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(B-01) THE EFFECT OF TEMPERATURE ON POLLEN VIABILITY AND GERMINATION CAPACITY OF SOME STRAWBERRY AND BLACKBERRY CULTIVARS

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This study is important for determining the different temperatures' effect (4, 18 and 24°C) on pollen germination and its viability for some strawberry ('Premial', 'Clery', 'Real', 'Mira', 'Alba', 'Idea', 'Elsanta', 'Onebor', 'Benton') and blackberry ('Lock Tay', 'Wilson's', 'Arapaho', 'Black Satin', 'Navaho', 'Hull') cultivars. The pollen viability was determined through the acetic carmine staining method. The fertile pollen was colored in red, and the sterile one in pink or it remained colorless (1.5 g agar + 15 g sucrose + 0.01 g boric acid in 100 ml distilled water), incubated 6-8 hours at all three temperatures and relative humidity 70-90%. The temperature affected the pollen germination and increased the germination capacity. The lowest pollen germination rate was obtained at 4°C (between 19.41% and 54.72% for strawberry and 9.10% and 24.35% for blackberry). The best strawberry results were observed at 18°C (57.97% for 'Mira' cv.), respectively 24°C (56.77% for 'Elsanta' cv.) and at 18°C (50.13% 'Wilson's ' cv.), respectively 24°C (55.55% 'Arapaho' cv.).

(B-02) NUTRITIONAL POTENTIAL OF SOME COLD PRESSED VEGETABLE OILS IN TERMS OF FATTY ACIDS

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The objective of this study was to evaluate the nutritional potential of some unrefined vegetable oils, in terms of fatty acid composition which was determined by gas chromatography coupled with mass spectrometry.
Eight types of vegetable oils, obtained by cold pressing of raw plant materials of sunflower, rapeseed, soybean, flax, sesame, pumpkin, hemp and walnut were used in the experiments. For all samples, the fatty acid composition was determined individually or as sum of saturated (SFA), monounsaturated (MUFA) and polyunsaturated (PUFA) fatty acids. The PUFA/SFA and omega-6 (ω-6)/omega-3 (ω-3) ratios were also evaluated.
Compared with the other tested oils, walnut oil was characterized by the lowest concentrations in SFA (5.33%) and MUFA (15.97%) and the highest concentrations in PUFA (78.70%). Soybean oil had the highest content in SFA (18.72%), while the rapeseed oil was characterized by the highest content in MUFA (67.49%) and the lowest content in PUFA (24.74%). The highest content of ω-3 (51.45%) was obtained in flax oil, and the lowest in sunflower oil (0.09%). Omega-6/omega-3 ratios ranging between 1 to 5 were obtained for rapeseed (3), hemp (5) and walnut (5) oils, having beneficial effects on the human body.

(B-03) MATING DIOECIOUS SYSTEM OF *CIRSIUM ARVENSE* (L) SCOP. WEED

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The species has an important presence in crops (Everitt et al, 2007). It's occurs in- micro (asexually) by forming clones with different densities (Donald, 1994), and in-macro (sexually) by fruits with conquering new lands. The sexed propagation type is dioecious, with the presence of both female plants and those male. To express existent ecotype weed in the Southern Highlands area, they have made some determinations of variability. Thus, the male heads had in flourished time average size 14.6-15.1 mm / 7.0-7.5 mm, with or without fruits (achenes). Females flowerhead (capitula) were 25.4 mm / 8.8 mm and formed 22 achenes. Female clones had fruits 2.29 mm length, thickness 0.65 mm and 20.5 mm pappus. Some correlations obtained were positive and significant: between flower head dimensions r = 0.375*** and 0.265 ** in male populations and r = 0.278 * the female population. Negative correlation was obtained between the sizes of the female clones fruits, r = -0.037. The present study demonstrated cross-type structure evolved in these conditions and wide possibilities that it has spread throughout the agricultural field.

(B-04) COMPARISON BY MORPHOLOGICAL CHARACTERS OF HYBRID-VARIETY WINTER WHEAT PLANTS

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Some current studies on morphological, biochemical, molecular of wheat plants could be used in the progress of varieties' improvement, adapted to current requirements (Black &Halmer, 2006). Board genetic dowry and wheat crop conditions usually lead to characteristic expression of plant morphology. In winter wheat, both in the case of a Phyton hybrid and a Foxyl variety, some new directions have been found, which have recently been improved. Thus, in the hybrid-variety comparison, the straw was shorter in the hybrid with 6 cm. The basal internode (the third of top) was 1 cm longer in the variety, with its thickness between the same limits in both forms (3.1-3.2 mm). The sub-apical internode measured less 1 cm in the hybrid, and the apical internode was shorter by 2-4 cm in the variety. The ear had the longest in the Foxyl variety, but the weight of the spikes was similar (ears were dominated by 2.1-2.3 g). Each spikes contained 16-17 spikelets in both forms. Spikelet had an external glume and inferior palea shorter to the hybrid, and the awn was longer 2-3 cm in the hybrid. The medium spike contained 15-16 more grains in the hybrid, and the total mass of the grains in a spike weighed more with 0.2 g in the case of hybrid. The grains were longer by about 1.0 mm and the thickness was 0.4-0.5 mm more both in the Foxyl variety. The mass of thousand grains in smaller limits was at hybrid (33-36 g), while the variety had the much larger grain weight (45-51 g). Between the morphological characters of the plants, significant positive correlations were obtained only between the components of the spikes in both forms. Un important links were obtained between the characters of the straw with the other plant elements in the Phyton hybrid and significant linkages under the same conditions in the Foxyl variety. Both forms of winter wheat demonstrated through the morphological characters manifested, good zonal adaptability.

(B-05) FACTORS AFFECTING ACTIVE CONSTITUENTS OF SAFFRON (*CROCUS SATIVUS* L.)

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Saffron (*Crocus sativus* L) is a plant with high economical and medicinal value. The dried and dark-red stigmas of flowers of *Crocus sativus* L., is the most expensive spice in the world. Saffron is used mainly as a spice for flavoring and coloring of food, but also numerous pharmacological studies have indicated its therapeutic potential including antioxidant, anticancer, antiischemic, hypolipidemic, antitussive, antidepressive, sedative and antiinflammatory effects. Saffron contains more than 150 volatile and aroma-yielding compounds, and many non-volatile active components (such as: zeaxanthin, lycopene, and various α- and β-carotenes). Three main pharmacologically active metabolites: crocins; picrocrocin and safranal are responsible for the colour, taste and aroma of saffron. The quantities of secondary metabolites are influenced by many factors. Agronomic and environmental factors can affect the morphological and anatomical features of the plants as well as quantity of secondary metabolites. However, the most considerable influence on chemical composition of saffron has a post-harvest processing. The dehydration treatment necessary to convert *Crocus sativus* L. stigmas into saffron spice is one of the most important factors. Different treatments used for draying stigma have different impact on secondary metabolite contents, and they determine stability, quality, and economical value of the saffron.

(B-06) EFFECT OF IRRADIATION ON FOOD SAFETY AND QUALITY

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Numerous processing techniques have been developed to control food spoilage and raise food safety. The traditional methods of preservation include: pasteurization, canning, freezing, refrigeration and use of chemical preservatives. Food irradiation is non-thermal food preservation process. It is a treatment of food exposition on an amount of energy in the form of speed particles or rays. Depending on absorbed radiation dose, various effects can be achieved, resulting in reduced storage losses, extended shelf life and/or improved microbiological and parasitological safety of foods. The potential application of ionizing radiation in food processing is based mainly on the fact that ionizing radiations damage very effectively the DNA molecules. The application is very diverse, from inhibition of sprouting of tubers and bulbs, to production of commercially sterile food products. At the same time, irradiation-induced chemical changes in food are minimal. Irradiation does not cause any significant loss of macronutrients. Proteins, fats and carbohydrates undergo minimal modifications in nutritional value, which are less significant compared with traditional methods of food preservation. Irradiation offers a potential to enhance microbiological safety and quality of food through extension of its shelf life.

(B-07) LEAF CHARACTERISTICS OF WILD ALMOND GENOTYPES COLLECTED FROM KAYSERI PROVINCE OF CENTRAL ANATOLIA

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Breeding studies for specific purposes cause a narrowing of the genetic pool in fruit species. For this reason, we need wild species in terms of gene source. Wild species that have adapted to different environmental conditions such as precipitation, temperature, drought, disease, pest and salinity have great importance at this point. Turkey is the center of origin for many fruits including almond species. In this study, leaf length, leaf width, leaf pedicel length and leaf color characters were examined in 39 naturally grown wild almond genotypes collected from different regions of Kayseri province in Central Anatolia. Measurements regarding to leaf characteristics were made with digital caliper. The mean values of leaf length in the study ranged from 0.65 (Genotype-48) cm to 2.48 (Genotype-18) cm. Average leaf width values varied between 0.21 (Genotype-53) cm and 1.14 (Genotype-2) cm. Leaf pedicel length values ranged from 0.13 (Genotype-26) cm to 0.81 (Genotype-3) cm. In the study, leaf color of 39 almond genotypes was found as follows; 19 genotypes were light green, 18 genotypes were gray, and 2 genotypes were dark green. In terms of leaf characteristics examined in the study, a significant variation was found between almond genotypes. The reason for this variety may be due to the reproduction of wild almonds in nature with seeds. This rich variation is valuable for expanding of the genetic pool in the almond species. On the other hand, these almond populations can be used for biotic and abiotic stress factors tolerant cultivar and rootstock breeding studies.

(B-08) GENETİC DİVERSİTY OF NATURALLY GROWİNG WİLD PLUM (*PRUNUS DİVARİCATA* LEDEB.) GENOTYPES

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Turkey is one of the genetic centers of several plum species including, *P. cerasifera, P. instita, P. domestica and P. spinosa*. Plum species grown in Turkey has very diverse plant features varied between shrubs and large tree, spreading to upright tree form and diverse blooming time. In present study, genetic variation among 16 wild plum (*P. divaricata*) genotypes naturally grown around Erciyes mountain in Central Anatolia were investigated by using inter-simple sequence repeat (ISSR) markers. DNA was extracted from young leaves by the CTAB method. Fifteen ISSR primers produced clear fragments were used for the study. PCR reaction components, PCR cycling parameters, electrophoresis and gel imaging procedures were performed. A 100 bp standard DNA ladder was used for estimating sizes of fragments. Data of molecular analyses were performed as follows: Bands obtained from ISSR primers were scored based on their scorability. Cluster analysis was performed in accordance with unweighted pair group method with arithmetic averages (UPGMA) method and dendrogram was created with NTSYS pc 2.11 software. Using 15 primers of 119 bands obtained, 102 were polymorphic (86%). The unweighted pair-group method arithmetic average analysis demonstrated that the genotypes had a similarity range from 0.66 to 0.89. High level of genetic diversity was observed among plum materials. This diversity may be due to seed based propagation of the genotypes. These wild plum genotypes can be used for the expansion of the gene pool and breeding studies.

(B-09) ORGANIC GRISSINI WITH ORGANIC DILL POWDERS – INNOVATIVE PRODUCTS

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The dill (*Anethum graveolens* L.) is an annual herbaceous plant, which has spread widely in Romanian cuisine and is used entirely: leaves, stem, and seeds. It contains active substances with multiple beneficial properties for human health. The aim of this study was to develop new type of grissini, enriched with powder organic dill obtained from leaves and stems. The organic powders were realized in the framework of SusOrgPlus project in the Research Center for Studies of Food Quality and Agricultural Products, University of Agronomic Sciences and Veterinary Medicine of Bucharest.

Grissini's with different percentage of leaf powder organic dill and stem powder organic dill were designed and evaluated in a consumer acceptance test, where the aroma, colour, texture and appearance of the attributes were evaluated.

The most valuable products with the highest acceptance scores were selected, further analyzed in an accelerated stability study at different temperatures. The new developed food product enriched with powder from organic stem dill is a healthy alternative snack, with the potential to raise awareness and encourage the consumption of organic products.

(B-10) ASSESSMENT OF THE ORGANOGENIC RESPONSE TO THE DIFFERENT TYPES OF EXPLANTS FROM ROMANIAN VARIETIES OF RED AND GREEN BASIL

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Basil is a plant known since ancient times for its properties (carminative, antiseptic), being considered a sacred plant. With the passage of time and with the diversification of assortments, basil was used for decorative and aromatic purposes, being considered a spicy plant. Red basil is also used in the perfume industry due to the pleasant aroma it possesses. Multiplication procedures were developed by in vitro cultures, using varieties of Romanian origin: 4 from red basil (lines: L9, L10, L11, L12) and 9 from green basil, characterized by special aromas and leaf shapes. When evaluating the germination yield, the percentages varied between 45-80% for aseptically inoculated red basil seeds on culture medium. For the seeds of the green basil varieties, the sowing was performed in universal organic substrate, and the germination yield varied between 25 -100%. The types of explants taken from the resulting seedlings were represented by stems (fragments of hypocotyl and epicotyl), leaves and cotyledonary node. The induction of organogenesis was evaluated differently for each type of explant under the effect of phytohormones such as cytokinins (TDZ and BAP) added in concentrations of 0.5-2 mg/L to the basal culture medium MS/1962. After 3 subcultures of the explants on the culture medium recipes (45 days), the organogenic yields expressed *in vitro* were compared.

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(B-11) THE TOXICITY OF EXTRACTS WITH BIMETALLIC NANOPARTICLES ON FERNS SPORES GERMINATION

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Plants based synthesis of Ag and Au nanoparticles represent one of the most important focus of researchers due to their applications and catalytic activities. We utilized various techniques to obtain extracts with bimetallic nanoparticles from *Asplenium scolopendrium* leaves; we tested the following variants: M–microwave extract, M NP - microwave extract with nanoparticles Au-Ag, C–extract obtained in the oven, C NP-extract obtained in the oven with nanoparticles Au-Ag, H-hydroalcoholic solution; for each extract were made 2 dilutions: 1:10 and 1:100. Generally, in biological studies bimetallic nanoparticles are used as antimicrobial and antioxidant agents but in this study we tried a new approach: to determinate the effect of this nanoparticles on the most susceptible stage in ferns development. The germinative percent was used to quantify the effect of the extracts with/without bimetallic nanoparticles on *Asplenium scolopendrium* and *Dryopteris filix-mas* spores; for obtaining an overview there were made multiple comparations (with Duncan test) between the variants with extracts and control. In the variants with bimetallic nanoparticles, regardless species, dillution or obtaining technique, after 1 week no germination was recorded and after one month the situation was the same. Also, no germination was observed in the variants without bimetallic nanoparticles with 1:10 dilution. In both species, at 1:100 dilution, the variants with the extract obtained using microwave technique (without nanoparticles) recorded a higher germinative percent than the other variants with extract.

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(B-12) CHEMICAL ACTIVITY OF THE LIQUID *CORDICEPS MILITARIS* CULTURE FROM *RADIX TARAXACI CUM HERBA* MEDIUM

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Even though many consider it a weed without any use, dandelion (*Taraxacum officinale*) is a valuable plant, used both as food and as medicine. However, more and more research show that dandelion root is one of the most powerful weapons in the fight against cancer. Dandelion is known to have diuretic properties, cleanses the liver, helps treat allergies and is a good ally in the fight against high cholesterol. Dandelion root is a good source of potassium, vitamin A, iron, calcium, folic acid, magnesium and vitamin C. In this study we used *Radix Taraxaci cum herba* (RTH) as a medium for the cultivation of *Cordyceps militaris* mushushroom liquid mycelium culture to investigate the amount of cordicepine, the main bioactive component with the strongest anti-tumor activity contained in the liquid culture of Cordyceps militaris. In the classical liquid culture after 21 days of fermentation without stirring, 23.33 ppm cordicepine was determined, and in the liquid culture with RTH, 29.72 ppm cordicepine was determined.

