TAXUS BACCATA* VARIETIES STEM CUTTING LENGTH AND PROPAGATION PERIOD?

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Ornamental trees are used worldwide in landscape design. *Taxus baccata* L. is an evergreen non-resinous tree, often with multiple trunks and spreading, pyramidal or rounded canopy. It Can be propagated generatively and vegetatively. Nurseries mostly prefer to propagate them by vegetative way, because this type method is quicker and the newly propagated plants inherit the genetics of the mother plants. In this study we have selected two varieties of *Taxus baccata* `Repandens` (TBR) and *T. baccata* `Fastigiata Aurea` (TBF), in which different length stem cuttings (5–10, 10–20, and 20–25 cm) were obtained and propagated in two different periods (May and July). From our results could be concluded that TBR rooting percentage increased at the collected cuttings in May and at 10–20 cm size. On the other hand, at TBF cuttings rooting percentage reported significant increases at 5–10 cm, also at the cuttings collected in May. In conclusion, our research suggests that *Taxus baccata* cuttings could obtain a higher rotting percentage when they are collected in May, moreover the length of the cuttings could be an influencing factor.

Acknowledgments
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(P-02) EFFECT OF THE CUTTING LENGTH AND PROPAGATION PERIOD ON THREE *THUJA OCCIDENTALIS* VARIETIES

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Thuja occidentalis L. is originated from Eastern North America and it is cultivated in Europe as an ornamental tree. *Thuja* can be multiplicated generatively and vegetatively, however nurseries are propagating them by vegetative method because in this way the plants inherit the genetics from the mother plants. Furthermore, it is a faster method. Tree highly used *Thuja occidentalis* varieties: `Europa Gold` (TOE), `Smaragd` (TOS), and `Danica` (TOD) were selected for the research and were subjected to two different propagation periods (May and July). There were selected 5–10 cm, 10–20 cm, and 20–25 cm length stem cuttings. Our data showed different results at the selected varieties: at TOE, the 20–25 cm length cuttings reported a higher rooting at the July propagation period; at TOS were determined that the 10–20 cm cuttings and the May propagation period obtained the highest rooting percentage; in the case of the TOD an increase in rooting percentage was observed at the cuttings propagated in May, moreover the 5–10 cm length. It can be concluded that propagation time and stem cutting length could be an important factor, however is a variety-dependent process.

Acknowledgments
The author would like to express their special thanks to Nagy István Levente for the help with this research.

(P-03) EFFECT OF PHOSPHORUS FERTILIZATION ON SILAGE QUALITY OF PERSIAN CLOVER (*TRIFOLIUM RESUPINATUM* L.)

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The aim of the research was to determine the effect of phosphorus fertilization (0, 30, 45, 60, 75 and 90 kg ha^{-1}) on silage quality of Persian clover (*Trifolium resupinatum* L.). The experiment was conducted at Yörük village of Malkara-Tekirdağ with three replications in randomized block design in 2021. Silage yield (t ha-1), dry matter (%), crude protein (%), crude ash (%), ADF (%), NDF (%), P (%), K (%), Ca (%), Mg (%), digestible dry matter (DDM) (%), dry matter intake (DMI) (%), relative feed value (RFV), total digestable nutrients (TDN), net energy-lactation (NEl), net energy-maintenance (NEm), net energy-gain (NEg) and flieg score were determined at full-bloom stage of Persian clover. Silage yield, dry matter, crude protein, ADF, NDF, P, Mg, DDM, DMI, RFV, TDN, NEg and Flieg Score were determined statistically significant at $P<0.01$. The highest silage yield (72.83 t ha-1) and ADF (25.36 %) were determined at 30 kg ha^{-1}. The highest dry matter (39.92 %), DDM (70.30 %), DMI (3.22 %) RFV (175.056) and TDN (68.90) were determined at 90 kg ha^{-1}. The highest flieg score was determined at 60 kg ha^{-1}. The highest crude protein was determined (15.50 and 15.51) at 45 and 60 kg ha^{-1}, NDF (39.47 and 39.49 %) at 0 and 30 kg ha^{-1}, P (0.49 %) at 45, 60 and 90 kg ha^{-1}, Mg (0.27 %) at 0, 30 and 75 kg ha^{-1}, NEg (1.72 and 1.73) at 45 and 90 kg ha^{-1} respectively.

(P-04) RELATIONSHIPS BETWEEN PHYSICAL AND CHEMICAL PROPERTIES OF SOILS AND PLANT NUTRIENT CONTENT OF LEAVES IN THE APPLE ORCHARDS

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This study was carried out in 42 orchards located in the lowland of Develi, where the apple cultivation is intense in Kayseri province. The analyses were made to determine pH, $CaCO_3$, EC, organic matter, available phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg), iron (Fe), zinc (Zn), manganese (Mn) and copper (Cu) in soil samples and nitrogen (N), P, K, Ca, Mg, Fe, Zn, Mn, Cu and boron (B) in leaf samples. In the study, the relationships between some physical and chemical properties of the soils and the plant nutrient content of the leaves were evaluated by correlation analysis. In the study, between some physical and chemical properties of soils and the nutritional elements of soils and leaves were found important statistical relations. These relationships were mostly between soil samples rather than leaves. On the other hand, the pH and EC values of the soils showed less significant relationships with the nutrient contents of the samples according to the organic matter and $CaCO_3$ contents of soils. It was determined that the organic matter content of the soils had a positive relationship with all the investigated elements except phosphorus. It has been determined that the relationship between the $CaCO_3$ content and nutritional elements in the soils is statistically significant, it has a positive correlation with potassium and calcium and a negative correlation with other investigated elements. No significant relationships were found between the nutrient contents of the soils and the macro element contents of the leaves. While some important statistical relationships were

determined between nutrient contents of the soils and micro element contents of the leaves, the highest correlation was determined between copper and boron contents. It was determined that the copper content of the leaves was positively related to the phosphorus, potassium and magnesium content of the soils and negatively related to the manganese content of the soils.

Acknowledgments

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(P-05) DETERMINATION OF THE EFFECT OF DISTANCE TO HIGHWAY ON THE ACCUMULATION OF SOME HEAVY METALS IN APPLE ORCHARDS

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In this study, which was carried out in Yeşilhisar/Kayseri, it was aimed to determine the heavy metal accumulation in soil, leave and fruit in apple orchards located on the Kayseri-Niğde highway. In the study carried out in 2021, samples were taken from rows 0, 100 and 200 meters from the highway in orchards at 3 different locations. According to the results of the study, Aluminum (Al), Cadmium (Cd), Cobalt (Co), Chromium (Cr), Nickel (Ni) and Lead (Pd) contents of the samples at 0 meters distance from the road in the orchards were higher than those at 100- and 200-meters distance. A similar trend was observed between samples at 100 meters distance and samples at 200 meters distance. In general, it was determined that Al content was higher in leaf sample, Cr content was higher in fruit sample, and other metals were higher in soil sample. Element contents in fruit sample were listed as Al > Pd > Ni > Co > Cr > Cd. Although fruit sample at 0 meters from the highway accumulate higher heavy metal elements than at other distances, they are still within acceptable limits. The results obtained can give an opinion on the new orchard establishment, especially in the lands close to the highways.

