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In-Person Session

INVESTIGATION OF FRUIT CHARACTERISTICS OF SOME AVOCADO CULTIVARS IN MERSIN-TÜRKİYE CONDITIONS

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Avocado (*Persea americana* Mill.) is a subtropical fruit species originating from Central America. It is one of the most important fruit species economically cultivated in subtropical and tropical climate conditions in the world. It is a very rich food source in terms of carbohydrates, fat, protein, minerals and other various bioactive compounds. World production is approximately 10 million tons and the most important producer country is Mexico. Production in Turkey has been increasing rapidly in recent years and there has been a 20-fold increase in production in the last decade. Cultivation is carried out especially in Antalya, Mersin and Adana provinces in Türkiye. In this study, fruit characteristics were examined in 9 different avocado cultivars in Erdemli-Mersin conditions and the performances of the cultivars were compared. Accordingly, significant differences were determined in terms of fruit characteristics among the varieties. While Pinkerton ranked first with 310 g in terms of fruit weight, Hass was found to have small fruit weight (133 g). The highest shell thickness value was determined in Anaheim (1.91 mm) cultivar and the lowest in Wurtz and Ettinger cultivars. Pinkerton had the highest flesh content (92%), while Lula had the lowest flesh content (71%). Total soluble solid contents of the cultivars varied between 7,53% (Fuerte) and 12,08% (Pinkerton).

The results obtained are informative for planning avocado cultivation and cultivar selection in the Mersin region.

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FRUIT QUALITY PARAMETERS OF MUTANT KINNOW MANDARIN GENOTYPES

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Citrus fruits are the most produced fruit group in the world and have a production amount of nearly 170 million tons. Turkey is one of the important producer countries in the world and produces 7.9 million tons annually. Mandarin is one of the most important species in table consumption with its ability to be peeled in a branch. In addition, attractive and seedless mandarin varieties that ripen in different periods are demanded by the producer. In this study, mutant individuals were obtained by applying gamma irradiation to cuttings in the late season Kinnow mandarin cultivars. Fruit characteristics were examined in these plants taken to the field and quality parameters and seedlessness characteristics were evaluated. In the obtained results, variations in fruit characteristics were determined among the mutant genotypes. Fruit weight varied between 179.9 (Genotype 54) -65 (Genotype 19) g among the genotypes. Genotype 9 was found to have the highest rind thickness (5.32 mm), whereas Genotype 5 had the lowest (2.1 mm) rind thickness. The seed number varied between 16.8 (Genotype 21) and 3.0 (Genotype 1). The TSS/acid ratio of the genotypes was between 14.7% (Genotype 12) and 6.2% (Genotype 18). The study results show that gamma irradiation caused significant variation in Kinnow mandarin.

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DESIGN OF AN ULTRASONIC SYSTEM FOR IMPROVING PLANT NUTRITION

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Ultrasounds represent mechanical oscillations with frequencies between 18000....100000 Hz which have been proven in recent years to have special applications in many fields such as health, aerospace, automotive, military, engineering, consumer goods industry. For all of these, there is currently a lot of research, very well documented and substantiated. In contrast to these, one of the lesser known applications refers to the ultrasonic activation of the natural system formed by plants and the soil in which they grow and develop. By applying an ultrasonic field, in the soil in the immediate vicinity of the plant roots, there is a better homogenization of the soil, a more uniform distribution of the different types of its granulations, a better adhesion of the soil on the contact surface between it and the plant roots so that the process of nutrient absorption is made more efficient. Thus, this article presents a large part of the ensemble that takes place in this environment as well as the design of an ultrasonic system capable of influencing, when introduced into the soil, the processes that take place at the interface between the soil and plant roots.

TESTING THE QUALITY OF THE ENVIRONMENT THROUGH THE LICHENOINDICATION METHOD

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The monitoring of the state of the environment through the method of biological monitoring, based on the principle of ecobioindication, i.e. non-instrumental method - direction promoted at the European level and by art. 7 "b" of the Convention on long-range transboundary air pollution (Geneva, 1979). The most well-known bioindicators of air quality are lichens, successfully used in active and passive ecological monitoring in many countries of the world. In the area of Chisinau, laws were established regarding the modification of the chlorophyll content or the total degradation of the lichen thallus under the action of SO2 and the capacity to accumulate heavy metals, depending on the source of pollution, geographical conditions, the sensitivity of the species, the duration of exposure, etc. We propos the Parmelia sulcata species as a reference object (standard) in the monitoring of air quality at the national level.