(B-13) INFLUENCE OF TEMPERATURE AND PH LEVEL ON MYCELIAL GROWTH IN LIQUID CULTURES OF *CORDYCEPS MILITARIS* MUSHROOM MYCELIUM

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Medicinal mushrooms are an important source of biologically active principles. One of the traditional Chinese medicinal mushrooms is the *Cordyceps militaris* mushroom. This entomopathogenic fungus belongs to the Ascomycetes class and has important pharmacological principles, the most important are polysaccharides and mannitol. Given that in most cases, mushrooms are grown on different substrates of solid consistency, and most supplements containing mycelium from the *Cordyceps militaris* mushroom are obtained by drying and shredding the mycelium, which has been grown on a solid substrate consisting of brown rice flour or other cereals, so that they very often contain more starch than active ingredients. Taking into account the development of modern biotechnologies for the production of fungal biomass, in this paper we looked at the influence of temperature and pH level on the growth of the mycelium of this mushroom in liquid culture media. The development of liquid mycelium cultures was tested at temperatures between 20-30 °C and at a pH level between 5-7. The highest amount of mycelium was obtained from samples raised at 26 °C and a pH level of 5.5.

(B-14) THE ASSESSMENT OF CYTO/GENOTOXICITY OF WATER BOTTLED IN POLYETHYLENE TEREPHTHALATE (PET) DEPENDING ON STORAGE CONDITIONS BY ALLIUM TEST

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European legislation (Regulation No. 10/2011) regulates the safety precautions related to plastic packaging for foodstuff. Although manufacturers would comply, several studies have reported the presence of cytotoxic compounds (formaldehyde, acetaldehyde and antimony) in PET bottled water. These toxic products can migrate from PET in the liquid at high temperature. This study evaluates the effect of storage conditions on water quality analyzing the cito/ genotoxicity by Allium assay, also approached the water storage at temperatures below 0 ° C. Experiment using one of the most popular brand of bottled water in Romania in two versions: natural spring water (NSW) and natural sparkling mineral water (NSMW). As control variables were used double-distilled water and tap water. The thermic treatment was for 72h in three variants: - 18 ° C (freezer), (F), + 50 ° C (thermostat), (T) and Control (C) - room temperature 22 ° C. As biological material same size Stuttgart onion bulbs were used (3.0 ± 0.2g). Rhisogenesis and caulogenesis processes have been registered by observations performed at 3, 7, 10 and 21 days. For cytogenetic analysis roots were harvested 48h hours after experiment initiation. Cytogenetic analysis were carried out on 10 root tips /variant, 1000 cells/slade (root tip). There were registered normal and aberrant cells in mitosis (mitotic index was also carried). F and T experimental variants induced a significant reduction of analyzed growth parameters, decreased the mitotic index, and induced a significantly higher percentage of cells with chromosomal fragments and single or multiple bridges. The percent of cells with one or more micronuclei increased as well. The effects were significantly more dramatic in NSMW than in NSW variants. Storage conditions are very important for PET bottled water quality. High temperatures, as well as very low temperatures may favor release of cytotoxic compounds from PET in water.

(B-15) INFLUENCE OF THE EXTRACTION PARAMETERS OF ANTOCIANES FROM THE FRUITS OF *ARONIA MELANOCARPA* (MICHX.) ELLIOTT IN THE EXTRACTION ASSISTED WITH ULTRASOUND. PRELIMINARY RESULTS

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In recent years, more and more studies have highlighted the potential of fruits of *Aronia melanocarpa* (Michx.) Elliott for the pharmaceutical and cosmetic industry, due to the high content of polyphenols and anthocyanins. Currently, the use of agricultural production of *Aronia melanocarpa* is mainly done through the use of fruit juice or powders in the food industry.
In the present study we set out to achieve a superior route of fruit valorization by obtaining extracts for the pharmaceutical and cometics industry.
For ultrasound-assisted extraction, *Aronia melanocarpa* fruits were pre-processed (drying, grinding, sieving) and then subjected to ultrasonic-assisted solvent extraction.
The study carried out in this phase of the experiment followed the influence of the concentration of the solvent (water/ethanol ratio) on the anthocyanin content and the chromatographic profile of the extract. The chromatographic profile was obtained using the HPTLC method.

(B-16) RESISTANCE\TOLERANCE OF SUNFLOWER GENOTYPES TO BROOMRAPE UNDER ARTIFICIAL CONDITIONS

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The current trend, in sunflower breeding is to obtain sunflower hybrids who are adapted to climate change, resistant to drought, resistant to broomrape attack, resistant to herbicide CL+, SU-CL+, resistant to downy mildew. Broomrape is a biotic factor who adversely affects seed yield of sunflower and this parasitic plant, is present with the new races, especially in area cultivated with sunflower from Romania, in Brăila county, in Tulcea county and Constanța county. We tested under artificial conditions, in Fundulea, in the spring of 2020, the male and female sunflower lines derived from interspecific hybridization, for resistance to broomrape collected in years 2014, 2017 and 2019 from Braila area and broomrape collected in year 2019 from China, from region Inner Mongolia. Interspecific hybridization between cultivated sunflower and wild species of genus *Helianthus*, gives us the possibility to create new sunflower genotypes with resistance to parasite *Orobanche cumana*.
In this study there are differences regarding the degree attack of broomrape from year to year.

(B-17) CENTRIFUGAL PARTITION CHROMATOGRAPHY (CPC) – A NOVEL METHOD OF SEPARATION AND PURIFICATION OF NATURAL PRODUCTS - A SHORT REVIEW

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As technology has evolved, the field of liquid chromatography has developed, bringing new, alternative and high-level methods of separation, isolation and purification of the natural products present in the natural plant extracts, replacing the traditional chromatographic methods. In this direction, until now, it has been observed that the Centrifugal Partition Chromatography (CPC) presents a high precision in isolating the individual compounds. Thus, we chose to study this topic in the present review. Currently, there is a growing interest in the use of CPC in the sustainable isolation and purification of cannabidiol (CBD) from Cannabis plants due to the extensive medical benefits of cannabis compounds (i.e. epilepsy, multiple sclerosis, etc.); atractylenolide I, selina4(14),7(11)-dien-8-one and (6E,12E)-tetradeca-6,12-diene-8,10-diyne-1,3-diol diacetate from *Atractylodis Rhizoma Alba*; xylindein from *Chlorociboria aeruginosa*; mangiferin from *Anemarrhena asphodeloides Rhizomes*, diphlorethohydroxycarmalol and octaphlorethol A from *Ishige okamurae*; Caulerpenyne from *Caulerpa taxifolia*, etc., most of them with antitumoral activities. Therefore, the challenge of the researchers is to obtain natural compounds through optimization protocols (including columns, sample properties in the solvent system, physical properties of the stationary and mobile phase, parameters of the instrument, etc.), saving time and in an economically cheaper manner. In conclusion, it can be stated that CPC is superior to the traditional methods, extracting compounds faster with high purity (99%), with a higher recovery rate (95%); also, it is environmentally sustainable, contributing efficiently to the pharmaceutical industry development.

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(B-18) HAEMATOLOGICAL BIOMARKERS IN DIFFERENT EXPERIMENTAL INTOXICATIONS IN PERCH

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Haematological parameters reflect the condition of fish much faster than determining other parameters because they change extremely quickly as environmental conditions change, which is why they are widely used to describe the health of fish. Haematological and biochemical parameters can be used as standard laboratory tests to determine the effects of metabolic disorders caused by the action of xenobiotics. The purpose of this paper is to investigate changes in haematological parameters (erythrocytes, leukocytes, blood glucose levels) in perch *Perca fluviatilis* Linnaeus, 1758 - in experimental intoxications with phenols (0.01 and 0.001 mg/l), ammonia (0.01 and 0.001 mg/l), some pesticides (Talstar One, Tilt 250 EC, Roundup® - in concentrations of 0.01 and 0.001 ml/l water) and two heavy metals (Cu and Pb, in a concentration of 0.01 and 0.001 mg/l). The tested substances produced changes of the mentioned parameters, the intoxications being followed, in most cases by the decrease of the average number of erythrocytes and the change of the glycaemic level.

(B19) HUMAN PAPILLOMAVIRUS INFECTION IN WOMEN FROM CÂMPULUNG AREA, ARGES COUNTY, IN 2018-2019

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Human Papillomavirus (HPV) infections in women can occur from benign disease to malignant growth. These infections are sexually transmitted diseases. We both try to understand the HPV oncogenesis on the cervical epithelia and to prevent the cervical cancer through treatment of precancerous lesions.
So, it is very important the early diagnosis of this disease because of its incidence and its malignancy potential.
The aim of this paper was to establish the incidence of HPV infections in women from Campulung area and the distribution of cases according to their age and residence. The diagnosis of HPV disease was established by multiplex PCR. The incidence of HPV infection was 13.57% (out of 258 patients), the most frequent HPV genotype was type 16. The results were correlated with histopathological diagnosis. Regarding the age and residence distribution, the most cases were occur in women aged 31 - 40 (48.57%) and in women from rural areas.

(B-20) INVASIVE INSECT SPECIES IN PITEŞTI (ROMANIA)

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In recent years, in conditions of dry summers and mild winters, many species of invasive insects have been observed in Piteşti, a town located in the central southern region of the Wallachian hills of Romania, with a temperate climate. These species have entered on the western or eastern route of our country and are in full expansion of its area. Most species belong to the Hemiptera order, and from a trophic point of view, most of them are polyphagous. Among these species, *Metcalfa pruinosa* (Say, 1830) and *Nezara viridula* (Linnaeus, 1758) have been noticed for the first time in 2014, another species, *Corythucha ciliate* (Say, 1832), is observed in the parks in 2018, and in 2019, the Asian tiger mosquito, *Aedes albopictus* Skuse, 1894, is found in shadowy habitats. All the species identified in our town were highlighted by high densities of individuals in specific habitats. This paper presents a few observations regarding their biology and ecology in this new area.

(B-21) *CENTAUREA BORYSPHENICA* – RARE ENDEMIC UKRAINIAN PLANT

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Island Khortica is a Ukrainian National Reserve Park and have a large number of plant species. They need more close investigation - flora of island Khortica still not described all in all. So, study of the species from natural plant communities at the island are actual and going all the time. Study was conducted according to the all-known methods. *Centaurea boryspenica* Gruner is a species from *Asteraceae* family. *Centaurea* is a genus that consist of between 350 and 600 species. Some of them, especially in the Europe are endemic and endangered at this moment. And *Centaurea boryspenica* one of that. This plant is endemic for the territory of the river Dnipro banks only. This species is in Plant Red List of Ukraine and Zaporizhzhia region. They grow at the steppacea region of the island. Plants have a light-violet with white parts inflorescences, deeply divided leaves, a long and strong taproot. This plant is a very good honey plant and this species plays a very important role as a food for many insects. Its blooming at the end of the summer (August) and it gives a possibility for bees take a nectar for the producing honey for the winter months.

(B-22) ALTERNATIVE TEST METHOD FOR RAPID SELECTION OF MICROALGAE COLONIES WITH LOW STARCH CONTENT

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There is a growing interest in the selection of microalgae cells rich in oil inclusions, which could be further used as sources of lipids for biodiesel production or for nutritional purposes. One way to select this type of cells is to select low-starch colonies, the presence of starch (polysaccharides, in general) inclusions being often correlated with the presence of a large number of oil inclusions. The results obtained in our previous experiments in which we used iodine as a specific label for the starch content, allowed us to attempt the developing of a new selection protocol, without having to use replica plate method, which is time and material consuming. Our approach is based on the use of different dyes, more or less specific for polysaccharides, as markers for colonies with lower and higher starch content. Several dyes were used, as well as several ways to enrich the contact between the specific dye (at different concentrations) and the cells in the test colonies. This selection could also be useful for the selection of different microalgae suitable for wastewater treatment.

(E-01) RESTORATION OF EUTROPHIC PONDS BY UNICELLULAR ALGAE

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Eutrophication of ponds has become a serious challenge in last few decades. The body of water becomes overly enriched with nutrients which leads to excessive growth of phytoplankton, resulted in water oxygen depletion, decrease in biodiversity and pond ecology. In the urge of sustainable development, preventive steps need to be taken for the restoration of ponds. The present study is focused on various aspects of rehabilitation of pond water. The idea is to design a portable, low cost photo bioreactor which helps in restoration of water with the help of fast growing unicellular algae. The nutrients like phosphate and nitrate are utilized from eutrophic water for algal growth and hence resulted in clean water and water can be released back into the pond. In this experiment, unicellular algae, namely *Chlorococcus sp.* & *Chlorella vulgaris*, were grown in photo bioreactor. The photo bioreactor was optimized for consumption of phosphate and nitrate for algal growth and was correlated with minimum time taken for water remediation. The amount of phosphate removed by *Chlorella vulgaris* and *Chorococcus sp.* was 68.56% and 28.21% respectively in 24h, whereas 30.49% and 41.62% nitrate removal being achieved. It is estimated that around 2-3 cycles required for restoration of highly eutrophic pond.

(E-02) THE ASPEN (*POPULUS TREMULA* L.) FROM THE SOUTHERN CARPATHIANS

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Within the Carpathians, the Southern Carpathians are located in the South part and contains the largest number of peaks situated at over 2500 meters altitude. Aspen (*Populus tremula* L.) is a pioneer species with a rapid growth, usually found in the temperate and boreal areas from Eurasia. In our country, the species is present in hill and mountain areas, up to 1600 m in altitude and in mixture forests. This species does not react well to drought even though it vegetates well on slope fields with salty soils as well as on those relatively rich in nutritive substances, on poor, oligo basic or acid soils.
The purpose of this article is to analyse aspen strands from the Southern Carpathians from the point of view of site and growth conditions. In order to achieve this, we have used data from forest management plans realised during 1982 - 2006 for 35 forest districts located in this area. The stand and site characteristics that were analysed were the following: location, pruning, current growth, production class, structure, slope, exposition, altitude and forest type. The surface occupied by aspen stands in the Southern Carpathians is of 2302 ha, with the majority located in the southeast part. Aspen stands from this area are characterized by a mixt or intimate mixture, low pruning, current growth of 0.4-0.8 m^3/year/ha, medium and inferior production classes, and an even-aged, relatively even-aged and relatively uneven-aged structure. They vegetate on fields with a high or very high slope, at average altitudes between 700 and 1100 m, in mountain common beech stands or fir, Norway spruce and common beech mixtures.

(E-03) PLANTS FROM JEPI MOUNTAINS, BUCEGI, PRESENT IN "ALEXANDRU BELDIE" HERBARIUM

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The present article describes the plants collected from Jepi Mountains area (Bucegi) and present in one of the most important Romanian herbarium - "Alexandru Beldie" Herbarium from "Marin Drăcea" National Institute for Research and Development in Forestry. The article presents the studied material, the number of vouchers with species harvested from this area as well as some characteristics of this great plant collection. The most important species collected from Jepi Mountains are also mentioned, with an analysis of their characteristics: the collection's creation period and the plant's harvesting periods. The plants collected from this area belong to 54 different genera. Most of them belong to Hieracium and Gentiana and were collected during the last century, starting with 1900 and ending in 1999. The found genera were systematized, with an emphasis on the most representative ones. Furthermore, the specialists that had an important contribution for the representation of Jepi Mountains within the herbarium are also mentioned and honored.