(P-06) PILOT PRODUCTION OF THE FIRST GRANULAR MYCOOHERBICIDE TO COMBAT *OROBANCHE CRENATA*

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Orobanche crenata Forsk. is particularly harmful in the Mediterranean region, the Middle East and South-Eastern Europe and parasitizing major legume crops such as faba bean, lentil, pea, and chickpea. The unavailability of effective herbicides coupled with public concern regarding public health and environmental safety have stimulated investigation of alternative weed management methods. Biological weed control using microbes offers promising approach to combat these parasitic weeds. We constructed a production line for mass-producing high-quality granules of a biocontrol fungal strain using pasta-like process technology, at half industrial level. The propagules of the biocontrol agent are encapsulated in nutritious filler that helps the fungus to rapidly grow (when exposed to irrigation water) and strongly attack *Orobanche* seeds in the soil, causing them to decompose and thus fail to germinate. If some of the *Orobanche* seeds escaped early infection, the biocontrol fungus will attack *Orobanche* shoots and cause death before formation of the seeds. Thus, it can deteriorate *Orobanche* seed bank in the soil year after year. We have pilot-produced it by a machine that was specifically designed and manufactured for this purpose. This bioherbicide was tested for three years (2018-2021) in several heavily broomrape-infested fields in various governorates in the Delta, middle, and upper Egypt. Results confirmed that our novel bioherbicide was profoundly successful against crenate broomrape in open fields causing 80-100% weed kill. This bioherbicide might be useful in many parts of the world where broomrape is a problem.

Higher crop yields, greater economic returns, reinforcement of the organic agriculture, reduced reliance on costly chemical herbicides, and subsequently minimizing the negative effects on humans, animals and the environment, besides the protection of the biodiversity resources in the area treated are among the expected payoffs.

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(P-07) DECORATIVE GRASSES, A GREEN SOLUTION FOR URBAN ARRANGEMENTS

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Grasses or ornamental grasses are increasingly used in contemporany arrangements, both in the composition of lawns and as solitary plants, groups, massifs or curbs. The present study was conducted to evaluate the behaviour of some decorative grass species/cultivars: *Carex morrowii* ´Snowline´, *Carex morrowii* ´Ice Dance´, *Festuca glauca*, *Koeleria glauca*, *Miscanthus sinensis* ´Variegatus´, *Pennisetum alopecuroides* ´Hameln´, *Pennisetum setaceum* ´Rubrum´, in different areas of Pitesti. Observations and determinations were made on: biological characteristics, aesthetic qualities, growing and requirements, methods of propagation, winter hardiness, pruning effects, correlated with the variation of average annual temperatures (°C) and average annual rainfall (mm/month), in 2 years of reporting, 2019 and 2020. Ways have been proposed to use the ornamental grasses studied in the landscape arrangements and the importance of their incorporation in the green spaces, for ecosystem offers: restoring the ecological balance, capitalizing on natural resources and developing biodiversity.

(P-08) DETERMINING THE AMOUNTS OF NITRITES AND NITRATES FROM 5 VARIETIES OF TOMATOES GROWN IN A CLASSIC AND ECOLOGICAL SYSTEM

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Vegetables are the most important source of nitrate in the human diet. The nitrate content is not the same in the plant. Depending on the amount of nitrites, plant organs can be classified as follows: leaf (the largest amount) stem, inflorescence root, tuber, fruit. One of the most important factors in determining the quality of vegetable products is the content of nitrates and nitrites and the maximum permitted limits play an important role in human health.
It is well known that a high dietary intake of nitrates and nitrites may increase the risk of gastrointestinal cancer due to the formation of carcinogenic chemicals known as N-nitroso compounds and the appearance in newborns of blue child syndrome.
This study assessed the concentrations of nitrates and nitrates in 5 varieties of tomatoes from organic and the same 5 varieties from classical crops.
The study showed that the amount of nitrates and nitrites in the tomato varieties taken in the study within the limits according to the legislation in force.

(P-09) RECIRCULATING AQUAPONIC SYSTEM ON DWC TYPE FLOATABLE SUPPORT ICDIMPH – HORTING

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A recirculating aquaponic system on DWC type floatable support was carried out during the research activities carried out at ICDIMPH-Horting Bucharest in the period 2017-2021. It works on the principle of communicating vessels and satisfies the technological needs of fish and plant breeding. The system was placed in a micro-greenhouse made of polyethylene foil, according to a plan for the location of technological equipment, by reconditioning and arranging tunnels for growing of grafted plants. The construction included tunnels with a length of 7.40 m and a width of 1.81 m (fish growth tunnel, 70 cm high, made of 20 mm thick OSB boards, mesh and durable foil, 8 rectangular basins, with holes for aeration, water supply and drainage and inside two layers of ultra-additive foil, 0.2 mm thick and and tunnels for growing plant material), reconditioned by mounting a protective foil, attached in PVC clips to the skeleton of the tunnel and the base of the pools with an inclined slope of 5-10% for draining water and residues), installations, pumps, filters, etc. It has been tested for growing carp (*Cyprinus carpio*) and lettuce (*Lactuca sativa*). Fish waste have been food for plants, and plants have naturally filtered water for fish, phytosanitary treatments with synthetic substances have been eliminated, lettuce obtained has had from quality categories I and II, the fish has had hematological parameters in the reference ranges indicated in the speciality literature for carp.

Acknowledgments
The data presented in this paper were obtained in the Horting Institute Bucharest for the doctoral thesis *'Researches regarding monitoring fish health into the aquaponic systemes'* from the Doctoral School of Veterinary Medicine from the Faculty of Veterinary Medicine, University of Agronomic Sciences and Veterinary Medicine of Bucharest.

(P-10) INFLUENCE OF SOME *SOLANUM* ROOTSTOCKS ON EGGPLANT CROPS FROM ROMANIA

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Some results regarding the influence of some *Solanum* rootstocks on eggplant crops from Romania are in this study. Eggplants are popular vegetables all around the world. Among the grafting aims are fruit yield and quality. Eggplant grafting has been a tradition for over 15 years at the Horting Institute from Bucharest. Grafting combinations used have been the *S. melongena* scions (Aragon F1 from Hazera, Israel and Luiza variety from vegetable colection of the Research-Development Institute for Vegetable and Flower Growing Vidra, Romania), the *S. lycopersicum x S. habrochaites* rootstock (Emperador F1 from Rijk Zwaan, Netherlands) and the *S. melongena* rootstock (L23B eggplant hybrid from germplasm colection of the Vegetable Research and Development Station Buzău, Romania). By comparing the fruit yield and carbohydrates content of the grafted and non-grafted variants it has been showed that the grafted eggplant have had very good results, the values obtained being higher than at non-grafted eggplants. Production increment has been up to 25.44% (Luiza x Emperador). Carbohydrate content has increased up to 0.14% (Aragon x Emperador). Researches on the identification of some rootstocks compatible with eggplant scions continues in Romania.