DETERMINATION OF THE NUTRITIONAL CONTENTS OF WEEDS CONSUMED AS VEGETABLES IN KARS REGION

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In this study, it was aimed to determine the wild herbs that grow naturally in Kars province and consumed as vegetables by the local people, to determine their collection, consumption patterns and to determine some nutritional values. This thesis study was carried out in Kars province in 2022.In the study, rural areas in Kars province were visited between March and August and the coordinates of the places where edible wild herbs known by the local people, which develop in the spring period and have a natural distribution, were collected were determined.The identified herbs were identified by following the flowering period and their species identification was made and their consumption patterns in the region were determined. In order to determine some nutritional values of wild plants, dry matter and ash determination, water soluble dry matter and pH determination, titratable acidity determination, total phenolic substance determination, total Flavonoid determination, total Flavonol Determination were analyzed. According to the data obtained within the scope of the research, 11 plant families; 11 plant families; *Onopordum acanthium, Hylotelephium telephium, Achillea arabica, Arctium minus, Malva neglecta, Polygonum alpinum, Rumex crispus, Glaucium grandiflorum, Urtica dioica, Falcaria falcarioides, Artemisia absinthium, Astrodaucus orientalis, Polygonum cognatum, Rumex tuberosus, Salvia aethiopis, Heracleum spondylium, Atriplex tatarica, Capsella bursa-pastoris, Mentha spicata, Tragopogon reticulatus.* According to the results obtained; Mallow (*M. neglecta*) had the highest dry matter and pH values, Boğadikeni (*O. acanthium*) had the highest ash content, Kimi (*A. orientalis*) had the highest TFM (mg/GAE/100g) value, *A. orientalis*), sorrel (*R. tuberosus*) with the highest total flavonol and

total flavonoid values, wild cress (*C. bursa-pastoris*) with the highest titration values. As a result of the research, it has been determined that many nutritional values of the wild plant species examined and analyzed have a rich content compared to cultivated vegetables. This study is the beginning of the breeding and cultivation of wild herbs growing in Kars region. For the continuity of human life, these wild plant species, which have rich contents useful for nutrition and human health, should be cultivated by preventing the extinction of these wild plant species.

EFFECTS OF DOPAMINE ON REDUCING SALT STRESS DAMAGE IN PEPPER (CAPSICUM ANNUUM L.) AT MORPHOLOGICAL, PHYSIOLOGICAL, BIOCHEMICAL AND MOLECULAR LEVELS

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Salt stress is a major environmental challenge that significantly reduces agricultural productivity, particularly in arid and semi-arid regions. Excessive sodium chloride (NaCl) accumulation in soil negatively affects plant growth, physiological functions, and biological processes. Dopamine, a catecholamine neurotransmitter, has emerged as a potential regulator of plant stress responses. This study aimed to investigate the effects of exogenous dopamine on salt stress tolerance in pepper (Capsicum annuum L.) by examining morphological, physiological, biochemical, and molecular responses. Pepper seedlings were subjected to 100 mM NaCl stress and treated with dopamine at concentrations of 50, 100, and 200 µM.
Results: Dopamine application, particularly at 100 µM and 200 µM concentrations, significantly improved plant growth parameters,

including height, stem diameter, leaf area, and biomass accumulation. It enhanced photosynthetic efficiency by increasing chlorophyll content, stomatal conductance, and transpiration rate, while reducing oxidative stress markers such as H_2O_2 and MDA. Dopamine also regulated the activity of antioxidant enzymes (SOD, CAT, POD) and maintained ion homeostasis by reducing sodium (Na^+) and chloride (Cl^-) accumulation and promoting potassium (K^+) and calcium (Ca^{2+}) uptake. At the molecular level, dopamine influenced the expression of genes involved in ion transport (AKT1, HKT1, HKT2;2) and photosynthesis (psb).