(E-04) APPEARANCE OF *TIBICINA HAEMATODES* (SCOPOLI, 1763) IN THE SCIENTIFIC RESERVE „PLAIUL FAGULUI", REPUBLIC OF MOLDOVA

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The present study is addressed to the recent expansion of Red Cicada - *Tibicina haematodes* (Scopoli, 1763) to the Scientific Reserve "Plaiul Fagului" in the Republic of Moldova. This is the largest cicada in the country, with a body length longer than 3.5 cm.

The species prefers dry, warm habitats, like vine-hills. The main damages are caused by nymphs that feed on root sap, especially of *Quercus*, *Fraxinus*, *Ulmus*, *Acer*, *Pinus*, *Prunus*, *Malus*, *Pyrus*, *Vitis* and other plants. The secondary damages are represented by the scratches formed on the young shoots of trees of different ages by female oviscape in the period of oviposition. These injured branches represent the gateways for infection to various pathogens. Due to these wounds the branches can break, under its own weight or because of the winds. Also, in the next year, after the egg laying take place a decreases or even a slowdown in the growth of the twigs. The crown of the affected trees is rare; the leaves are smaller in size and yellow-pale in colour.

For the first time *Tibicina haematodes* was identified on the Republic of Moldova in 1958 on the territory of the former Parcani Forestry Enterprise, in the south region of the country. In 1960 and 1963 the Red Cicada were massively observed in the Bender Forestry Enterprise.

As a result of multiannual monitoring of the forests in the Republic of Moldova was established the areal of spread and damage caused by *T. haematodes* in the south region up to Nisporeni district. At present, the Red Cicada extended its spread area to the central region of the country, being observed in the Scientific Reserve „Plaiul Fagului" in 2018. Ash trees from this reserve have been weakened due to stress caused by climatic factor and repeated defoliation over the last ten years by Ash weevil (*Stereonychus fraxini* (De Geer, 1775)). At present, due to the influence of the biotic and abiotic factors ash trees become extremely vulnerable to cicadas attack. In the near future, the effects of the above-mentioned factors and these two ash insect pests will cause an irreversible weakening of trees from this reserve.

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(E-05) PHENOLOGICAL ANOMALIES AND OTHER CURIOSITIES REGARDING THE NESTING OF BIRDS FROM THE WESTERN HALF OF ROMANIA

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The paper presents the researches about the phenological anomalies and other curiosities regarding the nesting of birds from the western half of Romania during 1996-2020. These anomalies and curiosities were observed at 36 bird species belonging to 31 genera. The majority of these data are not mentioned in the scientific literature. During the analyzed period the following phenological anomalies and other curiosities were founded: additional clutches at 13 species, premature generation at 1 species, delayed generations at 1 species, copula and mating rituals in the cold season at 2 species, additional number of eggs in a clutch at 5 species, confirmation of additional generations at 2 species, little number of eggs at 1 species, curiosities regarding the location of the nest or its height relative to the ground at 6 species, additional generations (with chicks) at 15 species.

(E-06) NEW PHENOLOGICAL ANOMALIES REGARDING THE FLOWERING OF SPONTANEOUS AND CULTIVATED PLANTS FORM DIFFERENT PARTS OF ROMANIA

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The paper presents new observations about the phenological anomalies regarding the flowering of spontaneous and cultivated plants from different parts of Romania, during the period 2010-2019. The consequences of global warming, these anomalies have become more proeminent particularly in the last eight years (2013-2019) being observed in 36 species of spontaneous and cultivated plants. Flowering extension were observed, sometimes even supplementary flowerings, fecundation and even fructification, in the cold season (November-December) and are due to the positive temperatures from the cold season and the high temperatures from spring. Most phenological anomalies were observed in the following botanical families: Rosaceae (7 species, 19.44%), Lamiaceae (5 species, 13.88%), Asteraceae (4 species, 11.11%) and the least anomalies were observed in botanical families: Corylaceae, Papaveraceae, Caprifoliaceae, Hippocastanaceae, Aristolochiaceae, Brassicaceae, Geraniaceae, Primulaceae, Caryophylaceae, Solanaceae, Vitaceae, Cannaceae, Magnoliaceae with 1 specie (2.77%).

(E-07) DEVELOPMENT OF RECYCLABLE AND BIODEGRADABLE FOOD PACKAGING MATERIALS – OPPORTUNITIES AND RISKS (A CASE STUDY)

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In recent years the development of new recyclable and biodegradable food packaging systems has been greatly increased, because currently raw material used in the food packaging industry is mainly plastic, a non-biodegradable and not so easy recyclable material. The packaging industry is the largest single end-user for plastics globally, and about 100 million tones of plastic materials are used annually worldwide. Polyethylene (PE), polypropylene (PP), polystyrene (PS), and polyethylene terephthalate (PET) are the most used petrochemical-based plastic materials used in the food packaging industry, the main advantage of these being the low production price, however, the recycling and reuse rate being very low. Biodegradable polymer materials such as polylactic acid (PLA), polyhydroxyl alkanoate (PHA) and polyhydroxyl butyrate (PHB) are increasingly used in the food packaging industry due to their capability to biodegrade which leads to benefits for the environment preservation. This review will describe current status of existing petrochemical-based plastics and their capabilities to be recycled and the newly developed biodegradable food packaging materials explaining which are the opportunities and which are the risks of it for a better sustainability of our life.

(E-08) WATER QUALITY ASSESSMENT THROUGH CYTOGENOTOXIC PARAMETERS – A CASE STUDY OF KARAÇOMAK RIVER, TURKEY

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In the present study, the water quality was determined through cytogenotoxic endpoints by *Allium cepa* L. assay. Water samples were collected from nine sites selected according to the pollution level and large water discharge points into the Karaçomak River, Turkey. All of the tested water samples had a significant mitodepressive effect on the root tip cells of *A. cepa* L. They induced a significant increase in chromosomal aberrations like stickiness, anaphase bridges, laggards, and nuclear anomalies, i.e. binucleate cells, giant cells in vitro. It is suggested that the findings of the present study are very important to mitigate the environmental impacts caused by industrial operations on human and ecological health.

(E-09) PLANNING AND USE OF AREAS INFESTED WITH INVASIVE PLANTS: CASE OF LATVIA

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Sustainable development of national economy is based on the reasonable use of natural resources. Increase area of uncultivated agriculture land is one of the risk factors of land degradation in Latvia. Land degradation prevention measures, including restriction of invasive plant species, are carried out to fulfil overall interests of the society. In conditions of globalization, previously unknown plants purposely or accidentally propagate into Latvian environment, and their proportion is increasing. Many of these species are growing, multiplying and spreading rapidly in our climate, displacing native species, causing significant biological pollution and becoming dominant. Such aggressive species are called invasive. They have become a serious problem in natural ecosystems, creating problems for the protection of native plant species, preserving the visual value of traditional landscapes, and causing significant economic damage to the economy.
The aim of research is to analyse indicators characterizing abandoned economic activity territory – spread of invasive plants, their limitation and elimination. Restoring brownfields can improve land use and quality of landscape

(E-10) CONTRIBUTIONS TO KNOWLEDGE OF GALL FORMATIONS IN ARGEŞ COUNTY

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This article presents the results of an ecological study carried out over two years (2018-2019) on the gall formations in the forest line located in the north-east of the city of Curtea de Argeş. The article presents information on the species identified, the type of distribution, the density, the effects of the attack. Most of the galls identified are produced by fungi, mites and insects. Because some species attack the same organs of the plant allowed me to calculate the degree of overlap of nichesusing the EcoSim programme. No such observations have been made in the area where the gall species have been identified. The nearest area, where a study on gall dipterans was conducted, is the village of Domneşti (1970). Although ten gall species have been found on shrubs and trees, only *Mikiolafagi* is the common species.

(E-11) RESEARCH ON THE STRUCTURE OF THE BENTHIC BIOCENCE OF THE OLĂNEȘTI RIVER

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The Olănești River is part of the Olt Basin, springs from the Căpățânii Mountains and flows in a south-southeast direction, flowing into the Olt River south of the municipality of Rm. Vâlcea, after covering a route of 38 km. It has as tributaries the following rivers: Stoica, Comanca, Cheia, Câinelui and Izvoarele Olănești.
Through this study we aimed to characterize the phyto and zoobenthic structure of the Olanesti River. In order to achieve the proposed goal, the following objectives were taken into account: identification of the taxa that make up the phyto and zoobenthic biocenoses; systematic classification of identified species; establishing the ecological spectrum of families and the relative abundance of macrozoobenthos species; establishing the saprob index and the saprobe value for each river sector studied. Following the research carried out on the Olănești River regarding the structure of the benthic biocenosis, 34 phytobenthic species belonging to Phyllum Bacillariophyta and 23 zoobenthic species were identified. The analysis of the ecological spectrum reveals the largest share in the Baëtidae family. The saprobic value for each station is below 1.65 indicating that the whole river is in the β-mesosaprobic zone, respectively the good ecological status.

(E-12) UAV AND MMS - MODERN, REMOTE TECHNOLOGIES, USED COMPLEMENTARY TO THE INVESTIGATION OF THE NATURAL ENVIRONMENT AND THE BUILT SPACE

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The aim of this study was to demonstrate the applicability and opportunity of the means and methods of remote sensing (MMS) and photogrammetry (UAV) in rendering faithfully, with very high accuracy and precision, the components of geographical space, "remotely", without a direct contact with the investigated objective. As a case study, a immobile consisting of a construction and the related agricultural land, located in a rural locality, was chosen. To investigate the targeted immobile, a flight with UAV equipment (DJI Phantom 4RTK) and a "ground" scan with MMS equipment (Leica Pegasus Backpack) was performed. After the acquisition and separate processing, the data obtained through the two technologies (point clouds, orthophotoplans or images), were analyzed and processed in a "combined" way, in this case being obvious their complementarity relationship. As both the drone and the scanner have incorporated GNSS and INS equipment, the data obtained are "in coordinates" and therefore the use of control points and the georeferencing operation is excluded. By combining these "remote" measurements, the detailed topographic survey (with GPS and total station) is replaced and by 3D analysis all the details from the outside, but also from inside the plot are captured. By creating the orthophotoplan, the way of land use, aspects related to vegetation or the way of arrangement can be analyzed. The equipment used and the working methodology "experienced" in this study can be applied in any type of space or for any purpose.

(E-13) INFLUENCING FACTORS IN OBTAINING NANO-ARCHITECTURES BY "GREEN CHEMISTRY" APPROACHES

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With the advances in the nanotechnological area, new products processes emerged on the market, thus defining an entire new research field. Given the increasing use of nano-compounds, several questions have been raised: does those emerging products present any hazards for the environment and / or for human health; are microorganisms capable to develop resistance to antimicrobial metal nanoparticles? and is there a risk of increased bacterial resistance accompanying their widespread production and use?
In order to answer the above questions, we propose an innovative approach to obtain medical devices, in the form of patches, with antimicrobial action, based on metallic nanoparticles (for example Au, Ag, Cu) obtained by phytosynthesis from extracts of native plants, which will be encapsulated in a new three component composite material. Thus, as defined by the Council of the European Community in Directive 93/42 / EEC, these medical devices in the form of non-invasive patches will be developed to be used for their therapeutic properties and obtained by "green chemistry" methods. The present work describes the steps which influence the morphology and properties of the obtained nanoparticles from the "green chemistry point of view".

(E-14) APPLICATION OF APATITIC MATERIALS FOR WATER DEPOLLUTION – PREVIOUS EXPERIENCE AND NEW MATERIALS DEVELOPMENT

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The depollution of water resources represents an increasing interest all over the world. Different types of pollutants (including, but not limited to heavy metals, pesticides, industrial dyes or pharmaceutical substances) are present in the water effluents, causing adverse effects on the environment and on human health. Although different approaches are available to remove these pollutants, the adsorption process present several advantages, such as the low energy consumption and the lack of hazardous secondary compounds. Among the different adsorbents used in this process, apatitic materials could be considered a viable alternative, as they are easier to produce and could be tuned not only to successfully remove the targeted pollutants, but could also incorporate different phases (such as a magnetic phase), which could make them easier to apply in real-life conditions. The aim of the present paper is to present our own results and experience in the area of apatitic materials used in depollution studies.

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(E-15) COMPARATIVE DETERMINATION OF PHENOLIC CONTENT AND RADICAL SCAVENGING ACTIVITY OF THE BALKAN ENDEMIC PLANT *STACHYS SCARDICA* GRISEB DURING THE PROCESS OF *EX SITU* CONSERVATION

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Stachys scardica is a Balkan endemic plant included in The Red Data Book of Bulgaria with conservational status "endangered". The plants from genus *Stachys* have long history of use in ethnomedicine under the form of extracts, decoctions, ointments for the treatment of inflammatory diseases, sclerosis of the spleen, genital tumors, coughs, ulcers and infected wounds. There is no data on *ex situ* conservation of *Stachys scardica* and scarce information is available about its chemical composition and biological activity. In the present work we aim to develop an effective protocol for *ex situ* conservation of *S.scardica* and comparative determination of the radical scavenging activity and phenolic composition of extracts isolated from *in situ*, *in vitro* cultivated and *ex vitro* adapted plants. *In vitro* shoot cultures were induced from ripe dried seeds, collected from *in situ* growing wild plants and multiplicated on basal MS medium. Regenerated plants had well developed above ground parts and root system but still poor growth index. Then the effect of different concentrations of 6-benzylaminopurine (BA) on the *in vitro* multiplication of the species was examined. All tested concentrations of BA stimulated shoot development in *S. scardica* but most effective were 1.0 mg/L and 1.5 mg/L. *Ex vitro* adaptation was accomplished in greenhouse and experimental field with 92 % survival. The highest phenolic and flavonoid content as well as antioxidant activity was established in *in situ* plants followed by *ex vitro* adapted and *in vitro* cultivated *S. scardica*. The maximum

inhibition of the DPPH-free radical was 80 % followed by 70 % at 100 µg/ml extract from *in situ* and *ex vitro* cultivated plants respectively. The highest ferric reducing ability was observed in *in situ* plants followed by *ex vitro* adapted plants. Different growth conditions affect the phenolic quantity and antioxidant activity of *Stachys scardica*. A collection of *in vitro* cultivated and *ex vitro* adapted plants was established which is an alternative approach for the preservation of this endangered species.

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(E-16) SPECTRAL VARIATIONS OF THE STAR HD 190073

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We have presented the results of spectral observations of the Herbig Ae star V1295 Aql, carried out in 2015-2017 at the 2 m telescope of the ShAO of ANAS. In 2015, a change in the radial velocities and equivalent widths of the emission component of the Hα and Hβ lines was detected with a characteristic time of about 40 days. The main variations in the profiles are observed on the wings of the hydrogen lines. In different years, there is a change in the activity of the star. We assume that the discovered phenomenon indicates the existence of a stable formation in the circumstellar space of the star HD 190073. A possible heterogeneity in the circumstellar disk may be the result of the existence of an asymmetric structure caused by the destroyed disk in a result of planet formation processes.

(E-17) ENVIRONMENTAL AND REPRODUCTIVE MONITORING IMAGO *AGROTIS SEGETUM* IN SEASONAL PATTERN

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Depending on the climatic conditions, the winter moth may develop from 1 to 5 full generations and under good living conditions one female can lay up to 2,000 eggs. During the growing season of one year, the aetological and reproductive monitoring of imago *Agrotis segetum* was carried out using light and pheromone traps. It was noted that, under the climatic conditions of the Republic of Moldova, the first years of butterflies and the laying of winter moths were observed in the third decade of April due to the onset of warm, stable spring temperatures. The pest develops in three full generations. The sex ratio of the pest was determined, with 57% of males and 43% of females. The reproductive capacity of the A. segetum population has been found to depend heavily on the sequence of generations. Thus, for the first generation the breeding potential was 25%, for the second generation - 24%, for the third generation - 51%. The most frequent (30% and 23%) were females mating with males two and three times, mating once - 20%, mating four times 14% and 3% mating 6 times. It was noted that the cycle of potential in-infestation times of large numbers of females coincided with mass numbers of females matching the main phases of soybean development are seeding, flowering and fruit formation.