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(P-11) RESULTS CONCERNING OBTAINING OF LETTUCE ON PERLITE SUBSTRATE

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Some results regarding the obtaining of lettuce (*Lactuca sativa*) on perlite substrate are in this study. Lettuce is a popular vegetable in Romania. Among the aims of lettuce culture are yield and quality. Lettuce culture results depends on the quality of the seedlings The experience of this paper aimed at identifying of a technological sequence for obtaining of lettuce in unconventional system, on perlite substrate. The research has been carried out in the Hortinvest greenhouses, within the Research Center for the Quality of Horticultural Products at the University of Agronomic Sciences and Veterinary Medicine of Bucharest, in (October–November) 2016 and (March–April) 2017 years, on a variety of lettuce (‘Alanis’ from Seminis company). Perlite (2 mm and 4 mm) has been the unconventional substrate used in the lettuce production. Fertilization has been done in several variants: chemical and with different products (Formulex, Iguana and Vermiplant). The lettuce seedling variant obtained on perlite with a 4 mm grain size and treated with Vermiplant had the best average result (3.65 leaves). The variant of lettuce grown on a 4 mm granulated perlite mattress and treated with Vermiplant had the result best after 25 days from planting (22.55 leaves). The unconventional soilless lettuce culture system, on perlite substrate, has optimal results and is recommended and in Romania.

Acknowledgments
The data presented in this paper were obtained for the doctoral thesis *'Study on the modernization of some technological links of some horticultural species growing in soiless system'* from the Doctoral School of Engineering and Management of Vegetal and Animal Resources from the Faculty of Veterinary Medicine, University of Agronomic Sciences and Veterinary Medicine of Bucharest.

(P-12) ORGANIC FERTILIZER EFFICIENCY IN WINTER WHEAT CROP

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In the current conditions in the technology of wheat crop, more and more either fertilizers with the lowest possible concentrations of active ingredients or organic fertilizers are being promoted. These new requirements are also in line with current European fertilization rules. This paper presents new results by comparing an organic fertilizer with conventional fertilizer systems. The organic fertilizer researched proved to be very effective in the production of total biomass, spicke/ear biomass, grain biomass and MTG. In absolute terms, wheat produced over 11 tons of total biomass, over 6 tons of spike biomass (59%) and over 3 tons of grain (29%) all these results proved to be very close to the combination of urea and organic fertilizer and respectively superior to urea applied alone. The results obtained are recommended for the promotion of Vinasa Clariant in farm conditions.

(P-13) RESULTS REGARDING SOYBEAN CROP ECOLOGY IMPROVING

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Given the importance of soybeans, both in our country and in the world, it is necessary to expand the areas in different environment. In the conditions of the clay-illuvial soils of the resort, the promotion of soybeans involves first of all the restoration of the culture medium and the chemical properties, considering the acid reaction which is totally unsuitable for the roots of the plant. To this end, an experience has been set up to promote the latest amendments based on calcium carbonate approved by us. Thus, the experiment promoted Agrocalcium products - based only on $CaCO_3$ and Doloflor with $CaCO_3$ and $MgCO_2$. From the obtained results it was found that compared to the unfertilized control, the soybean plants produced total biomass of 9-11 t/ha, the biomass of the pods between 5,5-7,4 t/ha (over 60%) and the biomass of the grains between 3- 4,3 t/ha (over 30%). From a qualitative point of view, the Raluca TD soybean variety contained in the grains 36% protein, 25% oil, 6% fiber at a grain humidity of less than 10%. The data obtained showed a good adaptability of the new soybean variety in the ecological conditions of the resort.

(P-14) ORGANIC FARMING IN ROMANIA AND TURKEY: LEGAL FRAMEWORK, CERTIFICATION, PRESENT AND TRENDS

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Organic farming is an agricultural system with high level of environmental protection. Legal framework and certification of organic food production are essential to achieve quality products. As a result of the increase in the world population, the demand for food is increasing day by day. Due to the awareness of consumers, orientations to organic agriculture have started. In this study, the countries of Turkey and Romania, whose organic agriculture production values are increasing gradually, were evaluated. Romania and Turkey implemented a certification system with strict legislation for organic production. In Romania, the total number of certified operators in organic farming is 10210 for 2020 and the total area in organic farming is 468.887 hectares. According to 2021 TUIK data in Turkey, 38,748 producers in plant production made 1,101,236,97 tons of organic production in a production area of 216,863,10 ha.

(P-15) ORGANIC FERTILIZATION INFLUENCE ON GROWTH AND FRUITING PROCESSES OF THREE APPLE CULTIVARS GROWN IN THE MARACINENI-ARGES AREA

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The present paper studied the influence of organic fertilization on the growth and fruiting processes of three apple cultivars grown in five and six years high-density orchards at the Research Institute for Fruit Growing, Maracineni, Arges (southern part of Romania). During 2020-2021, the increase of the trunk cross-sectional area registered a cumulative value of 9.79 cm2 (0.76-24.10 cm2), and the cumulative fruit yield reached 110.37 t/ha (16.67-214.32 t/ha). The average values recorded for the fruit weight and pulp firmness, were 173.22 g (74.13-558.76) and 76.50 units Bareiss HPE-II-FFF (53.60-89.10), while the pH of the fruit juice and total soluble solids averaged 3.55 (3.09-4.68) and 13.3 ºBrix (9.45-18.20). The QY chlorophyll fluorescence indicator of the fruit epicarp ranged around 0.77 (0.63-0.84). Foliar fertilization with Cifamin BK (1.5 l/plant, three applications between May 15th and June 10th) significantly increased the cumulative fruit yield by 28.18-41.45%, fruit weight by 4.16%, and total soluble solids by 3.86% compared to the untreated. The soil application of Biohumus (2 l/plant) reduced the value of the same fruit epicarp chlorophyll fluorescence indicator. The result of the study showed that applying Cifamin BK and Biohumus organic fertilizers in apple orchards improved fruit yield and quality.

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(P-16) THE ADAPTABILITY OF SOME SWEET CHERRY CUTIVARS WITH HIGH AGRO-PRODUCTIVE POTENTIAL ON THE CLIMATIC CONDITIONS OF IAȘI COUNTY

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The biological properties of the sweet cherry cultivars (*Prunus avium* L.), as well as the physico-chemical characteristics of the fruit were studied for three years within RSFG Iași (2018-2020). The investigations were carried out at the Sârca Research Plot on six cultivars of sweet cherries. These included following the phenological stages (flowering period and fruit ripening period), but also the particularities of the fruit in terms of physical characteristics and biochemical composition. The highest weight of the fruit was recorded in 2020 in at the 'Regina' cultivar. 'Regina' was characterized by an average flowering period, lasting between April 11th and 28th. The earliest cultivar both in terms of flowering and fruit ripening was the 'Golia' cultivar. All other varieties have an average fruit ripening period (June 15t^{h}-30th). The soluble dry matter content was between 11.29 % ('Hudson') and 18.61 % ('Maria').
The researches carried out and the results obtained showed that the studied cultivars presented good results of adaptability in the pedoclimatic conditions in the area of Romania.