This study demonstrates that dopamine is a promising plant growth regulator that enhances salt tolerance in pepper plants. It achieves this by improving growth, photosynthetic efficiency, antioxidant defense, and ion homeostasis, while modulating key molecular pathways. These findings suggest that dopamine could be utilized as a sustainable strategy to mitigate salt stress and improve crop productivity in saline-affected agricultural regions. Further research is needed to explore its application in other crops and under field conditions.

AMELIORATIVE EFFECTS OF STRIGOLACTONE ON TOLERANCE TO LEAD STRESS ON LETTUCE (*LACTUCA SATIVA* L.) PLANTS

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Soil contamination by heavy metals, particularly lead (Pb), which is considered the second most toxic metal, poses serious risks to plants and humans due to its accumulation from various anthropogenic activities. Even at low concentrations, Pb accumulation has a negative impact on plant morphology, physiology, and biochemical processes, resulting in a range of structural and functional disorders. Strigolactones (SLs) are a novel class of terpenoid lactones that play a vital role in regulating plant growth and development, particularly under stress conditions. The study examined the impact of varying exogenous SL concentrations (0, 10, and 20 µM) on plant growth and various physiological, biochemical, and molecular factors in lettuce under lead stress [using $Pb(NO_3)_2$ at 0 and 300 ppm]. The results revealed that Pb stress adversely affected plant growth, while

SL treatments improved growth under both control and Pb-stress conditions. While Pb stress raised the levels of electrical leakage (EL), malondialdehyde (MDA), and hydrogen peroxide (H_2O_2), SL applications led to a reduction in these levels. Chlorophyll content decreased under Pb stress, but this reduction was alleviated by SL supplementation. Pb treatment also increase the activities of several antioxidant enzymes including superoxide dismutase (SOD), catalase (CAT), peroxidase (POD), ascorbate peroxidase (APX), glutathione reductase (GR), glutathione S-transferase (GST), glucose-6-phosphate dehydrogenase (G6PD), and 6-phosphogluconate dehydrogenase (6GPD). SL applications caused a significant increase in antioxidant enzyme activities under both normal and Pb stress conditions. However, Pb stressed plants had lower nitrate reductase activity (NRA) than the control plants while SL treatments increased NRA compared to the non-treatments. The content of other nutrients except Pb decreased significantly in lettuce seedlings grown under Pb stress. External SL applications increased the uptake of these nutrients, especially under Pb stress. The results of the mRNA expression analysis showed that SL treatment, Pb stress, and using both together affected the gene expression levels of *LsABCC3, LsCCD7, LsCCD8, LsD14, LsD27, LsHMA2, LsMAPK, LsMAX1,* and *LsMAX2.* Only Pb stress significantly decreased the expression of genes, particularly *LsCCD8* and *LsD14*, in both tissues. The combined Pb and SL treatment very significantly increased the expression of *LsMAX2* in both tissues by about 3-fold. These results suggest that SL applications play an essential role in helping plants survive in harsh environments.

CHRYSIN-MEDIATED TOLERANCE TO CADMIUM IN PEPPER: ROLE OF ANTIOXIDANTS, HORMONES, AND AQUAPORINS

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Among heavy metals, Cadmium (Cd) is the most dangerous and prevalent one which has tremendous impacts on global food security. Although chrysin (Chr) has been extensively studied in Cd-stressed animal system, the role of this valuable flavonoid in plants is yet to be clarified. Therefore, in the present study, pepper plant (Capsicum annum. L) was supposed to the conditions of non-stress control, control with different concentrations of Chr, control with Cd, and control with different combinations of Chr and Cdto find out the roles of Chr in mitigating Cd toxicity. Cd stress significantly arrested, relative water, proline, essential nutrients and phytohormones content when compared to non-stressed plants. However, Cd stress caused significant enhancement of hydrogen peroxide (H2O2), melondialdehyde (MDA), and tissue electrolyte leakage (EL) and reduction of enzymatic antioxidants like superoxide dismutase (SOD), catalase (CAT), ascorbate peroxidase (APX) and peroxidase (POD), and expression of photosystem two