(E-18) DOES BLACK LOCUST PERFORMS IN ANY FOREST SITES?

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Black locust is a non-native tree species introduced in Romania like an ornamental tree around 1750. One hundred years later the first plantation was established. The fast-growing capacity and apparently low ecological requirements made black locust so attractive that it was established not only in suitable sites but also in unsuitable sites, in these last cases with unsatisfactory results. Examples are stands with black locust from Razboinicu Working Circle, Forest District Strehaia. Data from management plans were analyzed for pure black locust stands and mixtures in terms of age, composition, regeneration pathway, and yield. More than 70% are pure stand, others are mixtures with oaks (Turkey and Hungarian oak) and other tree species like European hornbeam, field maple, European aspen, European ash, field elm. Stands older than 20 years are usually mixtures with a small percent of black locust. There are different regeneration pathways, stump stools, and root suckers in case of old stands, plantation for some the younger stands. The productivity is lower than the average national yield table for similar pathway.

(E-19) THE BENEFITS FROM THE GREEN INFRASTRUCTURE IN RELATION WITH EMISSION OF SUSPENDED PARTICLES (PM10) WITHIN THE MUNICIPALITY OF TIMIŞOARA

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Over the last 20 years, a major concern for urban areas has been the issue of air quality degradation. The increase in the quantities of emissions from different sources of emissions demonstrates the causality of the degradation (*EAA, 2019*).
In this context, the concept of "green infrastructure" has begun to be increasingly analyzed (*Benedict and McMahon, 2006*), it has a positive effect on air quality (*Nowak J David et al, 2006*), in particular it is reduced pollution with suspended particles by absorption and filtration of particles (*Nowak J David and Heisler M Gordon, 2010*).
We propose a methodology to highlight the benefits of the green spaces applied at the level of Timişoara Municipality, in which is used the internal variability of the green spaces (plant species, tree height, tree density) correlated with the spatial analysis of the dispersion of the suspended particle concentrations PM10, to highlight by a theoretical model the absorption of particles.
Following the calculations, it was estimated that the green infrastructure has a minimum retention capacity of approximately 0,01 % and a maximum of 10,39 % of the concentration of PM10 suspended particles, to which the green infrastructure is exposed. We mention that the article was made using non-confidential data presented in the Air Quality Plan for PM10 proposed in public debate on the website of Timisoara City Hall.

(E-20) PRIORITIZATION OF AIR QUALITY IMPROVEMENT MEASURES AT REGIONAL LEVEL IN ROMANIA

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Air pollution is a problem at local, regional and national level that is increasingly debated both nationally and internationally. Air pollutants emitted in a certain area can be transported into the atmosphere, contributing or even leading to a decrease in air quality in other areas. (EEA, 2008). Decreasing air quality can negatively influence the quality of our lives through the occurrence of serious health problems, in fact the relationship between air pollution and human health is one of the intense topics debated worldwide. (Lester. B. Wash and Eugene P. Seskin, 1977).
According to the World Health Organization, clean air is considered to be an essential requirement for human health and well-being, however despite all measures to improve air quality adopted at the national level, air pollution in Romania still continues to exceed limits and values. imposed in the Guidelines of the European Union and the World Health Organization (European Commision, Infringement decisions).
Methodological at national level according to Law no. 104/2014 regarding the ambient air quality in the areas and agglomerations classified under management regime II are elaborated plans for maintaining the quality of the air, thus at national level there are developed plans to maintain the air quality at the county level. In order to carry out this analysis, all the air quality maintenance plans elaborated at county level were used as data sources.
This paper aims to present the need to prioritize measures to improve air quality in Romania, taking into account the following selection criteria the type of source (stationary, surface or mobile, the effect of measures per unit time; the frequency of occurrence of the measure; the reduction of emissions per type of measure applied; the efficiency of the measure applied in order to reduce the effect on the source; Multi-Criteria Decision Analysis (MCDA).
In conclusion, based on the analysis of the selection criteria, we obtained a prioritization of the measures for maintaining the air quality at regional level in Romania.

(E-21) USING OF REMOTE SENSING AND GIS IN FOREST FAVOURABILITY AND DYNAMIC STUDIES. CASE STUDY

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Favourability classification for forest species represents a fundamental activity for deriving technological solutions in forestry, as specialists need detailed information about the ecological requirements of forest species from environmental factors: climate, pedological characteristics and morphometric characteristics of the study area. The purpose of the present study was the use of the qualitative data extracted from the ecological records for the most representative forest species and the generation of a complex geospatial database for the entire territory of Romania. In order to highlight the advantages of using satellite images for forest dynamics, their analyzes were made for periods of over 30 years for case studies at the level of the Mociar Forest (Natura 2000 reservation where there is the problem of oak drying) but also of the Southern Retezat (for dynamic analysis of shrub vegetation above the limit of the alpine zone). The developed spatial analysis model is based on the unitary analysis of the climatic, soil and geomorphologic components, spatially materialized as raster format databases, and their integration according to spatial analysis equations in order to get a modelled database which represents spatially the favourable areas for forest species as: *Abies alba*, *Acer pseudoplatanus*, *Carpinus betulus* and *Pinus mugo*.

(E-22) NATURAL HABITATS FROM PESCEANA FOREST (ROMANIA)

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A phytosociological study of the vegetation from Pesceana forest (Vâlcea county) is presented in this paper. The purpose of this study was to characterize two natural habitats 91Y0 Dacian oak-hornbeam forests and 91M0 Pannonian-Balkanic turkey oak-sessile oak forests. These natural habitats have a remarkable floristic structure, in some stations with representative populations of *Cephalanthera longifolia*.
The conservation status is not favorable, especially due to illegal logging which, in some areas, has favored soil erosion, the spreading of invasive species (*Erigeron canadensis, E. annuus, Ambrosia artemisiifolia, Robinia pseudoacacia, Phytolacca americana*) and the change of the specific floristic composition.
Some measures of conservation are needed to maintain a favorable status of conservation, such as: monitoring of forestry activities; banning the grazing in the forest; planting with native characteristic species in areas affected by deforestation; prohibition the collecting of biological material, especially orchid species; monitoring tourist activities; monitoring and control of invasive species.

(E-23) PHOSPHORUS REMOVAL PERFORMANCE OF SAND-PUMICE MIXTURES FROM WASTEWATER

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Operation, maintenance, monitoring and assessment works are not routinely performed in natural treatment systems (constructed wetlands) constructed in rural sections of Turkey for domestic wastewater treatment. Therefore, substrate material failures are experienced in many cases. In this study, phosphorus removal performance of different substrate materials (alone and in mixtures) was analyzed with filter column tests under laboratory conditions. Sand and zeolite substrate materials were used alone and in different mixture ratios (75%-255, 50%-50%, 25%-75%). Different phosphorus concentrations (8.5, 16.0 and 32.7 ppm) were applied to filter columns and saturated columns were subjected to different hydraulic retention times (1, 2, 3 and 4 day). Following the relevant hydraulic retention times, samples were taken from column outlets and samples were then analyzed for pH, electrical conductivity (EC) and total phosphorus (TP). While pH and EC values were within the discharge limits set in Water Pollution Control Regulation, total phosphorus concentrations at 40 ppm doses were above the limit values. Sand was found to be more effective in P adsorption from the wastewaters than pumice. Increasing P adsorption were observed with increasing sand ratios of the mixtures. It was proved that sand played a significant role in P adsorption and pumice was far away meeting expected performance in P adsorption.

(E-24) PHOSPHORUS REMOVAL PERFORMANCE OF SAND-ZEOLITE MIXTURES FROM WASTEWATERS

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When the wastewaters are discharged into receiving bodies without any treatments result in eutrophication in receiving bodies and exert significant treats on aquatic ecosystems because of high phosphorus concentrations. Thus, wastewaters should pass through a treatment system before to discharge them into receiving water bodies to reduce the phosphorus concentration below the allowed limits. In this study, phosphorus removal performance of different substrate materials (alone and in mixtures) was analyzed with filter column tests under laboratory conditions. Sand and zeolite substrate materials were used alone and in different mixture ratios (75%-255, 50%-50%, 25%-75%). Different phosphorus concentrations (8.5, 16.0 ve 32.7 ppm) were applied to filter columns and saturated columns were subjected to different hydraulic retention times (1, 2, 3 and 4 day). Following the relevant hydraulic retention times, samples were taken from column outlets and samples were then analyzed for pH, electrical conductivity (EC) and total phosphorus (TP). Present findings revealed that pure sand exhibited the greatest phosphorus adsorption, P adsorption of mixtures increased with increasing sand ratio and zeolite exhibited lower P adsorption. It was proved that sand played a significant role in P adsorption and zeolite was far away meeting expected performance in P adsorption.

(E-25) THE OCCURENCE OF SEVERAL INVERTEBRATE SPECIES FROM THE LEAOTA MOUNTAINS DEPENDING ON THE GEOLOGICAL SUBSTRATE, THE KIND OF ENVIRONMENT (EDAPHIC OR MESOVOID SHALLOW SUBSTRATUM), AND ZOOGEOGRAPHIC DISTRIBUTION

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Following complex research conducted over several years in the Leaota Mountains, 253 invertebrate taxa have been identified. We can say that for almost all taxa, their identification in the Leaota Mountains was made for the first time, this research being a first in this area. All taxa belong to the phylum Arthropoda, subphylum Chelicerata, Crustacea, Hexapoda and Myriapoda. Regarding the lower units of the subphylums, there are numerous classification systems and different opinions of some specialists; from the point of view of the zoogeographic distribution, we can notice too, some differences of opinion between specialists.

The taxa identified by us belong to the class Arachnida (order Araneae), class Malacostraca (order Isopoda), class Collembola, class Insecta (order Coleoptera), class Diplopoda and Class Chilopoda. The geological substrate of the ecological stations from where the faunal material was taken was of two categories, crystalline schists or limestones. Also, the depth was different: from the surface (shists /calcareous lithosol) or from the different depths in the scree (mesovoid shallow substratum - MSS). In the edaphic environment 199 species were identified and in the scree, at different depths, 136 species. From a zoogeographical point of view, the identified faunal elements consist of European species (107), Palearctic (31), Central-Eastern European (29), Holarctic (15) species; Carpathian endemics (16), cosmopolitan species (11), Euro-Asian species (11), species endemic to Romania (8), Euro-Mediterranean (7), Euro-Caucasian (3), East Asian (1), Alpine-Carpathian (1) and Eastern European (1) species. On the rather small territory of these mountains, the species identified until now have a different biogeographical origin and show that there is a remarkable biodiversity. This is generated by the different habitats that are found in the area, these having particularities of ecological factors that allow the hosting of various species with different biogeographical origins.

(E-26) THE INFLUENCE OF SALINE STRESS OVER THE GERMINATION PROCESS OF CUCUMBER SEEDS - *CUCUMIS SATIVUS*

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Soil salinity is a major factor that limits plant productivity, affecting nearly 95 million hectares worldwide (Szabolcs, 1994). Saline stress can be a growing threat in agriculture. The response of plants to salinity consists of numerous care processes must operate in the surroundings to alleviate cellular hyperosmolarity and ionic imbalance. Tolerance and yield determination are complex genetic traits, difficult to establish in crops, then stress can be reduced as a catastrophic episode, it can be possible to continue continuously or intermittently or it can be harder to stretch at any stage to provide plants.
The study looked at the influence of saline stress on the germination process of cucumber seeds. To perform the experiment, saline solutions were prepared in different concentrations: 0.5M and 1M, over which sea buckthorn extract (5 ml/l) was added. 18 repetitions were performed, 3 for each solution.

(E-27) PRELIMINARY INVENTORY OF FISH SPECIES FROM ROSCI0012 MĂCIN BRANCH AND TRAIAN LAKE NATURE RESERVE

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Between November 2018 and November 2019, an inventory was made concerning fish species and their habitats provided by ROSCI0012 Măcin Branch and protected area of national interest Traian Lake Nature Reserve. The fish species of community interest in the Standard Sheet of the ROSCI0012 Măcin Branch site are: *Cobitis taenia*, *Misgurnus fossilis*, *Pelecus cultratus*, *Rhodeus sericeus amarus*, *Aspius aspius*, *Gobio kessleri*, *Alosa tanaica*, *Gymnocephalus schraetzer*, *Sabanejewia aurata*, *Zingel streber*, *Zingel zingel*. The field activities for fish observation and collection were carried out in 17 stations located throughout the site, the distribution by habitat types being as follows: 2 stations in shallow waters in the dam-shore floodplain area, 2 stations in canals in the dam-shore floodplain area, 9 stations in the Măcin Branch channel, 2 stations in Traian Lake Nature Reserve, 2 stations in fish ponds. In field campaigns the number of fish species that have been caught and identified is 28 species, of which 4 are species of community interest, namely: *Aspius aspius*, *Rhodeus sericeus amarus*, *Cobitis taenia*, *Alosa tanaica*. The meteorological and hydrological conditions during the inventory period did not allow a good data collection. During May-June, the level of the Danube is increased, so many of the species' habitats are inaccessible. The data collected so far are not sufficient to assess the conservation status of fish species, and it is necessary to complete the database in future campaigns.

(E-28) PRESSURES, THREATS AND MEASURES FOR FISH SPECIES IN ROSCI0012 MĂCIN BRANCH AND TRAIAN LAKE NATURE RESERVE

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An essential component in the management of protected areas is the identification and realistic assessment of the pressures and threats that occur themselves in protected areas in order to eliminate the negative effects of activities with actual and potential impact. The difference between the terms pressures and threats is represented by the moment of their development in time, the pressures are manifested in the present and the threats can be manifested in the future. According to the reference portal for Natura 2000 sites, the nomenclature for these pressures and threats which acts on protected areas are grouped into 13 impact categories, from A to M. For the area from ROSCI0012 Măcin Branch and Traian Lake Nature Reserve, were identified 18 pressures (2 type B, 5 type D, 2 type E, 1 type F, 2 type H, 2 type I, 4 type J) and 7 threats (2 type H, 3 type J, 2 type K).
Based on the identified pressures and threats, were estimated 15 management measures (5 measures with priority 1, 3 measures with priority 2, 7 measures with priority 3) for maintaining the fish species in ROSCI0012 Măcin Branch and Traian Lake Nature Reserve in a state of favorable conservation.

(E-29) THE USE OF REMOTE SENSING METHODS FOR FIRE PROTECTION OF FOREST RESOURCES

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The forest is extremely important for humanity. Unfortunately, long-term analysis has shown negative dynamics of forest area changes in most countries and in the whole world, and one of the main reasons for this phenomenon is forest fires.
The purpose of the study is to identify whether remote sensing has any benefits for controlling economic activity and protection, especially in forest areas.
The practical value of research is that to substantiate the recommendations for applying remote sensing to increase efficiency of nature protection and economic activities in forests areas (using international experience, including Russia and Kazakhstan).
The results show that remote sensing may help to collect the required data which has the significance for developing the reaction strategy to the external threats and for minimising their impact on forestry.