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(P-17) EVALUATION OF SOME GROWTH PARAMETERS OF SWEET CHERRY CULTIVARS UNDER NORTH – EAST ROMANIAN CONDITIONS

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The studies was conducted at Research Station for Fruit Growing Iași in the years 2018-2020 on six cultivars of sweet cherry tree ('Regina', 'Kordia', 'Hudson', 'New Star', 'Maria' and 'Golia'). The paper presents aspect of vegetative pomological parameters under the environmental factors of Romanian Northeastern area. The average of the precipitation for the three years studied was 475 mm, with a deviation of 43.05 mm from normal with a minimum in 2020 (443.6 mm/year). The average values of the area of the trunk section (TCSA) based on the average of three years of study for the six cherry cultivars recorded values between 67.77 cm^2 ('Maria') and 121.58 cm^2 ('Regina'), with significant differences between cultivars. The crown volume had maximum values for the 'Golia' (4.56 m^3/tree) and 'Regina' (4.53 m^3/tree) cultivar and minimum values for the 'Maria' (3.78 m^3/tree) and 'Kordia' with 3.92 m^3/tree. The average of annual shoots and their average length recorded insignificant values among the cultivars studied.

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(P-18) PARTIAL RESULTS REGARDING THE EVOLUTION OF SOME POTATO (*SOLANUM TUBEROSUM* L.) GENOTYPES IN TERMS OF CANOPY AND YIELD DEVELOPMENT

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Field experiments were carried out to the National Institute of Research and Development for Potato and Sugar Beet – Brasov, Romania, in order to obtain data on quantitative traits (plant height, number tubers, tuber size, tuber weight) and yield of some new potato genotypes. It was used a complet randomized block design with four replicates. The number of steams varied between 14.5 steams / hill on genotype 1947/2 and 5.5 steam / hill on genotypes 1979/5 and 1901/12. The lowest value of the median leaf length was recorded at clone 21-1901/7 (56 cm) and the highest at clone 1947/2 (181 cm). Brasovia variety (control) has a poorly developed root system (48 g), also the genotypes 1891/7, 21-1895/1, 21-1901/7. Instead, genotypes 1901/6, 1927/1, 1971/9, 1965/16 have a high weight of the root system. Most spectacular production was provided by the line 1979/5 (77.90 t/ha), followed by the lines 1901/7 (45.55 t/ha) and 1939/2 (47.93 t/ha). The lines 1895/4, 1876/7, 1971/9, 1927/1, 1968/2, 1897/2, 1968/1 and 1947/2 also recorded significantly high productions.

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(P-19) RESEARCH ON THE QUALITY OF TOMATOES GROWN WITH VERMICOMPOST FERTILIZATION, SOLARIUM CULTIVATION

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The nutrition regime for tomatoes is very complex and must consider the specific consumption that differs depending on the variety, vegetation phase, cropping system and others. The super-intensive character of the protected and forced vegetable crops determines a special specificity regarding the requirements towards the soil and its state of supply with nutrients. Earthworm vermicompost or humus is a new generation, organic fertilizer produced with the help of earthworms. It is a concentrated, mineral-organic fertilizer. Earthworm humus completely replaces any chemical or organic fertilizer and contains 100 times more nutrients and microorganisms beneficial to plants. The researches have been carried out since 2020 in Matca commune, Galati County and aimed at producing vermicompost and testing it on different crops in protected areas. Tomatoes - Yigido F1 is a hybrid of semi-early tomatoes, with undetermined growth, intended for cultivation in protected areas. There were made determinations on tomatoes culture regarding the influence of vermicompost on the development of plants and quality of tomatoes.

(P-20) STUDIES ON THE *CELTIS AUSTRALIS* L. SEEDS PREPARATION METHODS IN ORDER TO SPEED UP GERMINATION

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Celtis australis L., is a tree up to 20 m tall. The range is Mediterranean to the Caucasus, in Romania it is found sporadically in Banat, Oltenia and Dobrogea, the species being used in green spaces where it is planted in alignment, isolated or in massifs, but also on the Black Sea Coast has adapted very well. The genus includes about 70 species, trees and shrubs widespread in the northern hemisphere, from tropical to temperate regions. The elm-like branch is distichous. The stalk has a broken marrow, made up of very thick blades, asymmetrical leaves with 3 ribs at the base, polygamous, andromonoic flowers, the male ones in bundles at the base of the stalk, the hermaphroditic ones arranged at the base of the petiole of the leaves, usually solitary. Fruits are spherical or ovoid drupes, with a strong stone and a thin, fleshy mesocarp. The purpose of this experiment is to speed up the germination of seeds that have been prepared in the four variants: stratification, wetting with hot water, scarification, wetting with cold water. Biometric measurements were performed on the following morphological features: seedling stem height, stem diameter, number of roots, root length, number of leaves, leaf area. Analysing the four methods of seed treatment related to chemical treatment (control) it is observed that the best results are at V1 (stratification) for all analysed characters.

(P-21) RESEARCH ON SEED GERMINATION STIMULATION AT *PAULOWNIA TOMENTOSA* THUNB. STEUD.

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Paulownia tomentosa (Thunb.) Sieb. & Zucc. Ex Steud. (syn. *P. Imperialis* Sieb. & Zucc.), is a native species to China, popularly being called “Princess Tree”. In Romania, the species is sensitive to the early frosts, which cause frostbite of non-lignified stems. Unprotected trees can be destroyed to ground level, but recover vigorously from shoots. *Paulownia tomentosa* is an invasive species introduced to the US from China as an ornamental and landscape tree in the mid-1800s. The family name derives from its genus Paulownia Siebold & Zucc., 1835 whose name was given in honour of the Danish princess Anna Paulowna or Pavlovna (1795-1865), the consort of King William II of the Netherlands and the daughter of Tsar Paul I of Russia (Gledhill, D., 2008). The aim of the research was to speed up the germination of *Paulownia tomentosa* seeds with Nitrozyme (based upon a highly concentrated and purified extract of marine kelp) in different concentrations: 0.1%, 0.3%, 0.5%, 0.7%, 0.9%. The germination capacity of the seeds decreases from the moment of dispersal even in optimal conditions of storage in the laboratory. In the case of treated seeds with 0.1% Nitrozyme the values of height and diameter of the seedling increased slightly.