(PSII) and aquaporin related transcripts compared to non-stressed plants. Although application of exogenous Chr irrespective of concentrations, improved plant's growth in non-stressed condition, it showed dramatic repairments of plant's morphology resembling to those of C+Chr under Cd-stressed condition. Accordingly, Chr assisted to accelerate leaf relative water and proline content, and essential nutrients content in plant except Cd as compared to Cd-stressed plants. Accordingly, Chr accelerated the synthesis of indole-3-acetic acid (IAA), gibberellic acid (GA) and citokinins (CK) but decreased the level of abscisic acid (ABA) which was significantly enhanced by Cd-stressed plants. Alongside, Chr significantly reduced the occurrence of H2O2, MDA and % EL as compared to Cd-stressed plants only. Consistently, Chr boosted up the activity of SOD, CAT, POD and APX as compared to non-stress control and Cd-stressed plants. However, Chr led to upregulate PS-II related transcripts like CaPsbA, CaPsbB, CaPsbD, CaPsb1 and CaPsb2 and aquaporins' encoding genes like CaPIP1-2, CaTIP1-2 and CaTIP5-1 in both root and shoot under non-stressed conditions. In addition, Chr demonstrated enhanced expression of CaPsbB, CaPsbD, CaPsb1 and CaPsb2, CaPIP1-2 and CaTIP5-1 in both root and shoots and CaPsbA in root when compared to Cd-stressed plants. Hence, the study explored the cruical role of Chr in regulating water uptake and photosynthesis of the plant at the cellular level.. Thus, the findings imply that Chr is crucial for the growth, development and alleviation of Cd toxicity in pepper plant.

DETERMINATION OF THE SOME LEAF FEATURES OF SOME MELON GENOTYPES COLLECTED FROM AFGHANISTAN

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The significance of plant genetic resources is increasing on a daily basis. In order to adapt to the novel conditions engendered by environmental issues and climate change, as well as to resist the emergence of new diseases and pests, the primary resource that will be utilised to meet future needs, in line with emerging lifestyles, will be plant genetic resources, irrespective of the methods employed. Melon (Cucumis melo L.) is a prime example of this. Melon (Cucumis melo L.) is a pivotal and highly prized agricultural product on a global scale. The species under consideration is distributed throughout the world, with one of its distribution areas being Afghanistan. The present study was conducted for the morphological characterisation of 20 local melon accessions collected from diverse regions of Afghanistan using a range of leaf features. The study identified ten leaf traits (number of nodes on main stem, leaf blade size, leaf blade green colour, leaf blade... Development of lobes, Leaf blade: Length of terminal lobe, Leaf blade: Dentation of margin, Leaf blade: Undulation of margin, Leaf blade: Blistering, Petiole: Attitude (at 3 leaf stage), Petiole: Length) were examined and significant variations were obtained in terms of the traits examined. The findings obtained may contribute to the breeding programmes to be prepared for melon production regions both in Afghanistan and worldwide.
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DETERMINATION OF THE FUSARIUM WILD RESISTANCE OF SOME UZBEKISTAN AND KYRGYZSTAN MELON GENOTYPES VIA MOLECULAR MARKERS

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As is the case with other species, biotechnological methods including molecular and tissue culture can be used in addition to classical breeding methods in the development of disease and pest resistant varieties. Significant progress has been made in the development of markers associated with Fusarium resistance, which have found application in the context of melon breeding programmes. In global breeding programmes, the transfer of disease resistance is facilitated by the utilisation of molecular markers. Melon genotypes cultivated in Central Asian countries such as Uzbekistan, Kyrgyzstan, Tajikistan and Kazakhstan, notably Uzbekistan, known as Uzbek melon, are susceptible to fusarium wild disease, resulting in substantial losses in production. To develop varieties resistant to this disease, it is important to determine the resistance status of existing genetic resources. The present study was thus initiated with the objective of determining the fusarium wild resistance of certain Uzbekistan and Kyrgyzstan melon genotypes via molecular markers. The study utilised a total of 30 melon genotypes from Kyrgyzstan and 22 melon genotypes from Uzbekistan, which were subjected to screening for Fusarium wilt disease using markers associated with the Fom-1 and Fom2 genes. The findings revealed that five melon genotypes from Kyrgyzstan and three from Uzbekistan exhibited Fom-1 resistance, while no melon genotypes demonstrated Fom-2 resistance. The findings obtained can contribute to melon breeding programmes.