(E-30) THE ROLE OF SEAWEEDS EXTRACTS AS ALLEVIATORS OF SALT STRESS IN CUCUMBER AND TOMATO PLANTS

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Natural extracts such as seaweed extracts or extracts obtained from different plant organs often enhancing growth, and ability to tolerate salt stress. Marine bioactive substances obtained from seaweeds are used for many years to improve plant physiological processes. Previous studies performed in the Plant Physiology laboratory of the University of Pitesti showed that seaweeds extract obtained from *Ascophyllum nodosum* decrease the oxidative stress produced by abiotic stress. In our research we investigated the response of cucumber and tomato plants treated with a seaweeds extract (SuperFifty product), under salt stress conditions (100 mM NaCl). SuperFifty is a concentrated extract of seaweed with strong antioxidant activity, which improves the productivity and development of root system. The two species behaved differently, showing a different sensitivity to the stressful action of sodium chloride. The seaweeds extract had a partial effect of reducing saline stress in both species.

(H-01) A POSIBLE MODEL FOR DEVELOPING ROMANIA'S HORTICULTURE ON THE HORIZON OF 2040 CASE STUDY: VEGETABLE GROWING

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In Romania, horticulture is an important economic branch through the production of vegetables, fruits, wine and table grapes, flowers and raw materials for the food industry. After 1990, in horticulture, like in other agricultural branches, there was a sharp decrease in production, as a result of the dissipation of areas, the ageing of fruit tree plantations and vines, etc. A certain revival of the horticultural sector begins in the last decade, but the average yields per hectare are, in many cases, much lower than in countries with advanced horticulture. Romania has imported horticultural products in recent years, mainly fruits and vegetables of around 1 billion euro. This papers done a SWOT analysis of Romanian horticulture (Strengths, Weaknesses, Opportunities, Risks), and is presented an updated situation of this sector. In the first part of the paper is presented target objectives of national horticulture for period 2021-2040: Development of new production capacities and/or modernization of existing ones and Quantitative and value increase in exports of horticultural products with a view to balancing the trade balance. In the second part of the paper is presented a case study for vegetable growing and some proposals for investments of this branch: New buildings solariums, warehouses, including conditioning and delivery facilities and modernization of vegetable farms in the field.

(H-02) BACTERIAL INOCULANTS FOR TOMATO SEED TREATMENT

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Tomatoes are important vegetables in Romanian greenhouse and open field production. Improving their growth is a continuous concern that begins with seed germination and seedlings production and covers all culture types, conventional and organic. Microbial inoculants are valuable products that can trigger both growth promotion and plant protection. This study presents the beneficial traits of some bacterial inoculants applied as seed treatment on tomatoes. The tested inoculants contain single strains or a mixture of two beneficial bacteria, *Bacillus amyloliquefaciens* and *Paenibacillus graminis*. These bacterial treatments improve several growth parameters such as: plant fresh and dry weight, root length and branching. Due to the biologic activity of these beneficial bacteria on plant growth, the mixed microbial inoculant offers similar benefits to a complex commercial fertilizer used for horticultural purposes.

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(H-03) OBTAINING OF SOME GRAFTED WATERMEL ON SEEDLINGS (*CITRULLUS* SCION X *CUCUMIS METULIFERUS, BENICASA HISPIDA* AND *LAGENARIA SICERARIA* ROOTSTOCKS)

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The watermelons are valuable vegetables, with big share in Romanian crops. The grafting is a vegetative multiplication method that induces or improves some qualities of the plants (vigor, resistance to soil diseases and pests, resistance to abiotic factors, quantity and quality of fruit production). The research aim has been to establish of the technological stages for producing of Dutch and Romanian scion and rootstock seedlings from *Citrullus lanatus* (scion) and *Cucumis metuliferus*, *Benicasa hispida* and *Lagenaria siceraria* (rootstocks), to obtain some compatible phenotypes to grafting. This research has been conducted in a greenhouse from the Horting Institute, Bucharest. The experience was carried out on a cultivars collection consisting from a Dutch watermelon scion (Baronesa F1 hybrid, Sugar baby type), two Romanian rootstocks (Kiwano and Zefir) and a Dutch rootstock (Pelops F1 hybrid). The scion and rootstock diameters have been correlated for manual grafting, cutting with a cotyledonous leaf and method by splice in silicone clip. The technological stages for obtaining of grafted watermelons have been established for the researched genotypes. These genotypic combinations (*C. lanatus* x *C. metuliferus, C. lanatus* x *B. hispida, C. lanatus* x *L. siceraria*) have been compatible for watermelon grafting in south area of Romania.

(H-04) CURRENT SITUATION OF THE HARMFUL ORGANISM *CLAVIBACTER MICHIGANENSIS* SUBSP. *MICHIGANENSIS* IN THE WORLD AND IN ROMANIA

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Among the phytopathogenic bacteria in plants it is also *Clavibacter michiganensis subsp. michiganensis*, harmful organism present in most tomato growing regions. The establishment of the dissemination area is carried out by starting monitoring programs that extend over several years. In Romania, such a program has been carried out since 2011. In order to establish the contamination with this bacteria, there are not enough phytosanitary controls carried out during the vegetation period. It is compulsory to carry out laboratory tests to establish precisely the presence or absence of this harmful organism in tomato crops. Thus, the counties in which the tomato crops are contaminated with the bacteria of interest could be determined and it could be taken the phytosanitary measures of prevention and control.

(H-05) DETERMINATION OF HAY YIELD AND QUALITY OF DIFFERENT ALFALFA (*MEDICAGO SATIVA*) CULTIVARS

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The aim of this study was to compare the hay yield and hay quality of different alfalfa (*Medicago sativa* L.) cultivars under Kayseri conditions. For this purpose, 16 different alfalfa cultivars (VERDOR, ÖZPINAR, VERKO, SÜNTER, KAYSERİ, SAVAŞ, GEA, ÖMERBEY, MAGNA-601, ALSANCAK, BAŞBAĞ, NİMET, BİLENSOY, MAGNUM-5, ELÇİ and GÖZLÜ) used as plant materials. Experiments were conducted in randomized blocks design with three replications in Kayseri province during the growing seasons of 2014-2015 years. The difference between the alfalfa cultivars in terms of yield and quality parameters were statistically too significant ($P \leq 0.01$). Current findings revealed that plant height varied between 55.75 and 84.83 cm, herbage yield between 5125.80 and 7388.96 kg/da, hay yield between 1349.30 and 1878.86kg/da, crude protein yield between 243.04 and 283.44 kg/da, crude protein ratios between 16.57 and 20.28%, crude ash ratios between %9.41 and %10.52,asit detergent fiber ratios (ADF) between 34.57 and 42.27% and neutral detergent fiber ratios (NDF) between 46.89 and 55.21%.GEA and ALSANCAK alfalfa cultivars were found to be prominent with green herbage, dry herbage and crude protein yield and these cultivars are recommended.

(H-06) GROWTH KINETICS OF SOME *SACCHAROMYCES CEREVISIAE* YEAST STRAINS FOR WINE PRODUCTION SELECTED IN DEALU MARE VINEYARD

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The fermentation process and the quality of wines produced are influenced by the characteristics of yeasts used in winemaking. The use of autochtonous or local selected yeasts to control must fermentations has become an increasingly common practice for obtaining typical wines for a particular wine region. The aim of the present study was to evaluate cell viability after reactivation and the growth rates of seven yeast strains, part from the yeast stock collection created at the Research and Development Institute for Viticulture and Enology Valea Calugãreascã, during 2007 – 2010 period. The strains were isolated from the grapes surface and during different phases of alcoholic fermentation and were identified by classical methods and by molecular biology techniques as belonging to Saccharomyces genus (data reported elsewhere). The fermentation kinetics were monitored by using two methods: 1. By monitoring the amount of carbon dioxide released during fermentation as the cumulative mass loss due to CO_2 evolution, until the weight losses of the samples were constant; 2. Performing the yeasts growth using the spectrophotometer, through optical density measurement at 600 nm. A very good correlation of the results obtained using these two methods was put into evidence. All strains completely finished fermentations within 12 – 16 days. Three of them exhibit a short lag phase and a good fermentation capacity making them suitable for use as starter in winemaking. The study will continue for this strains with the evaluation of metabolic features and then for the determination of sensory and pfysicochemical properties of wines obtained using these yeast strains.

(H-07) STUDIES ON THE VARIABILITY OF THE PRODUCTIVITY COMPONENTS IN A COLLECTION OF PAPRIKA PEPPER LANDRACES (*CAPSICUM ANUUM* VAR. *LONGUM*)

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The purpose of the study was to evaluate the variability of a collection of paprika peppers landraces, in order to use them in the breeding process. The study lasted two years. The biological material was collected from western Romania. The behavior of landraces is not constant from year to year. Zărand landrace was the most stable. They can be recommended as genitors the landraces: Craiva for fruit length (15.11 cm), Cermei for fruit diameter (3.06 cm) and fruit weight (38.30 g), Apateu II for the number of fruits per plant (22.26 fruits), Apateu II for fruits weight per plan (491.41 g). In respect of the drying efficiency was noted the Buzad landrece (over 20%). Considering the production of the plant and the efficiency in processing, for maintaining in the culture it is recommended the Apateu II landrace which has the highest fruit production per plant, the fruits being smaller. The variability within populations allows the selection to be applied, being medium or small for the size of the fruits and large for the weight of the fruit and the weight of the fruits on the plant. The studied collection is useful for breeding programs, but must be performed molecular analyzes.

(H-08) RESEARCHES ON THE MAJOR DISEASES AND PESTS AGENTS IN GRAPE VINEYARDS CULTIVATED IN A CONVENTIONAL AND SUSTAINABLE SYSTEM

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Sustainable viticulture is the development of a unitary concept of grape production and processing systems, in harmony with the economic and structural perennial of the viticultural terroir, the quality and safety of the products obtained. In this context, the paper aims to determine the pathogenesis and aggressiveness of harmful agents on varieties of vines (Cabernet Sauvignon, Negru aromat and Burgund mare) cultivated in a conventional and sustainable system. The research was carried out between 2015-2017, in Valea Calugareasca. The most widespread diseases in the experimental plantations: grapevine downy mildew, powdery mildew and gray rot showed a higher degree of attack in parcels cultivated in conventional systems (downy mildew: 3.7% GA, powdery mildew: 4.2% GA, gray rot : 1.8% GA). Of the total collected fauna, the abundance of harmful fauna was 75% in sustainable crops, and in conventional cultivated parcels the percentage recorded an increase from the sustainable 2%. The technological measures are applied correctly, depending on the specific climate of each wine year, together with strict monitoring of diseases and pests have mitigated the disruptive effect on others.

(H-09) THE USE OF UNCERTIFIED SEEDS IS A COMMON BUT DAMAGING AND DANGEROUS PRACTICE

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The main sources of primary infection for *Xanthomonas* spp. species, which cause the disease called bacterial spot of tomato and pepper, are infected seeds, as well as infected seedlings for planting. External contamination of seeds occurs when they are extracted from infected tomato and pepper fruits, when bacteria adhere to the surface of the seed, while inside the seeds, bacteria enter through the vascular elements in the fruit phase and the disease spreads to all plants organs. Bacteria can survive on and inside the seeds for a very long time, from a few months to 10 years, and plants that grow from infected seeds, even if initially are asymptomatic, when favorable conditions for the development of phytopathogens are met, such as heat and humidity, it begins to show symptoms of the disease.
Seeds kept by farmers from contaminated tomato and pepper crops and used as propagation material in the following years increase the danger of the spread of this phytobacteriosis.
However, seed treatment is not enough in the fight to prevent the spread of the disease, being recommended field treatments with copper-based bactericides, as well as strict cultural hygiene.

(H-10) MONITORING THE ATTACK OF SOME SPECIFIC PATHOGENES TO SOME ORNAMENTAL PLANTS FROM DIFFERENT GREEN SPACES OF CRAIOVA MUNICIPALITY

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The research was carried out in the green area of Craiova, on the assortment of ornamental plants and aimed at monitoring the appearance and evolution of the spectrum of fungal pathogens, in the climatic conditions of 2019, a year poorer in rainfall compared to the average of the last 10 years.
The monitoring of the pathogens attack highlighted the presence of the attack of 18 phytoparasites specific for 12 species of host plants, 8 plants showing the attack of a single pathogen, 3 plants of 2 pathogens each and one plant was attacked by 4 pathogens. Most host plants have been attacked by specific pathogens, with the exception of dracila and mohonia which have been attacked by a single pathogen (*Microsphaerea berberidis*).
The most common diseases identified are in the category of stains being produced by fungi of the genera *Septoria, Phyllosticta, Sphaceloma, Diplocarpon, Cladosporium, Blumeriella, Venturia*, followed by those in the category of powdery mildew produced by species of the genera *Microsphaerea, Erysiphe, Sphaerotheca*, rot fungi of the genus *Monilinia* and rust produced by 1 species of the genus *Phragmidium*.

(H-11) INFLUENCE OF CLIMATIC, PEDOLOGICAL FACTORS AND SEVERAL TECHNOLOGICAL LINKS ON GRAPE PRODUCTION AND ITS QUALITY

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The researches were carried out in a vineyard grown with the red varieties, with experimental factors: the soil maintenance system (black furrow, total mulching with straws, partial mulching with marc compost, permanent herbage with grasses spontaneous flora). The experimental results obtained showed that under the ecoclimatic conditions specific to 2016-2019 period, characterized by a high heliothermic regime of low water resources, the experimental technological variants had a different impact on the quality of the grape production, expressed by the sugar content and the acidity. The estimation of the quality of red quality wines is done by dividing each component of the quality to the optimal values. The optimal quantity of grape production is obtained in the case of partial mulching with marc compost and total mulching with straws, the deviation from the optimal production (variety potential) being minor: 0.52, respectively 0.58%. The deviation from the optimal content of the sugar content and the total acidity of 11.2-12.8% was registered in the case of the soil maintenance variant by permanent herbage with grasses spontaneous flora.

(H-12) INFLUENCE OF FRUIT LOAD ON THE QUALITY OF GRAPE PRODUCTION AND EVOLUTION OF PHENOLIC COMPOUNDS DURING THE FERMENTATION MACERATION OF WINES IN DEALU MARE VINEYARD

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Two technological factors were taken into study: loadings: 20, 28 and 36 eyes/vine and the maceration-fermentation duration of the wine from marc, respectively 8 and 16 days. Feteasca neagra and Cabernet Sauvignon varieties, part of the basic assortment for the production of quality red wines, typicaly for Valea Calugareasca viticultural center, were used. The experimental results obtained have shown that the harvest was characterized by a high sugar potential accumulations of 225 g/l (Cabernet Sauvignon) and 219 g/l (Feteasca neagra). The total anthocyanin concentration was 530 mg/l in case of Cabernet Sauvignon variety and 476 mg/l at Feteasca neagra, and the total polyphenol accumulation was 2255 mg/l in case of Cabernet Sauvignon variety and 1633 mg/l at Feteasca neagra. Concerning the phenolic compounds mainly found in Feteasca neagra and Cabernet Sauvignon are: (+) - catechin and (-) - epicatechin from the group of flavonoids and gallic acid from the class of phenolic acids. The differences between Feteasca neagra and Cabernet Sauvignon wines are the result of a better extraction of the phenolic compounds, due to the longer contact time with the grapes and the seeds of the grapes.