(P-22) MAINTAINING THE QUALITY OF CARNATION CUT FLOWERS DEPENDING ON TEMPERATURE

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In the assortment of cut flowers, carnations (*Dianthus caryophyllus* L.) fall in the first places, with a large number of varieties, of various colours, being appreciated on the cut flowers market. Carnations flowers that cannot be sold immediately after harvest, being a time of year when the market offers an abundance of cut flower species, they are prone to rapid depreciation under normal environmental conditions. Carnation is an important ornamental plant, which is used as a potted plant as well as a cut flower. One factor that influences the shelf life is temperature. From the flowering stage to the total depreciation of the inflorescence, it plays an important role. In this experiment, the flowers were harvested on two different dates for about a month. The temperatures at which the varieties were kept had 6 graduations (from 10 to 22 °C). The parameters followed were: bud height, corolla height above the calyx, bud diameter and flower stem length. Storing flowers in water at 4 °C for 6 to 15 days, did not increase the diameter of the flower bud. In flowers kept at 22 °C for 6 days, the values of several parameters of cell senescence fell below the values of fresh flowers. However, in flowers kept at 4 °C there was no expected slow decrease in these parameters, but rather an increase above the levels found in fresh flowers. We conclude that storage at low temperatures has effects on carnation cut flowers, other than slowing down the aging process.

(P-23) CORRELATIONS CONCERNING SALT CONCENTRATION IN PICKLED GREEN TOMATOES AND ORNAMENTAL APPLES PRESERVED BY LACTIC FERMENTATION

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Lactic fermented vegetables are foods consumed due to their valuable functional and nutritional properties. During the lactic fermentation process, carbohydrates are broken down by themselves or mixed as lactic acid bacteria into lactic acid. Lactic bacteria are microaerophilic (do not use oxygen) and therefore do not cause drastic changes in food composition. Anaerobic conditions must be maintained so as not to alter the fermentation process. Lactic fermentation is considered simple and valuable for maintaining and improving safety, nutrition, sensory property for a longer period of time. In this experience was used different concentrations of salt and two types of water (drinking water and spring water) to pick green tomatoes and ornamental apples. Fermentation of vegetables is done in saline solutions that must have a concentration of more than 1.5-2.0% salt, because during the fermentation process the vegetables release sugars and the salt concentration decreases. It is important that the salt level is maintained above 1.2% because at a lower concentration, the fermentation process does not occur. If the concentration exceeds 5.5-6.0% salt, acetic acid is formed in the saline solution due to the remaining yeasts.

The saline solutions prepared for preservation by pickling had the best results at a concentration of 4.5% salt in pickled green tomatoes and 5.0% in ornamental apples, with the pH of the initial solutions between 8.0 and 8.2 regardless of the used water.

(P-24) DYNAMICS OF SOME CHEMICAL COMPONENTS IN TWO TOMATOES HYBRIDS, DURING TEMPORARY STORAGE AT DIFFERENT TEMPERATURES, GROWN IN SOLARIUM, IN THE PEDOCLIMATIC CONDITIONS OF CLUJ COUNTY

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The importance of tomatoes in the diet, represented in the world production by the largest number of varieties and hybrids, justifies the research devoted to the study of the biochemistry of this species. The green color of unripe tomatoes is due to the mixture of chlorophyll pigments that play a key role in the process of photosynthesis during fruit ripening, given that the change in pigment content that occurs during fruit ripening have often been tests of appreciation of the degree of their maturation. The tomato fruits of the Optima F1 and Cristal F1 hybrids were harvested in the 10% pigmentation phase, then introduced for storage and ripening at temperatures of 10 °C and 20 °C. During storage, the fruits were analysed every 3 days. Significant changes were found in the content of chlorophyll pigments (1.05-0.12 mg / 100g in Optima F1 and 1.55-0.16 mg / 100g in Crystal F1) and carotenoids (0.43-4.12 mg / 100g for Optima F1 and 0.99-6.13 mg / 100g for Crystal F1), as well as for total carbohydrates (1.67-2.95% for Optima F1 and 1.87-3.08% for Crystal F1).

(P-25) CELLULASE ACTIVITY IN THE MATURATION PROCESS OF TWO TOMATOES HYBRIDS GROWN IN SOLARIUM IN THE PEDOCLIMATIC CONDITIONS FROM CLUJ COUNTY

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Compared to other vegetables, tomatoes are consumed in large quantities, due to the organoleptic and nutritional properties of the fruit, primarily fresh, but also processed in the form of juices, pasta, preserves, as an addition to most dishes. During the maturation process, a very important role is played by the enzymes that hydrolyse the components of the cell wall, such as pectinases and cellulases. In this study we followed the cellulase activity in the maturation process of two tomato hybrids (Bengal F1 and Etrusco F1) grown in solarium and harvested in 5 stages of maturation (F1 to F5). The determinations were performed in 3 repetitions, the samples being collected at intervals of one week for 5 weeks. The results obtained were expressed in enzymatic units (EU). Cellulose enzymes for breaking cellulosic chains (C) are found in larger quantities compared to those for saccharification (Cx) in certain stages of the maturation process, the ratio between them being 3/1 in the first harvest phase and 1/6 in the last phase. Cellulases C undergo a decrease in activity during the maturation process, while the activity of saccharification enzymes, Cx is almost constant.

(P-26) SOME PECULIARITIES OF FLOWERING *PRUNUS ARMENIACA*

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Prunus armeniaca is one of the most common cultivated species of apricot. We are not sure about its center of origin, but most modern investigators are thinking that is probably central Asia. There were at least three independent domestication events in the demographic history of this species. The one from the wild populations in southern Central Asia (Kyrgyzstan). The second one is from the wild populations in northern Central Asia (Kazakhstan). The third one occurred in China. The apricot was known in Armenia during ancient times and has been cultivated there for so long that it was previously thought to have originated there.

In China, apricots have been cultivated since no later than 1000 BC. Its introduction to Greece is attributed to Alexander the Great. Apricots have been cultivated in Persia since antiquity, and dried ones were an important commodity on Persian trade routes. Apricots remain an important fruit in modern-day too.

In the 17th century, English settlers brought the apricot to the English colonies in the New World. Today, apricot cultivation has spread to all parts of the globe having climates that can support its growth needs.

Prunus armeniaca is a small tree, with a trunk up to 40 cm in diameter and a dense, spreading canopy. Apricot is flowering in April in the conditions of the Europe/ In Ukraine, it commonly starts flowering at the beginning of the month (4-6 April) and the end of the flowering is near 20-21 of April. It is essential that ay this time during last few years were low temperatures and often were a rain. So, for at least 3 years we did not have a great harvest. The flowers have a typical structure for the *Prunoidae* subfamilia of the *Rosidae* familia. They are 2–5 cm in diameter, with five white petals. They are produced singly or in pairs or in groups and form inflorescence –

corymb. The flower buds start their development before the leaves appear.

The androceum is formed by two circles of the stamens. The length of the stamen of the out circles is near 14-15 mm, and the length of the anther is about 1 mm. And inner circle has a smaller stamen with a length of approximately 0.9-1.0 mm, but the length of the anther is 1 mm too. The pistil has a length of 15-16 mm with a stigma of 1-2 mm. The apricot has formed a drupe as a fruit. The bees are the most common pollinator.