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AGRO-TOURISM AND ECONOMIC SUSTAINABILITY

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Agriculture is the fundamental sector that has played a strategic role since the beginning of humanity. Tourism sector is a sector that contributes to the national economy with its features of increasing foreign exchange income and providing employment, provides cultural and social communication at the international level and has a great share in the preservation of world peace with its integrative effect. Agro tourism - a type of rural tourism applied in a rural environment where all tourism opportunities and agricultural tourist houses are used and is one of the most effective ways of evaluating the existing local resources in a rural environment. Therefore, it is based on the principles of sustainability in both economic and agricultural terms. Today, most farmers no longer produce only agricultural products. In recent years, perhaps due to the impact of the Covid-19 pandemic, new tourism options have been added to the list for people longing for nature and natural life. Service providers in agriculture and tourism should cooperate to meet guest expectations. In this study, the evaluation of literature information on the subject and economic sustainability principles were examined, starting from the basic point of agro tourism.

THE IMPACT OF LAND USE AND PRECİPİTATİON ON WATER EROSİON İN YEARS WİTH VARYİNG DROUGHT CONDİTİONS

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The variation in precipitation patterns and poor vegetation in sloping lands make water erosion a significant environmental concern. Predicting and controlling erosion rates in these areas over time is particularly challenging. This study investigates the dynamics of water erosion in forest, agricultural, and pasture lands located in Çamlıbel village along the Tokat-Sivas highway. Climate data from 2000 to 2024 were analyzed. Consecutive rainy days and the Standardized Precipitation Index (SPI) were used to classify wet, dry, and normal years within the study period. The results indicate that erosion risk increases significantly in agricultural areas during dry years, whereas forested lands are crucial in reducing water erosion. In pasture lands, erosion levels vary depending on vegetation density. The findings highlight the need for sustainable land management strategies for sloping terrains. Particularly during dry periods, conservation tillage practices and vegetation reinforcement are essential for effective erosion control.

DETERMINATION OF LEAF NUTRIENT CONTENT IN BERBERIS GENOTYPES GROWN IN KAYSERI REGION

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Berberis species' flowers, fruits, and leaves are widely consumed due to their rich nutritional content and positive effects on health. This study determined the leaf mineral content levels of Berberis crataegina DC. genotypes collected from Kayseri province in the center of Turkey. The study material consisted of 10 genotypes collected from Alidağı region of Kayseri province. A total of 13 mineral substances (Al, B, Ca, Cu, Fe, K, Mg, Mn, Na, Ni, P, S, and Zn) were determined in the leaves of the genotypes. The mineral content of leaves differed among genotypes. The most abundant mineral substances in Berberis leaves were determined as Ca (906.32 - 3017.62 mg/kg), Mg (250.75 - 950. 50 mg/kg), K (240.50 - 850.50 mg/kg), P (150.50 -350.00 mg/kg), S (60.30 - 175.75 mg/kg) and Na (40.25 - 95.50 mg/kg). The lowest mineral substances in leaves were determined as Ni (0.20 - 0.05 mg/kg) and Cu (0.85 - 1.95 mg/kg). As a result of the study, it was observed that berberis leaves growing naturally in the region have rich mineral content.

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EFFECTS OF SOME APPLICATIONS ON STRAWBERRY SEEDLING PRODUCTIVITY AND QUALITY

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Abstract: Strawberry is one of the important berries grown widely in the world. In parallel with the increase in strawberry production, the need for quality strawberry seedlings also increases. This study was carried out on the Kabarla strawberry variety. The study investigated the effect of 4 treatments (Control, Glycine + Humic acid, Glycine + IBA, Humic acid + IBA) on strawberry seedling production. The study was designed according to the randomized block trial design with three replications for each application and six plants in each replication. Strawberry seedlings were planted in the first week of May, spacing 50 cm x 1 m. Applications were carried out 4 times with an interval of 15 days when the first stolons on the plants were ready for rooting. Seedlings were divided into three quality groups: A+, A, and B. At the end of the study, it was determined that all applications positively affected the number and quality of strawberry seedlings. While the Humic acid + IBA application was found to be the most effective application to obtain A+ quality seedlings, the Glycine + IBA application was found to be the most effective application to obtain A and B quality seedlings.