(H-13) STUDY REGARDING VARIABILITY OF YIELD COMPONENTS IN SOME GRAPEVINE VARIETIES FOR WHITE WINE

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The purpose of the study was to evaluate the variability of some grapevine varieties for white wine in order to highlight the quantitative differences between these varieties. The study lasted two years (2017-2018) on the territory of Pâncota locality, Arad county, within the Miniş-Măderat vineyard, in the pedo-climatic conditions of that area. The experiment was organised as an experience located in completely randomized blocks, in three repetitions. The morphological characters involved in the production that were studied are: - the number of bunches per vine, the bunch weight, the number of berries per bunches and the production of bunches per vine. The highest number of bunches per vine was recorded in the Pinot Gris and Riesling Italian varieties, while the Traminer Rose variety recorded the lowest values of this character. The Muscat Ottonel variety recorded the highest values of the average weight of a bunch, the results being very significant positive. The Muscat Ottonel variety recorded the highest number of berries / bunches during the experimentation period. Muscat Ottonel achieved in this period the highest yields of 3027.10 g and significantly higher than the other varieties, with increases from 141.5% compared to Pinot Gris to 180% compared to Traminer Rose. In the Traminer Rose variety, lower values of production / vine were recorded, suggesting a specific adaptation of that variety to less favorable environmental conditions. As such, this variety can offer lower but constant yields against the background of unfavorable environmental conditions.

(H-14) RESEARCH ON THE BEHAVIOUR IN THE POLLINATION PROCESS OF AN OLD APPLE VARIETY "MĂR DULCE" IN HYBRID COMBINATION WITH THE VARIETIES "ORION" AND "BISTRIȚEAN"

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The scab is the most harmful apple disease caused by the pathogen Venturia inaequalis. It is found not only in biological or integrated productions but in all apple productions.
Consumers prefer the ideal fruit, without stains, very aesthetic, manufacturers want to prevent damage and breeders have a continuous mission to find and develop new varieties with increased resistance to scab to reduce the use of fungicides, at the same time, they are determined to find much cheaper and safer control measures.
Use of local old apple varieties, removed from the national culture, in the breeding process is one of the objectives of breeders, with their help, new varieties and hybrids are made to express a wide variety of genetic expressions of resistance to scab and other diseases.
In this article, was studied the behaviour of a local apple variety „Măr dulce" in the process of pollination with two valuable varieties that are found in the European assortment.

(H-15) STUDIES ON THE EXPRESSION OF MORPHOLOGICAL CHARACTERS OF SOME ROMANIAN PEACH VARIETIES

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In Europe, PPV (Plum pox virus) is by far the virus with the greatest impact on the Prunus genus and the most limiting factor in peach culture from economic point of view. The sharka virus is causing big damage and losses not only for apricot crops but as well for other Prunus species. Varieties with genetic resistance to disease are a priority objective in amelioration programs. Identifying new genotypes with natural resistance to PPV creates new premises and possibilities for obtaining varieties that better meet current and future requirements.
In this paper the peach varieties Alexia, Alex, Flacăra and Triumf, are initially evaluated for morphological characters, followed by the most important results to be proposed in spring in the new hybridization programs. Knowing the character's heredity, the behavior of parental forms in the selection process, the heredity of the new characters is the basis of the ultimate goal: obtaining improved varieties.

(H-16) MONITORING OF SOME *LEPIDOPTERA* SP. FROM APPLE ORCHARDS WITH THE HELP OF PHEROMONE TRAPS, IN CONDITIONS OF 2019 IN THE NORTH EAST AREA OF ROMANIA

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The experience was organized within the Research Station for Fruit Growing Iasi, at Fălticeni Development Center, into intensive apple plantation. As varieties were taken in account Jonathan, Golden delicious and Starkrimson grafted on MM106, planted at distances of 4 x 2.5 meters, as a form of crown shape palmette type. For the monitoring of the pests, traps with synthetic sex pheromones such as atraPOM, atraRET, atraBLANC were used for three *Lepidoptera* sp. from the apple plantation, namely*: Cydia pomonella* (L.), *Phylonorichter blancardella* (F.), *Adoxophyes reticulana* (Hb.). The first two monitored species showed large peaks of flight curves between May and August. The first hibernating larvae of *Adoxophyes reticulana* (Hb) were observed in the crown of trees of Golden and Starkrimson varieties, at April 14, during the leafing period. The first flight of the species *Cydia pomonella* (L.) was registered on May 9 and the flight of *Phylonorichter blancardella* (F.) butterflies was registered in mid-June. Insecticides were very effective in controlling these pests: Mospilan-0.03% (0.45kg / ha) for the pink bud phenophase (BBCH 57) and Reldan 22EC -0.15% (2.2l / ha) for fruit with a diameter 1 cm (BBCH 71) for the biological reserve of *Adoxophyes reticulana* (Hb.) larvae; Calypso -0.02% (0.3l / ha) and Coragen 0.15 l / ha for the second generation of *Cydia pomonella* (L.).

(H-17) EVALUATION OF BIOLOGICAL ACTIVE FORMULATES AND STRAINS FOR THE BIOLOGICAL CONTROL OF REPLANT DISEASE IN CITRUS

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Methods of controlling Phytophthora root rot are generally preventative, e.g., cultural practices and fungicide application to trunk and lower branches. When infection does occur, removal of the infected bark is recommended; however, bark removal diminishes tree performance and fruit yield. This technique is also laborious and uneconomical when attempted on a large scale.In present study was conducted to determine effect of some product of Bio-Formulates in citrus plants which protect from replant disease such as Phytophthora citropthora. At the end of the growing season, Plant Height were recorded for all trees in all experiments. The differences between average Plant Height, were found important statistically. And the highest differences were recorded from ISR200(31.4%). Endo Roots Soluble was the lowest one(3.6%). Also, T22 Planter Box took second high value(27.6%). Avarage trunk diameter measured at end of the growing season and showed Table 3. As obtained results from Product of Bio-Formulates, ISR200 was highest difference value(15.8%) with regard to trunk diameter. But Alexin got lowest value(0.6%).
ISR200 had the highest difference when compared with control plants with 34.7% difference value. Compain had the lowest difference value(0.5%) with regard to root dry matter content. Shoot dry matter content calculated after harvest and dried under 65 C in etuve. As obtained result, ISR200 had the highest difference value(60%), but T22 Planter Box had the lowest value(4.7%).

(H-18) EFFECT OF DIFFERENT TEMPARATURE AND MOISTURE ON DEVELOPMENT OF IN VITRO DERIVED BANANA SEEDLINGS

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Seedling development is important in vitro production. Sometimes, lots of in vitro plant materials have died under accilimisation. Humidty and temparature important factor during accilimisation of banana plantlets. But these factors have varied as banana cultivars. In this study, it si investigated effect of dıfferent temparature and moısture on development of ın vıtro derıved banana seedlıngs belong to two banana cultivars. In this study, Rooted seedlings which about 5-6 cm height were transgfered to peat:petlite media and they were grown under 22, 24, 26 C temparature and 70%, 80% and 90% humidty. Plant diameter(cm) and plant height(cm) measured weekly. Obtained results were analysed using EXEL program. Also, data analysed usingJUMP statistic program. As obtained results, Nefir Deniz cultivar had highest plant height under 80% humidty+26 C (8,26 cm) and lowest plant height was under 90% humidty+22 C (6,24 cm).

Nefir AZ banana cultivar had highest plant height under 70% humidty+22 C (9,53 cm) and lowest plant height was under 80% humidty+24 C (6,12 cm). 80% humidty+26C temperature is suitable For Nefir Deniz banana cultivar seedlig development. Also 70% humidty+22C temperature is suitable for Nefir AZ banana cultivar in in vitro banana propagation of these banana cultivars.

(H-19) APPLICATION OF PHYTOSYNTHESIZED NANOPARTICLES – FROM THEORETICAL STUDIES TO POTENTIAL LARGE-SCALE SOLUTIONS

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The research project "Development of vegetal extracts and innovative phytosynthesized nanostructured mixtures with phytotherapeutic applications to reduce biocenotic stress in horticultural crops", part of the complex project 6PCCDI "Increasing the institutional capacity of bioeconomic research for the innovative exploitation of indigenous vegetal resources in order to obtain horticultural products with high added value" (BIOHORTINOV) aimed to study the practical applications of the phytosynthesized metallic nanoparticles in the field of crop protection (focused on apple and grape-wine crops). The results (published in several scientific journals) led to an increase in visibility of the partners involved, while the practical applications (protected by three patent applications) opened an entire new area of research, that will be confirmed in the following studies. The aim of the present paper is to review the scientific and practical advances recorded during the three years of implementation, as well as the perspectives and future steps necessary to confirm our preliminary findings.
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(H-20) *TUTA ABSOLUTA* (MEYRICK; LEPIDOPTERA: GELECHIIDAE) – BIOLOGY, ECOLOGY, PREVENTION AND CONTROL MEASURES AND MEANS IN GREENHOUSE CROPS. A REVIEW

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Tuta absoluta (tomato leafminer) is a dangerous pest, difficult to control in tomato crops. It was originally reported in eastern Spain, at the end of 2006, subsequently spreading very fast throughout the Mediterranean basin and in various countries in Europe. In Romania, was first reported in 2009, in the North West area (Satu Mare), and a year later he was identified near Bucharest, in greenhouse crops. The larvae attack both foliage and fruit during all tomato growth stages. On leaves, larvae feed only on mesophyll, leaving the epidermis intact. They also penetrate into tomato fruits where they feed and grow, leaving behind mines and galleries. The species of vegetables from Solanaceae family are the main hosts of the pest. Control of *Tuta absoluta* infestations is difficult to achieve, because the larvae are protected in the leaf mesophyll or inside the fruits. Chemical control is the primary method to manage the pest, but there are also alternative methods of control, less polluting, such as: biological control through treatments with biological products, by releasing of parasites and predators, insect-proof nets, pheromone traps and so on. Treatments must be applied before the pest penetrates under the epidermis of the leaves or in fruits.

(H-21) DETERMINATION OF FORAGE YIELD AND QUALITY OF DIFFERENT SAINFOIN GENOTYPES

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This study was conducted to determine green herbage yield, dry hay yield, crude protein yield, ADF, NDF ratios, crude protein ratio, crude oil, crude ash and tannin ratios of 26 sainfoin genotypes were determined and superior ones were identified. Experiments were conducted in randomized block design with tree replications in 2017-2018 growing season. Significant differences were observed in investigated traits of the genotypes. Green herbage yields varied between 765.36 - 2737.25 kg/da, dry hay yields varied between 281.01 - 693.42 kg/da and crude protein yields varied between 48.96 - 133.34 kg/da. Crude protein ratios varied between 11.81 - 23.78%, crude ash ratios between 4.42 - 8.02%, ADF ratios between 37.12 - 56.76%, NDF ratios between 42.12 - 67.01%, crude oil ratios between 0.81 - 1.73% and condensed tannin contents varied between 1.35 - 5.78%. It was concluded based on present findings that EUOS1 genotype prominent with green herbage, dry hay and crude protein yields could be recommended.

(H-22) RESEARCH ON MAINTAINING THE QUALITY OF TWO HYBRIDS OF BELL PEPPERS AFTER HARVEST

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The importance of bell peppers and its share in the culture has increased greatly in recent years, due to the intensification of demand for this product on the market. In the technology of capitalization of fresh bell peppers, the achievement of an appropriate technological flow requires many specific technical and organizational specifications. At the same time, it is necessary to maintain the quality of the peppers during different transport periods, in normal or refrigerated conditions. In the technological flow of capitalizing on bell peppers, the transit period can be extended depending on the hybrid by 7-10 days in uncooled spaces and with 20-32 days in cooled spaces, by covering the products packed in boxes with polyethylene foil to achieve a relative humidity of almost 98%. Covering the boxes with polyethylene foil reduces weight loss during transport with 4.57% in uncooled spaces and with 1.29% in refrigerated spaces. In 30 days of storage, the content of vitamin C in the Belladonna F1 hybrid decreased by 24 mg and with 21 mg in the Blondy F1 hybrid.

(H-23) GEOPHYSICAL MAPPING OF SOIL PROPERTIES AND THEIR UTILITY FOR AGRICULTURAL FIELD MANAGEMENT

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Precision agriculture requires integrate Earth observation to optimize field-level management. Enhanced data on climate, soil characteristics, groundwater and biological risks to plant health are among the key elements for obtaining the best crop production.
This paper is focused on presenting geophysical investigation possibilities adequately adapted for top soil investigation and the data utility for agricultural field management.
The soil characterization commonly relies on laboratory analyzes of core samples or on point measurements (with specific sensors for pH, temperature, Cation Exchange Capacity-CEC, organic matter-OM and moisture content), that are not dense enough to accurately capture these parameters variation within a field. In such circumstances, there is the need to fill the gap with reliable data and this objective can be achieved by using geophysical techniques that are able to reflect part of the needed information for proper managing of the agricultural field. Ultimate data acquisition mode implemented for geophysical equipment (based mainly on induced electrical and electromagnetical fields) ensures a fast, non-invasive and non-destructive way for evaluating horizontal and in-depth distribution of several soil properties that are directly linked to its productivity: soil moisture content, soil salinity, soil compaction, variation of clay or sand content within a perimeter, etc. There are different technical solutions for agricultural soil survey, one of the best being related to the use of multi coil ground conductivity meters and galvanic contact resistivity systems which uses rotating steel coulters (disks) mounted on frames that can be easily pulled by ATVs or UTVs. In this way, there can be identified problem zones that need

specific tillage works or inputs to enhance the soil capability for sustain crop growth.

The geophysical methods tested in agricultural field management have proved their utility in assessing the following features:

- Estimating the soil volumetric water content in non-polluted soils
- Detecting changes in soil composition (like significant increased/decrease in sand or clay content)
- Evaluation of the soil compaction thickness
- Delineating the soil horizons depth and to trace their changes in thickness
- Imagining the frangipan layer and thickness characterization
- Delineating subsurface water accumulation zones and preferential flowpaths
- Locating buried water pipes as well assessing their integrity
- Locating buried drainage pipe systems
- Evaluating the efficiency of the irrigating system by observing the water accumulation zones, the saturated or dried perimeters within the same type of soil
- Evaluating the soil salinity as well the saline plumes extension
- Mapping flood deposited sand

Achieving such results requires a very good knowledge of the geophysical methods and equipments. Some of the geophysical methods may not respond well in certain soil types, therefore it is very important the selection of the used methods, selection of the operating frequencies (when is the case), the space between sensors as well the spatial distance between profiles.

Geophysical data, correlated to pedologic observations, CEC and OM data can lead to improving the farming practices in order to have higher productivity and to adjust, whenever it is possible and economically feasible, the soil properties to actually crop needs.

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(H-24) THE INFLUENCE OF THE STORAGE MOMENT ON THE PRESERVATION OF CURÉ WINTER PEARS VARIETY

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Of all the factors that influence the storage capacity of horticultural products, the time of storage in refrigerated conditions is of particular importance, because the delay in storage of fruits in refrigerated areas reduces their storage capacity and losses during storage increase. Taking into account that in current practice the increase of the period between harvesting and storage differs depending on transport and conditioning, we conducted research in pedoclimatic conditions on the Transylvanian plateau, on the influence of storage on the behavior of pears during storage. Curé pears harvested at the optimum time and stored within 24 hours of harvest, are generally better preserved, compared to the pre-stored fruits for 15 days at 9-12 °C temperature. The losses registered after 100 days of storage are on average by 7.3-14.1% lower, and the qualitative depreciations by 5.2-12.3%. Pears harvested 14 days earlier than the optimal time, behave better when stored if they were pre-store for 7 days at 9-12 °C.