(P-27) ALLELOPATIC EFFECTS OF SOME ESSENTIAL OIL COMPONENTS OF THYME AND ROSE ON GERMINATION: CASE STUDY OF BARLEY

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The study was carried out to determine whether different concentrations of essential oil components (geraniol, carvacrol, thymol and α-terpinene) and essential oil of thyme (Thymus sp.) have any allelopathic effects on the germination of barley seeds. The study was carried out in the laboratory environment according to the divided plots experimental design in random plots. At the end of the experiment, the effects of allelochemical types of carvacrol, thymol and geraniol doses on germination rate and seedling dry weight were found to be statistically significant ($p<0.01$). It was determined that geraniol (0.00245 g), carvacrol (0.01790 g) and thymol (0.02590 g) had the most negative effects on seedling dry weight, respectively. As a result, it was determined that some of the herbal allelochemicals used were effective on the germination of barley seed and seedling growth, and the effect rate increased as the dose increased. Thymol, geraniol and carvacrol showed the most negative effects on the germination rate of barley seed at all doses. On the other hand, adverse effects were determined at high doses of alpha terpinene. All doses of thyme essential oil and low doses of alpha terpinene showed similar effects with the control. As a result; It is thought that essential oil components, which have a negative effect on the germination of barley seed, can be used in the production of plant-based bio-herbicides.

(P-28) SEED AND LEAF CHARACTERISTICS OF OLIVE GENOTYPES COLLECTED FROM KAHRAMANMARAS REGION OF TURKEY

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Because of it can be used as a table, for oil or wood and practical medicine, olive became highly valued in. Olive oil is considered more important due to its nutritional and health advantages. The olive tree can adapt to adverse soil conditions because it is not very selective in terms of soil requirements. Turkey has a very rich diversity because it is located in the homeland of olives and has been cultivated for many years. There are olive populations that show variation in tree form, leaf and fruit characteristics in different regions of Turkey. Identifying and revealing the characteristics of plants in these populations is important for their evaluation. In this study, some morphological features were determined in olive populations in Kahramanmaraş region, which has a significant diversity. Within the olive populations, seed and leaf characteristics were revealed in 44 genotypes that were visually different and over 50 years of age. Statistical differences were found between genotypes in terms of all parameters studied. The kernel weights of the genotypes varied between 0.76-0.38 g. Kernel length and width values were determined as 16.03-12.21 mm and 10.07-8.01 mm, respectively. The highest leaf length of the genotypes was 7.42 cm and the lowest 5.70 cm. Leaf widths were determined as 15.82-8.49 mm. The results revealed that there is a significant olive diversity in Kahramanmaraş region. It is important to conservation this richness and use it in breeding and genetic studies.

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(P-29) ASSESSMENT OF THE RESPONSE OF SOME MELON GENOTYPES (CUCUMIS MELO. L) TO DIFFERENT DOSES OF SALINITY (NACI))

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Soil salinity is one of the major problems in agriculture, most saline soils are found in arid and semi arid regions. As in other plant species, soil salinity also affects melon production. It is important to use tolerant varieties to be least affected by soil salinity. In present study, two local Turkish cultivar and three their crossed population (Semame, Ozbek, SemamexAnanas, AnanasxSemame and MidyatxAnanas. were tested under in vitro and pot experiments using different NaCI conditions (0, 100,150 and 200 mM). The results have shown that selection for salt tolerance high salt concentration (150 mMol) has negative significant effect on melon performance. Among the five tested cultivars, Midyat x Ananas and Ozbek showed more tolerance compared to other cultivars. In greenhouse, plant heigh, stem diameter and leaf length of midjat x ananas had their highest value at 100, 150 and 200mM, respectively. Meanwhile, best performances of Ozbek for plant height, root dry matter content, root length, leaf length and diameter were obtained at 100 mM. Except for midjat x ananas, increase in salt concentration had less impact on plant growth. There was more correlation among morphological and physiological variable in greenhouse experiment compared to in-vitro experiment, therefore it is advised to select melon plants once they start flowering or at least after three months as it has been demonstrated in this experiment.

(P-30) DETERMINATION OF IN VITRO SALT TOLERANCES OF SOME ANNUAL GRASS TYPES

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The aim of present study; determination of the salt tolerance of annual grass cultivars in vitro. In the study, 25 registered grass varieties were used as material. Salt concentrations of 150 mM NaCl were applied to determine the response of annual grass varieties to salt stress. Root length, shoot length, root-shoot fresh weight and root-shoot dry weight were examined in in vitro salt testing and the lowest values in the control group in terms of these properties were obtained from Efe and Vallivert cultivars, while the highest value was obtained from Medoacus and Trinova cultivars. In salt application, the lowest value was obtained from Tornado, Vallivert, Venus varieties, while the highest value was obtained from Medoacus and Trinova varieties. and the plant height, green part wet weight and green part dry weight values were examined in the pot trials at two stages(the first harvest and the second harvest) under salt and control applications. Quickston and Vallivert cultivars had the lowest value in the first harvest at control group in terms of these characteristics, while the highest value was obtained from Rambo, Tetra, Ration cultivars. In addition, the variation obtained among the annual grass varieties used in the study can be used both in the grass aplication and in breeding programs.

(P-31) DETERMINATION OF SELF-(IN) COMPATIBILITY USING MOLECULAR MARKERS OF SOME APRICOT CULTIVARS WHICH CULTIVATED IN TURKEY

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Turkey is the most important country in terms of apricot production in the world. Apricot has been produced throughout Anatolia since ancient times for its edible fruit, but mostly in Eastern Anatolia. In flowering plants, gametophytic self-incompatibility is one of the major problems preventing self-fertilization. It is controlled by a single locus with several allelic variants. Among the fruits, apricots also show self-incompatibility, especially that of Middle-Asian and Iranian-Caucasian origin. In our research, we have studied some apricot cultivars in terms of self-(in) compatibility in Turkey. Apricot cultivars used in this study consisted of 10 Turkish and 10 foreign accessions. Analyses were carried out using AprFBC8-F and AprFBC8-R, EM-PC2consFD and EM-PC3consRD primer pairs to determine self-incompatible alleles and SRc-F and SRc-R primer pairs to determine self-compatible alleles. After the DNA isolation and PCR process, PCR product was conducted in metaphor agarose. According to results, 4 of 10 Turkish cultivars were self-compatible, whereas 6 of them were self-incompatible carrying S2-S13 alleles. Because Turkish apricots are mostly self-incompatible pollinizer cultivars should be considered for planting new orchards with these self-incompatible cultivars.