(H-25) THE IMPORTANCE OF CROP WILD RELATIVES CONSERVATION FOR AGRICULTURE

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Nowadays, agriculture and food security face a number of threats and challenges. The main treats for agriculture sector are intensive technologies, soil degradation, water access, deforestation and urbanization, climate change and declining or threatened populations of crop wild relatives. Agriculture role is to ensure global food security for a growing population and to reduce the impact of agriculture on the environment. Crop wild relatives constitute an important source of plant genetic diversity and an important component of biodiversity. Wild relatives plants tend to be increasingly suppressed by intensive agriculture, deforestation and urbanization process. More than 20 wildlife species have been added to the red list of endangered plants by the International Union for Conservation of Nature. Commercial crops have lost their genetic diversity. They are vulnerable to the effects of climate change, drought, new pests and diseases. Currently, a series of initiatives and programs are implemented that have the role of conserving, monitoring and evaluating wild species. For instance, apple, pear, grapevine, wheat, rice and other species are included in conservation programs, both in the wild (*in situ*) and in gene banks or other *ex situ* measures and strategies. Also, crop wild relatives are part of plant breeding programs to create cultivars adapted to new habitats, such as at high altitudes, in the desert or in soils with low level of organic matter and biotic stress factors. Therefore, the importance of crop wild relatives conservation for vital for agriculture genetic resource, providing genes with improved nutritional quality, resistance to pests and diseases, resistance to abiotic stress factors, adapted to drought and extreme temperatures. *Ex-situ* and *in situ* conservation measures, propagation strategies, diversity analysis are essential to mitigate and adapt to climatic change effects and to preserve genetic resources with multiple benefits for biodiversity, landscape, and natural and agro – ecosystems.

(H-26) DETERMINATION OF IN VITRO REGENERATION EFFICIENCY IN DIFFERENT APPLE SPECIES AND VARIETIES

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Genetic transformation technology emerged as a useful tool to shorten the breeding time in plants and also allowed the improvement of the plants by only intended character without changing their other characters. To carry out gene transfer studies, the regeneration efficiency of plants must be known. In this study, *in vitro* regeneration efficiency was investigated in 9 genotypes in 3 different apple species; *Malus domestica*, *Malus sieversii* and *Malus niedzwetzkyana*. After explants shooted in the media, callus culture was applied to sterile leaves. Genotypes' shoot formation ratio was ranged from 8.33% to 75%. The genotype with the highest shoot was 'genotype 8', species of *M. domestica*, with a rate of 75%. Sterile leaves were taken from shoots for callus culture. The regeneration potential of genotypes ranged from 0% to 90%. While callus formation was not observed in 'genotype 4' and 'genotype 5' (*M. domestica*), 90% callus formation was observed in 'genotype 3' (*M. domestica*). With this study, it has been determined that there is a serious variation in the regeneration efficiency of different apple species and genotypes.

(H-27) INFLUENCE OF LOW TEMPERATURES DURING FLOWERING ON FRUIT SPECIES

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The evolution of the phenological stages of the fruit trees species is directly influenced by the climatic conditions so that the period is different from one species to another. The beginning of the vegetative period begins with the swelling of the buds ending with the fall of the leaves, succeeding each other for a different period depending on the species. Thus, the stone fruit species begin before the seed species and they are followed by the walnut.
The studies were carried out within the Research Station for Fruit Growing Iaşi, in the research fields for the mainfruit tree species for the period 2018-2020.
Unfavorable weather conditions during the flowering period led to damage to the viability of the buds, especially to the stone species due to the late spring frosts, which directly affected fruit production. In particular, apricots, peaches and sweet cherries suffered considerable losses.
The results of the studies highlight the importance of resistance to extreme conditions of each species depending on the characteristics inherited from the biological parents, so the apple treeis more resistant having the flowering period less exposed to low temperatures compared to stone fruit tree species.

(H-28) ATTENUATED TOTAL REFLECTION FOURIER TRANSFORM INFRARED (ATR-FTIR) BIOCHEMICAL PROFILE OF WALNUT LEAVES

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ATR-FTIR spectra appear to function as biochemical fingerprints unique to each species and is used in our study to characterize eight walnut leaves samples. Walnut cultivars with different geographic origins and different agro-biological characteristics were used. The leaves of four Romanian cultivars ('*Verisval*', '*Valrex*', '*Germisara*', '*Jupâneşti*'), three American cultivars ('*Serr*', '*Payne*' and '*Vina*') and one French cultivar ('*Franquette*') were analysed. ATR-FTIR Spectroscopy combined with multivariate data analysis (PCA) have been applied for the discrimination of walnut leaves. *Franquette* variety separates from the rest of the species (Romanian and American). Analysis of PCA loadings identifies the specific spectral regions: 3000-2800 cm^{-1}, 1750-1600 cm^{-1} and 1250-1200 cm^{-1} which are responsible for these differences in walnut leaves. No further sample preparation is required for ATR-FTIR and the measurement time of less than 1 min per sample will come more frequently method for analysing the biochemical composition of biological material, as well as distinguishing plant species.

(H-29) STUDY OF SOME SEA BUCKTHORN EXTRACTS

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Sea buckthorn is currently used as functional food, dietary supplements, and medicines raw material. Its fruits are a nutritional and therapeutical components valuable source (minerals, micro- and macronutrients, organic acids, amino acids, sugars, saturated, mono- and polyunsaturated fatty acids, vitamins, carotenoids, phenolic compounds). They are perishable because, having a thin epicarp and lacking the protective layer of wax, they easily dehydrate and lose their firmness as a result of postharvest metabolic processes. The aim of the study is to determine how the very low temperature (-18°C), establish for harvesting and long-term storage, affects the fruits quality and fruit juice yield in six varieties of sea buckthorn. Biometric (mass, size, color) and biochemical parameters (pH, titratable acidity, total soluble matter, sugar content, water content, dry matter, ash, phenolic compounds, flavonoids, tannins, carotenoids, vitamin C) were determined for this purpose. Four types of extracts FTIR spectra were studied (hexane: ethanol: acetone, ethanol, in the presence and absence of ultrasonication). The results indicated that the fruits stored at a temperature of -18°C have retained their nutritional and therapeutic value, and can be consumed immediately after thawing or can serve as a raw material for further processing.

(H-30) DRAINAGE PRACTICES IN TURKEY

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There is a need for drainage systems in all lands worldwide weather or not the lands were opened for irrigation. Drainage practices play a significant role both in preservation of soil and water resources and in protection of environment and ecology. Therefore, irrigation projects should definitely be constructed together with drainage facilities. The lands with drainage problems turned into marshlands in time and humans abandoned these lands. History of drainage systems goes back to very early civilizations. However, the first modern sub-surface drainage systems were founded at beginning of 19th century. Excess water in plant root regions have been discharged in different countries and regions with different materials placed over the impervious layer. Today with developed technology, both surface and sub-surface drainage systems can be constructed easily and economically. The critical point is to have proper surveys and designs. The first drainage Project of Turkey was constructed at the end of 1960s in Tarsus plain over 3 thousand hectare land area. By the year 2015, about 170 thousand land area were drained from different regions and plains of Turkey. Drainage system construction works are ongoing over 10 thousand land area in different plains and regions and tenders were completed for drainage projects of 50 thousand land area. The nationwide master plans indicated a need for drainage systems for about 2.5 million land area. In this study, yesterday, today and tomorrow of drainage practices in Turkey were assessed and information and recommendations were provided for efficient drainage systems.

(H-31) ASPECTS OF SOME CHARACTERISTICS OF LETTUCE VARIETIES GROWN IN SOLAR IN PITESTI

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The aim of this paper was to observ the differences between three lettuce varieties, Silişteană C, Lollo Rossa ans Lollo Bionda, in terms of growth and development. Experimental research activity was carried out in the solar belonging to SC Salpitfloor Green S.A. Were monitored parameters such as plant height and leaf number on the plant, the diameter of the rosette of leaves, the weight of leaf rosette, the length of the root system and the weight of the root system. The results were compared and recommendations were made. The three lettuce varieties reacted differently, generally the differences between the values of the different characters measured being very obvious. Higher results for all studied characters were obtained in the Silişţene variety, compared to the other studied varieties, denoting that it is a valuable, vigorous and balanced variety. In all the studied characters, the Lollo Bionda variety recorded the lowest values, showing a lower quality than the other variants.

(H-32) STUDY ON THE PROTECTED AND UNPROTECTED CULTURE OF TULIPS IN ARGES COUNTY

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The aim of this paper was to observ the differences between tulips cultivated in a solarium with the possibility of heating and outside on arable land. The biological material analyzed was represented by 2 varieties of tulips (*Tulipa gesneriana*), Irene Parrot and Winter Parrot. The study was conducted in Purcăreni, Argeş County.
Observations, measurements and determinations were performed, the analyzed characters being the following: the height of the floral stem, the number of branches, the length and width of the leaves, the number of leaves, the length of the floral cup, the diameter of the floral cup.
The low light conditions during the solar culture period greatly influence the increase in height of the studied cultivars, as well as the size and number of leaves, which are lower than in the field culture. Regarding the characteristics of the floral cup, the negative influence of the low light conditions during the solar culture period is observed.

(H-33) ASPECTS REGARDING THE BEHAVIOR OF TOMATOES GRAFTED ON POTATOES

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Over time, different ways have been used to increase vegetable production per unit area; from the crop systems used (field crops, protected crops and forced crops), to intensive land use (successive, associated, double and intercropping) and to the technologies applied to them.
In this paper we aimed to observe some aspects related to the behavior of tomatoes grafted on potatoes. The biological material was represented by: 'Sweet Million F1' cherry tomato hybrid variety, "Carrera" white potatoes, "Memphis" red potatoes, "Blue Star" hybrid purple potatoes. The experimental variants were: tomato control variant, potatoes control variants and tomato variant grafted on red, white and purple potatoes. It was observed that the best grafting was the tomato version grafted on the red potato. The control potato variants had the highest production compared to the grafted ones. The control tomato variant registered the highest number of flowers and formed the most fruits. The three grafted variants had a lower degree of fruit binding compared to the control variant.

(H-34) THE INFLUENCE OF THE CULTURE SUBSTRATE ON THE DEVELOPMENT AND PRODUCTIVITY OF THE EXPORT PEPPER VARIETY CULTIVATED IN THE SOLARIUM

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Soil, as a support and intermediate of cultivated plants, used intensively - in a protected system, for a long time, becomes a limiting factor of expressing the production potential of cultivated plants. Therefore, it tried to replace the traditional system soil cultivation for growing bell peppers in solariums with a substrate that would allow a normal development of the plants.
The influence of the different variants of substrates (made from the percentage mixture, in volumes, of peat, forest compost and sand), on the Romanian pepper variety Bianca was observed.
After fertilization and irrigation of the substrates, control of diseases and pests, plant management and fruiting, determinations were made on the biometric indices and the dynamics of the production for each experimental variant.
The growth rate of plants in height, leaf area, number of buds, flowers and fruits were positively influenced by substrates, especially peat and forest compost.
Thus it has been shown that pepper cultivation on organic substrates is of particular importance and is a good alternative to soil cultivation.

(H-35) DIFFERENCES IN ERGOCALCIFEROL CONTENT AND SOME AGRONOMIC CHARACTERS AMONG GROWTH STAGES IN SIX FIELD PEA GENOTYPES

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The aim of this research was to determine the effect of different growth stages on ergocalciferol content, yield, some morphological characters and forage quality properties of six field pea genotypes(Töre, Ateş, Taşkent, 16-K, DYK and Kr). These genotypes were planted in two-factor factorial randomized block design with three replications.Some morphological characters (main stem length, number of branches per plant, number of leaves per main stem and leaf length), herbage and hay yields, ergocalciferol, crude protein, crude fiber, acid detergent fiber, acid detergent lignin and neutral detergent fiber contents were determined at the pre-bud, ¼ bloom and full-bloom stages. The maximum main stem length (127.35-130.07 cm), herbage yield (50.12-50.33 t ha^{-1}) and hay yield (10.85-11.77 t ha^{-1}) were observed for field pea genotypes 'Ateş' and 'Töre' at full-bloom stage. The lowest leaf length (22.08 cm) and number of leaves per main stem (20.09) were found in field pea genotype '16-K', whereas number of branches per plant (6.42) had its highest in this same genotype.Full-bloom stage showed the highest ergocalciferol (9.33 μg kg^{-1} in fresh matter), crude fiber (20.63 %), neutral detergent fiber (41.46 %), acid detergent fiber(30.54 %) and acid detergent lignin (5.84 %) contents between the other growth stages, whereas crude protein (18.37 %) had its lowest content at this same growth stage. According to ergocalciferol content, forage yield and other quality properties, genotypes 'Ateş' and 'Töre' can be sown and cut at full-bloom stage in the Thrace and other regions of Turkey, and probably in similar subtropical conditions.

(H-36) ORNAMENTAL PLANTS USED IN LANDSCAPE ARCHITECTURE DESIGN OF A BIBLICAL GARDEN

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From the beginning of time, `the Lord God planted a garden in Eden, and there He put the man he had formed`. Based on the historical accounts, there was always a connection between people and plants, and the concept of Biblical garden named in the Bible was created by using collections of edible and ornamental plants. The aim of the present study was to design and create a Biblical landscape in the 21st century, establishing the current needs of a Roman-Catholic parish green area in the centre of Cluj-Napoca, Romania. Concluding the importance and symbolism of a biblical landscape, the garden was design by following the thematic planting guidelines, using some of the ornamental plant's species (*Buxus sempervivum, Cedrus deodara, Rosa sp., Iris germanica, Lilium candidum*) mentioned in the scripture. In the landscape architecture design process computer software's were used (ArchiCAD and Lumion) to achieve a realistic representation and a deeper understanding of the biblical layout concept. According to the project proposal, Biblical gardens can get a new meaning, evidencing also the morpho-decorative characteristics of ornamentals by learning through landscape, where people can reconnect with plants in a residence full of history and spirituality.

(H-37) EVALUATION OF SOME ROSA CULTIVARS UNDER TRANSYLVANIA CLIMATIC CONDITIONS

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The study was conducted at the "Super Rosa Csiki" Association located in Ciumbrud, Alba (Romania), nursery in which annually, many valuable cultivars from abroad are grafted, for economic purposes. The research focused on the evaluation of phenological behavior and main morpho-decorative traits regarding 10 *Rosa hybrida* cultivars namely: 'Acapella – Tantau', 'Caprice De Meilland ', 'Imperetrice Farah', 'Burgund'81', 'Monika', 'Romstar', 'White Succes', 'Vivaldi', 'Black Velvet', 'Holstein Perle'. Various determinations and observations were carried out on cultivars based on an evaluation scale from 1 to 100 points, analyzing 13 different characters. The obtained results revealed after the evaluation, cultivars as `Monika`, `Romstar`, `Black Velvet` and `Burgund 81` obtained the highest score, over 85 points. These varieties are recommended for the future to be cultivated as cut flowers used in floral arrangements, but also for landscape design or genetic resources for breeding works.

(P-01) DEVELOPMENT OF HEALTH PRACTICES BASED ON THE CONTROL OF EPIDEMIOLOGICAL, BACTERIOLOGICAL AND VIRUSOLOGICAL STRUCTURES IN ECO-BIOLOGICAL STRUCTURES IN ROMANIA

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The article advances the idea that the epidemiological, bacteriological and virological control structures in the general biological structural context of Romania ensure the participation of sustainability in the intergenerational dimension of sustainable development. Risk factors in public health and control of biochemical and biophysical structures are treated to ensure health sustainability and attention is paid to an operational scheme for processing epidemiological, bacteriological and virological control structures to ensure health sustainability through economics and management. It summarizes, in summary, the European and Romanian framework of health insurance and health sustainability and emphasizes that health and safety in the social environment has a particular relevance for public health. It is an integral part of social coexistence and production models, because people's behavior, social distancing, technologies and ways of handling products (especially chemical ones) have a direct impact on the number of epidemiological, bacteriological and virological infections. The paper highlights an algorithm for deepening the important directions for improving the management methods of epidemiological, bacteriological and virological control structures in the field of health by using the classification of steps and solutions to achieve health sustainability. It is useful to recommend the establishment of a system for collecting the results of the monitoring of health infrastructures and the establishment of a knowledge base on the management of health crisis situations, this being the premise of a basis of good biosecurity practices.