(P-32) DETERMINATION OF THE GENETIC SIMILARITIES/DIFFERENCES OF SOME ANNUAL GRASS VARIETIES

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The aim of this study; determination of the genetic similarities/differences of twenty-five annual grass varieties using the SRAP marker system. According to the obtained results, while the mean polymorphism rate was determined as 87%, the highest polimorphisim was determined in the Me4 Em6, Me4 Em7, Me2 Em13, Me4 Em4, Me4 Em9, Me4 Em11, Me4 Em12, Me2 Em14 and Me3 Em2 primer combinations SRAP. The lowest polymorphism rate was obtained from Me3 Em3 (70%) primer combination. According to the dendogram obtained from the molecular characterization of grass varieties using SRAP molecular markers, great variation was observed between genotypes. The degree of similarity in the dendogram varies between 0.54-0.90. According to the findings, it can be said that the SRAP marker system is an effective marker system in determining the genetic similarities and differences between different grass varieties. In addition, the variation obtained among the annual grass varieties used in the study can be used both in the grass aplication and in breeding programs.

(P-33) EFFECTS OF DIFFERENT IRRIGATION LEVELS AND NITROGEN DOSSES ON MINERAL CONTENTS OF MAIZE GRAINS

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This study was conducted to determine the effects of different irrigation levels and nitrogen doses on macro and micronutrient contents of maize grains. Experiments were conducted with 3 different irrigation levels (100, 75 and 50% of field capacity) and 3 different nitrogen doses (100, 200 and 300 kg ha^{-1}). Experiments were conducted in summer-growing seasons of the years 2013-2014 in split plots experimental design with 3 replications (irrigation levels on main plots and nitrogen doses on sub-plots).

Grain N, P, B, Na, Fe, Mn, Zn and Mg contents increased and K, Ca, S, Cd, Cu, Ni and Pb contents decreased with increasing irrigation levels. Grain N, P, S, Cu, Fe and Mn contents increased and Pb contents decreased with increasing nitrogen doses. Grain K, Ca, Mg, Cd and Ni contents initially increased and then decreased later on with increasing nitrogen doses. Nitrogen treatments were found to be as much effective as irrigation levels on grain mineral contents. Supportive treatments (irrigation, nitrogen) are recommended to eliminate mineral deficiencies in maize culture of the regions with water stress conditions.

(P-34) THE EFFECT OF HARVEST TIME ON HAY YIELD AND HAY QUALITY IN ANNUAL RYEGRASS CULTIVARS

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This study was carried out to determine the effects of harvest time on hay yield and quality of different annual ryegrass Cultivars. A total of 10 different annual ryegrass (*Lolium multiflorum* L.) cultivars supplied from agricultural company were used as the plant material of the field experiments. Experiments were carried out in randomized block design with 3 replications.

Annual Ryegrass cultivars were harvested at cluster removal, flowering and milky stage. Green herbage and hay yields, crude protein, crude ash, acid detergent fiber (ADF) and neutral detergent fiber (NDF) characteristics were investigated. Harvesting stage had a significant ($p \leq 0.01$) effect on all properties.

Results revealed increasing ADF-NDF ratios, green herbage and hay yields and decreasing crude protein and crude ash with the progression of harvest time. The hight crude protein yield was obtained from flowering stage. The cultivars Baqueona, Baqueona, Medaocus were considered as primary cultivars activities of the region with regard to hay yield and crude protein yield.

(P-35) EFFECT OF PRE-TREATMENTS ASSISTED MICROWAVE DRYING ON KINETICS AND ENERGY ASPECTS OF DRAGON FRUIT

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Drying is one of the most effective preservation methods applied to increase the shelf life of agricultural products. In this study, the effect of different pre-treatments on drying dragon fruit with a microwave was investigated. It is also aimed to determine the drying method with the minimum energy consumption. The study was carried out in the Drying Laboratory of the Faculty of Agriculture of Erciyes University. Dragon fruit slices were dried by microwave at 300 W output power in four different pretreatments as ultrasound, gum arabic, sucrose, and without pretreatment. Pretreatment applications were carried out by performing ultrasound for 10 minutes on dragon fruit slices and soaking them in 10% gum arabic and sucrose solutions before drying. Results showed that the shortest and longest drying times were measured in gum arabic and without pretreatment, respectively. Time-dependent estimation data were calculated by six different thin-layer drying models, considering the drying times and moisture rates. Jena&Das model showed the best fitting performance. As a result, it has been determined that pretreatment applications reduce drying time and energy consumption. In addition, gum arabic pre-treatment is advantageous in terms of energy consumption in microwave drying of dragon fruit.

(P-36) ENERGY ASPECTS AND EFFECTIVE MOISTURE DIFFUSIVITY OF RED PEPPER: CHANGE IN CULTIVARS AND DRYING METHODS

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The drying methods have been performed successfully for many years in product processing and preservation. The moisture content of the products has been reduced to desirable levels with the use of this method. In the present study, the effect of different drying methods on specific energy consumption, specific moisture extraction ratio, effective moisture diffusivity, energy, and thermal efficiency of two red pepper cultivars (Pinar and Bozok) were investigated. Red peppers were dried open-sun, shade, greenhouse, microwave (300 W and 600 W), air-convective (60 °C and 80 ºC), and freeze drying. According to findings the shortest and longest durations were recorded in freeze and microwave (600 W) drying respectively. The greatest specific energy consumption values were obtained from freeze drying. Both 300 W and 600 W had the highest specific moisture extraction ratio, energy, and thermal efficiency values. Generally, the greatest effective moisture diffusivity values were determined in microwave drying, while the lowest ones were determined in natural conditions such as open-sun, shade, and greenhouse drying.

(P-37) MACHINE LEARNING BASED ESTIMATION OF DRYING CHARACTERISTICS OF APPLE SLICES

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Machine learning algorithms have been commonly used in food drying processing. These algorithms are also effectively used for nonlinear processes. Estimation of drying characteristics is important for optimizing drying conditions. Estimating the properties such as moisture content, moisture rate and drying rate ensures accurate and high quality drying of the product under air-convective drying conditions. In this study, moisture ratio and drying rates of apple slices were estimated in air-convective drying conditions. Three machine learning algorithms (random forest-RF; artificial neural network-ANN; and k-nearest neighbors-kNN) were performed to estimate moisture ratio and drying rate. In the study, correlation coefficients were found to be above 0.85 in the estimation of humidity and drying rate for all algorithms. The present findings show that machine learning algorithms could be successfully applied for the estimation of drying characteristics.

(P-38) AGRICULTURE AND ENVIRONMENT INTERACTION

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The resources necessary for food production have shown a disquieting deterioration during the last three decades. Modern intensive agriculture has an adverse effect not only on the physical environment but also on human health. On the other hand, 'Sustainable Agricultural Systems', which has gained importance in recent years, deals with both the protection of natural resources and the increase in plant production. In these systems, production is ensured by directing the resources obtained from the system cycle, not the chemicals and inputs that harm human, plant and environmental health, and quality healthy products are obtained. In 'Organic Farming', which is one of the sustainable agricultural systems, it is aimed to cause the least damage to the environment by producing healthy foods without disturbing the natural balance. The risk of pollution is less because less economic input is used in these and similar protected sustainable agricultural systems.