(P-02) MORAL IDENTITY AND ECOLOGICAL BEHAVIOR IN ROMANIAN YOUNG ADULTS

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Environmental professionals and activists draw attention on the negative effects that human actions have on the planet, actions that turn against us all, sometimes with dramatic consequences like human casualties. In recent years, there is a growing interest in Romania in the area of environmental protection. Many environmental organizations advocate responsible institutional and individual behavior toward nature. Despite the progress in the environmental legislation and the public debate on this subject, there are questions and doubts about law application and the level of public awareness concerning environmental protection.
Research in the area of individual pro-environmental behavior is interested in identifying psychological variables (knowledge, perceptions, attitudes, values) and contextual factors (income, technological infrastructure, costs) associated with relevant individual behavior patterns aiming at limiting the harmful effect of human actions on the environment. One line of research studies the impact of moral aspects like values, norms, identity on pro-environmental behavior. Our study explores the relationship between moral identity and several dimensions of ecological behavior in a sample of Romanian young adults. We disscus practical implications of the findings.

(P-03) A FLEXIBLE APPROACH OF MYOCARDIAL INFARCTION MANAGEMENT IN COVID-19 ERA

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In the frontline of COVID-19 pandæmia, cardiologists must change some practice patterns to adapt this special setting. Our paper adapts to our clinical practice in Pitesti, Romania, the Guidelines for AMI in COVID-19 by Chinese Cardiac Society, also published in JACC.
Firstly, in all patients with AMI (Acute Myocardial Infarction) and COVID-19, the efficient reperfusion therapy must be parallelled by a safe medical environment. Many medical centers do not have cathlab rooms properly protected against viruses, neither cardiac care units with facilities for respiratory distress. Under these circumstances, the prevention against COVID-19 needs the coordination of hospital administrators, as well as the interplay of multidisciplinary teams, providing a coherent ergonomic flow.
Secondly, in STEMI and confirmed COVID-19 subjects, emergent intravenous thrombolysis is the first choice. Thus, the patients without thrombolysis counterindications will start quickly an intravenous thrombolysis, then will be transferred to infectious diseases dept. of the local medical institution dedicated, for specific therapy.
Thirdly, in non-STEMI patients, the therapeutic strathegy is based on GRACE risk stratification score, while waiting for the outcomes of nucleic acid detection of the new coronavirus.
In non-STEMI patients ruled out of COVID-19, early or time-limited interventions must be selected immediately according to risk stratification.

(P-04) A LIFE-STYLE ADJUSTMENT TO DECREASE PANDÆMIC STRESS IN PHYSICIANS

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The rapidly spreading new coronavirus led to sanitary rules and social distancing supported by military orders, that are desirable to be harmonized with personal well-being.
Self-care means fresh air and sunlight in the courtyard or on the balcony, practice exercise in a confined, but appropriate space, listen to the music, be happy with respect to social distancing.
Stay connected with people.
Work home medical science, organize a dedicated space with internet access. Make a daily agenda, including coffee breaks, and create a routine.
Respect the differences! Some people like to talk, other people like to be left in peace. Identify each category and respect the desires.
Inform yourself from reliable sources, but limit mass-media exposure.
Self-monitor caloric intake and limit food exposure.
Self-check-in depression symptoms and seek for qualified help.
Honour the mission! The satisfaction to do a good job in difficult conditions is huge.
Practice compassion, solidarity, patience, respect, gratefulness, love.
Be realistic! The pandemic trend do not necessarily superimpose with the evolution, it's not like acting a switch.
Based on this items, we made a QoL questionnaire. After one month, the responders reported a satisfaction degree of 87% versus a reference score of 100% for the time before.

(P-05) THERAPEUTIC INSIGHTS IN COVID-19 PANDÆMIA

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The fatality rate in COVID-19 pandæmia is 49% in critical cases, 15% in hypertensives, 14,8 in octogenarians and over, 7,4% in diabetes mellitus. Part of these cases are associated with lymphopenia and/or cytokines storm. It's obvious that the medical societies make efforts to find adequate therapy. Treatments of critically severe patients include: respiratory support with non-invasive or invasive ventilation, immunotherapy, blood purification, circulation support, ECMO. Along with the devices used in critically severe patients, our work combine the pharmacotherapic schema from Tongji Hospital Wuhan centered on antiviral therapy with ideas from Victor Babes Hospital Timisoara (LMWHs and NSAIDs). Antiviral therapy includes α-interferon, lopinavir/ritonavir. Ribavirin (combination with interferon or lopinavir/ritonavir is recommended, < 10 days), cloroquine phosphate, abidol (200 mg each time, t.i.d. for adults, the treatment course should not exceed 10 days) can be tried. Attention should be paid to the adverse reactions and contraindications (e.g. NO cloroquine in heart disease), and interaction with other drugs. Not recommended to use 3 or more antiviral drugs simultaneously. Stop the use of related drugs when intolerable side effects occur. The treatment of pregnant women should consider the number of weeks of gestation and choose drugs that have less impact on the fœtus.

(P-06) THE ERA OF SARS-COVID-19: LESS STETHOSCOPE, MORE ULTRASOUND

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Chest CT is largely considered the modality of choice to estimate pulmonary damage in COVID-19 patients but such scans aren't always available in the emergency room setting. Thoracic ultrasound seems to be a choise to the screening for lung involvement of patients with suspected SARS-COVID-19 infection but also in monitoring confirmed subjects, due to its characteristics of easy and feasible applicability. B- lines are early finding of COVID-19. In pre-ARDS or ARDS, the B lines end up filling the ultrasound image almost completely, creating the image named as "white lung". The distortion and irregularity of the pleural line is also a very important sign of COVID-19. In advanced stages, lung consolidations appear. To determine whether ultrasound could feasibly be used to reveal COVID-19 pneumonia, we analyzed 7 patients in County Hospital Pitesti, in emergency department, who had exhibited flu-like symptoms within the previous 5-10 days, being initially COVID-19 infection suspects and then confirmed. These individuals received both lung ultrasound and CT. In our results, the CT scans correlated strongly with the ultrasounds. These data are preliminary and further studies are necessary to confirm the role of lung ultrasound in the diagnosis and management of COVID-19.

(P-07) EVALUATION OF COMMONLY APPLIED MATERIALS FOR THE CONSERVATION OF STONE MATERIALS USED IN TRADITIONAL CONSTRUCTIONS

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Restoration/conservation of traditional constructions represent an important area of research both at national and international level. Although researchers all over the world are continuously proposing new materials, with proven efficiency at laboratory level, only few passes the barrier to commercially available products. The present work evaluates the efficiency of some such commercially available conservation materials on different types of natural (marble, granite, travertine and basalt) and man-made stones (bricks), currently found in the traditional constructions. The efficiency of the materials was evaluated by evaluating the hydrophobic properties of the treated stone materials, analytical characterization of the coating materials, as well as the resistance of the treated materials against several staining agents. Microscopical characterization of the stone materials after staining tests revealed an increase resistance after treatment with the proposed commercially available materials.

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(P-08) NANOTECHNOLOGY AND CULTURAL HERITAGE – RESULTS AND PERSPECTIVES AFTER THREE YEARS OF SUCCESSFUL COLLABORATION

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The complex project 50 PCCDI – "Multidisciplinary complex project for monitoring, preservation, protection and promotion of the Romanian cultural heritage" (RO-CHER) allowed in the last three years the collaboration between researchers in the area of nanotechnologies and restoration/conservation specialists from the two partner museums. In the project were developed several specific recipes, based on nanomaterials, for the restoration and conservation of ceramic, and respectively paper artifacts with cultural value. The results (protected by four patent applications) were tested both at laboratory level, as well as in "real-life" conditions, leading to the validation of their potential use. In the same time, the results published in scientific journals led to an increase in visibility of the researchers involved. The aim of the present paper is to review the scientific and practical advances recorded during the implementation period, as well as the perspectives arising from the current collaboration.

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(P-09) IDENTIFICATION OF NUTRITIONAL STATUS AND EATING HABITS OF THE POPULATION GROUP „OVERWEIGHT AND OBESE PEOPLE"

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Obesity is a disease characterized by an increase in body's fat mass, resulting in an excess of weight added to the normal body weight, with implications for the aesthetic, psychosocial and biological condition of the patient. Although the notion of obesity is assimilated with the food excess, scientists have identified many deficient elements in the nutrition of overweight/obese persons. These elements could be the basis for the potentiation of some pathological links encountered in the obese patient. A market research was performed on a representative sample at national level of 189 persons, in order to identify the nutritional status of people in this group, from which 28% of them are suffering from other diseases. Computer assisted telephone interviews (CATI), using the database of people pre-recruited through face-to-face dialogue were the data collection metodology, used to perform the market research. The selection of the respondents was made by: simple probabilistic technique, by random digital dialing selection; non-probabilistic technique, by „snow ball" selection.
Persons' investigation was carried out on the basis of a previously elaborated questionnaire. The market research highlighted the dietary structure of these people, the food categories preferred by them and consumed weekly, as well as the weekly frequency of consumption. The results indicated a hypercaloric diet of the people from study sample, containing caloric concentrated foods (eg. pork, sausages, sweets), normally forbidden foods within the nutrition plan of an overweight/obese person, and insufficient fiber content. Special attention has to target salt intake which has been far above recommended daily limit.

(P-10) EMPATHIC CARE: NEW PERSPECTIVES

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Empathy studies have revealed new aspects of the concept with various implications in health psychology, psychopathology, education, developmental psychology, and medical care. The study of the biological correlates of empathic relating tend to highlight the effects in several fields, from close interpersonal relationships to professional ones. The Diagnostic and Statistical Manual of Mental Disorders, the Vth edition, uses empathy as a significant dimension to characterise the personality disorders, which are no longer separated from the other disorders, previously categorized as Axis I disorders. The objective of the present paper was to come with a literature review focused on the new directions opened in health and developmental psychology as suggested by the discoveries from empathy studies, followed by a synthesis intended to help its understanding and come up with interventions aiming at developing empathy in several contexts. Previous studies, starting from supporting development in first years of life, continuing with the analgesic effects of empathic relating, or on the activity of the immune system will be discussed, as well as attempts to conceptualize empathy. Empathy may be more difficult to understand, but it may also be the means to support self-regulation, self-transcendence, and self-care.

(P-11) SENSE OF MEANING DURING SOCIAL DISTANCING

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The sense of meaning is a complex experience involving not only cognitive, but also affective and motivational factors. Its importance is different with age: It becomes more and more important as a person lives the experience of losing dear ones by distancing (children or grandchildren), illness or death (spouse, friends, peers) or social roles. Personal involvement in different life circumstances and activities results in a global state of well being which supports personal integrity (both physical and psychological) and a clear reflection on the life path. During the first periods of life people often turn to others for support, social relationships being the main direction, while, later in life, the sense of meaning comes more from inside, supporting an optimistic perspective which is an important resource in facing life challenges.
Social distance for preventive purposes sets an important obstacle at early ages and forces the elders to act upon it. It relies mostly on the social norms already internalized as means of benefiting from social support, while this is less accessible. People remain without usual support in front of anxiety and depression, dysfunctional cognitions becoming more active, especially referring to self-worth and others. The paper focuses on the experience of sense of meaning, as an important resource to use to develop social awareness and healthy living in conditions of social distancing.

(P-12) ANXIETY AND AGGRESSION DURING SOCIAL DISTANCING IMPOSED BY PANDEMIA

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Both anxiety and aggression have received attention not only at a personal level, but also social, as they have consequences which often motivate measures to control them. While the aggresive response is accepted as a natural response to a threat, cultural and social meanings complicated significantly the relationship between the variables. Usually, significant others help the person in the early years of her life to calm the anxiety by satisfying basic needs, social needs, offering emotional comfort, and protection from threats. In their absence, internal tension accumulates and turns into aggressive manifestations. While the cognitive understanding may not seem so difficult, the immediate response to aggressive behaviour is more challenging. The complexity of the social relationships and scientific knowledge complicated the relationship as microorganisms have been found to be life threatening or others become sources of fear or fail to offer the necessary support to the individual.
In the context of the present pandemia and the social distancing measures, which have been mandatory in more countries, facing the psychological consequences seems to become the next challenge, resulting from the lack of sense of control, the difficulty to identify the threat to personal health and the health of dear ones, the threat to the means of gratifying basic needs. Psychological literature describes three types of isolation: interpersonal isolation (lived as physical loneliness, resulting from the absence of other persons from the physical environment), intrapersonal isolation (when the person isolates herself from parts of her Self, a defence mechanism also called dissociation, used to overcome experiences of threats to personal integrity), and existential isolation (lived as the feeling of

being separated from the world and others, death anxiety, in connection with moral values, more subtle, but also strongly lived even in the presence of others, and diminished by attempts of affiliation).

The paper proposes an analysis of the manifestations of aggression (both anticipated, but also unexpected), in conditions of heightened anxiety and physical social distance, imposed by legal measures, while patterns of social relating remain as internal values and less conscious reactions. Social distancing involves depriving the person from the social support which buffers the effects of existential isolation, while the lack of activity and stimulation, or consuming personal resources on cleaning rituals and interpersonal conflicts tend to maintain or increase anxiety. The paper comes with alternatives such as mobilization of personal resources, creative expression which elicit immediate positive feedback, and development of activities purposefully enhancing well-being (such as sports, walking, meditation, creating social networks, and activities with social significance).

(P-13) EXPOSURE TO NATURAL ENVIRONMENT, SOCIAL ISOLATION AND LONELINESS

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Evidence suggests that social isolation and loneliness have became major problems in many countries around the world. Given the numerous physical, mental health problems and economic negative consequences associated with social isolation and loneliness, there is a greater interest for the development of more complex and holistic health strategies to help prevent or mitigate social isolation and loneliness. Natural environment is increasingly recognized as an important component of these strategies. Outdoor natural space (in the form of greenspace, such of parks and street trees, and bluespace, such as rivers and oceans) can reduce the effects of stressors while facilitating social connections, especially emotionally close ties or the sense of community belonging. The present article will consider the results of previous academic studies to discuss the concepts of social isolation and loneliness, the connections between them, and their effects on physical and mental health. This theoretical framework will be used to support the effectiveness of nature-based health interventions for the prevention or the treatment of poor mental health associated with social isolation and loneliness.

(P-14) EXPERIENTIAL NATURE-THERAPY IN PERSONAL OPTIMISATION AND DEVELOPMENT

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Nature had been a constant presence in humans' lives since ancentral times even if the modern urban societies influenced humans'experience of natural environment. Researches from multiple disciplines have established strong connections between direct contact with nature and enhanced health and well-being in people of all ages. Moreover, the experience of nature can serve as a preventive and therapeutic modality with huge potential for practice and research in the field of counseling and psychotherapy. In the past years, new forms of therapies have emerged based on using resources from nature in assisting clients in personal development or optimisation as well as in clinical issues. This study will explore the model of nature therapy or nature-based therapy, a complex and holistic perspective based on a postmodern experiential theory. A case example and implications for practice are presented.