While the inputs used in agricultural production stage increase the productivity of the product produced per unit area and make it more resistant to diseases and pests, they can have negative effects on the living things in the immediate vicinity and the ecosystem. While the development of agriculture in a region positively affects the natural life, oxygen production and climate in the region, inorganic nitrate pollution, pesticide pollution and salinity problems can be listed as the negative effects of agriculture on the environment, especially in regions where intensive agriculture is practiced. Also, agricultural water use, application of fertilizers and pesticides may negatively

affect the water courses, deforestation, and crop and animal raising may result in greenhouse gas emissions, unsuitable agricultural practices may have detrimental impacts on soil, genetic resources and biodiversity.

In order to ensure sustainability in agriculture, by abandoning the agricultural production methods based on excessive chemical pesticides and fertilizers that the producers have applied until now; an economical fertilization, preserving the organic matter ratio of the soil by preventing stubble fires, reduced tillage, combating diseases, pests and weeds in integration with a suitable crop rotation are of great importance.

(P-39) ALLELOPATIC EFFECTS OF SOME ESSENTIAL OIL COMPONENTS ON GERMINATION AND SEEDLING GROWTH OF WHEAT

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In the study, it was aimed to determine whether the essential oil components (geraniol, carvacrol, citronellol and thymol) and their different concentrations (0, 2, 5, 10 and 20 ml/petri) would cause any allelopathic effects on the germination of wheat seeds. The experiment was carried out in the laboratory environment according to the divided plots experimental design in random plots. The effects of allelochemical species (Carvacrol, Timol, Geraniol, Citronellol) and their doses were found to be statistically significant ($p<0.01$) on the germination rate and seedling dry weight of wheat seeds. The effects of allelolchemical species ($p<0.05$) and doses ($p<0.01$) on seedling fresh weight were found to be statistically significant. As a result, it was determined that some of the herbal allelochemicals used were effective on seed germination and seedling growth in wheat, and the effect ratio increased as the dose increased. It is thought that some essential oil components can be used in the production of bio-herbicides for winter grass weeds, provided that similar studies are carried out on winter crop plants.

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(P-40) EFFECTS OF DIFFERENT APPLICATIONS ON ROOTING CAPACITY OF BLACK ELDERBERRY CUTTINGS

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Turkey has rich plant genetic resources including many wild, perennial herbaceous and woody plants due to its location between two plant gene centers. In addition to the major fruit types, the demand for some minor fruits has been increasing in recent years, taking into account their health benefits. Black Elderberry (*Sambucus nigra* L.) is one of these minor berries. It attracts attention because of its medicinal aspect and industrial product potential. Its leaves contain glycoside, sambunigrine, essential oil, malic and valeric acids, carotene, vitamin C. Its fruits contain glycosides, sambunigrine, vitamin C, sugar, acetic, malic and tartaric acids. It has blood purifying, relieving constipation, pain relief and diuretic effects. It is used as infusion, decoction, syrup, fruit juice, tincture, liquid extract, porridge, powder, ointment, distilled water and essential oil. This plant is used especially in the industrial field to obtain essence.

In this study, the effects of some applications on rooting success in elder wood cuttings were investigated. For this purpose, in addition to 0, 2000, 4000 ppm IBA solution, a mixture solution of different *Bacillus* species ($1.7X10^8$ cfu/ml) was used. After the above-mentioned applications were applied to the wood cuttings taken from the plants during the resting period, they were taken into the perlite environment in the greenhouse at 22 ^{0}C. According to the results obtained, the number of roots per cutting was found to be between 11.3-22.4. Root lengths varied between 7.1-8.4 mm according to the applications. 2000 ppm IBA application was the application that increased both root length and root number the most. The study

revealed that the rooting efficiency of black elderberry plant would be increased by IBA application.

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(P-41) SEED AND LEAF CHARACTERISTICS OF OLIVE GENOTYPES COLLECTED FROM KAHRAMANMARAS REGION OF TURKEY

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Because of it can be used as a table, for oil or wood and practical medicine, olive became highly valued in. Olive oil is considered more important due to its nutritional and health advantages. The olive tree can adapt to adverse soil conditions because it is not very selective in terms of soil requirements. Turkey has a very rich diversity because it is located in the homeland of olives and has been cultivated for many years. There are olive populations that show variation in tree form, leaf and fruit characteristics in different regions of Turkey. Identifying and revealing the characteristics of plants in these populations is important for their evaluation. In this study, some morphological features were determined in olive populations in Kahramanmaraş region, which has a significant diversity. Within the olive populations, seed and leaf characteristics were revealed in 44 genotypes that were visually different and over 50 years of age. Statistical differences were found between genotypes in terms of all parameters studied. The kernel weights of the genotypes varied between 0.76-0.38 g. Kernel length and width values were determined as 16.03-12.21 mm and 10.07-8.01 mm, respectively. The highest leaf length of the genotypes was 7.42 cm and the lowest 5.70 cm. Leaf widths were determined as 15.82-8.49 mm. The results revealed that there is a significant olive diversity in Kahramanmaraş region. It is important to conservation this richness and use it in breeding and genetic studies.

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(P-42) EVALUATION OF GHG EMISSIONS OF DIFFERENT PROCESS FOR DRYING ORANGE SLICES

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Uncontrolled use of fossil fuels and insufficient use of renewable energy sources (solar, wind, hydraulic, geothermal, biomass, tidal, wave etc.) have resulted in various environmental problems such as global warming, climate change and increase carbon emissions. In this present study, two different orange cultivars (Valencia and Washington Navel) were dried under different air-convective conditions (50, 55 and 60°C). Samples were sliced at three different thickness (5, 7 and 9 mm). In addition, three different drying time was selected for orange drying (8, 9 and 10 h). Effects of a single unit air convective dryer on GHG emissions of different power plants (wind, solar, hydroelectric, and geothermal) for one kg of crop were investigated. Results showed that while the greatest GHG emissions were obtained from the geothermal power plant, the lowest GHG emissions were obtained from the wind power plant. Besides, increasing CO_2 emissions were encountered with increasing drying duration and sample thickness. Additionally, CO_2 emissions had a decreasing trend at higher temperatures.

(P-43) POTENTIAL USE OF BIOCHAR IN WASTEWATER TREATMENT OPERATIONS AND SOIL IMPROVEMENT

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Biochar is produced through thermochemical decomposition, so called as pyrolysis, of different biomass groups in the presence of little or no oxygen. Resultant material is highly stable material with excellent surface characteristics and pore structure and is also rich in functional groups. Such properties of the material are largely influenced by pre- and post-treatments and thermal decomposition conditions. Various methods have been used for thermal decomposition of biomass, such as pyrolysis thermal carbonization, torrefaction and microwave heating at different temperatures and for different durations. Biochar has recently started to be used for wastewater treatment and water pollution control purposes. It is also used to improve soil properties including aggregate stability, water holding capacity and organic matter content. It is a new, economic and environment friendly material to be used in wastewater treatments technology and soil improvement. In this study, biochar production technologies and properties of resultant materials were summarized and potential use of biochar in wastewater treatments operations and for soil improvement were assessed in detail.