A STUDY ON ENVIRONMENTAL AWARENESS

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Since the day human beings came into being, they have met their various basic needs from the natural environment in which they live in order to survive. Over time, needs have diversified and increased, scientific and technological developments have been added to needs such as nutrition, shelter, and security, and the environment has begun to be destroyed at a rapid pace.

The environment can be defined as the environment where living and non-living beings coexist and interact. The most important role in this interaction is played by humans. Humans, who have the ability to change the environment with the desire to use it for their own purposes, have tried to realize these desires for centuries without thinking about living and non-living beings or even themselves. Later, industrialization and technological developments increased the human pressure on the environment and natural resources and exceeded their carrying capacity.

Excessive use of natural resources, depletion, pollution, decrease in green areas, desertification, destruction of fertile agricultural lands, erosion, global warming, depletion of the ozone layer, greenhouse effect, decrease in flora and fauna are important environmental problems encountered today. In this context, determining the environmental sensitivity of individuals forming cities is important for planning studies to be carried out. This study was conducted to determine the environmental sensitivity of students of Akdeniz University Faculty of Communication. Survey technique was used to collect data.

EFFECTS OF DİFFERENT SLOPE GRADİENTS AND LAND USE TYPES ON SOİL PROPERTİES İN TOKAT-ZİLE REGİON

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This study aims to investigate the effects of different slope gradients and land use types on soil properties in the Zile district of Tokat province. Soil samples were collected from agricultural fields, forest, and pasture lands with 0-5°, 5-29°, and above 30° slopes at 0-20 cm and 20-40 cm depths. A total of 54 soil samples were analyzed for pH, electrical conductivity (EC), organic matter (OM), soil texture, total nitrogen (N), phosphorus (P), potassium (K), and cation exchange capacity (CEC). The results indicate that organic matter and nitrogen contents are lower in areas with slopes above 30°, where erosion is more pronounced. Forest lands showed higher levels of organic matter and total nitrogen, while agricultural fields exhibited higher levels of phosphorus and potassium due to fertilizer applications. It was also observed that organic matter and nutrient concentrations were higher at 0-20 cm depths and decreased with increasing depth. These findings demonstrate that slope gradient and land use types significantly influence soil properties and should be considered when developing sustainable soil management strategies. In particular, soil conservation measures are recommended for slopes above 30°, and balanced fertilizer applications should be applied in agricultural fields to maintain soil health and productivity.

PROTEOMIC AND GENOMIC ANALYSIS OF LIPOPEPTIDES PRODUCED BY BACILLUS THURINGIENSIS SY49.1 STRAIN

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Bacillus thuringiensis (*Bt*) is a Gram-positive, spore-forming soil bacterium. During sporulation, *Bt* produces δ-endotoxin-containing crystalline proteins, which are responsible for its toxicity against harmful insects. These properties have led to the development of *Bt*-based biopesticides, making them widely used as active ingredients in pest control. *Bt* strains are recognized not only for their efficacy as biopesticides but also for their environmental safety, as they do not harm beneficial organisms. Recent bioinformatics studies have suggested that certain *Bt* strains also exhibit fungicidal activity against phytopathogenic fungi. However, comprehensive proteomic, bioinformatic, and fungicidal activity analyses in this context remain limited.

This study aims to explore the genomic potential for lipopeptide production in the local *Bt* SY49.1 strain and to verify its production through High-Performance Liquid Chromatography (HPLC). A genome-wide scan for lipopeptide-related genes was conducted using the AntiSMASH (version 4.0) program, which is designed to detect biosynthetic gene clusters for secondary metabolites. Additionally, HPLC analysis was employed to confirm the production of lipopeptides. This investigation provides insight into the genetic

basis for *Bt*'s fungicidal activity and demonstrates the application of proteomic and bioinformatic approaches to enhance its use in sustainable agriculture.

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ABO BLOOD TYPE AND OTHER BIOLOGICAL VARIABLES RELATED WITH COPING MECHANISMS

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When dealing with everyday life problems, people use a variety of coping strategies, depending on the actual situation and on their psychological and biological constitution. Biological variables may have a role in influencing the stress response and, thus, the use of specific coping mechanisms. The aim of our study was to examine this association. We have measured the preference for specific coping strategies using The Coping Orientation to Problems Experienced Inventory (Carver, Scheier, Weintraub, 1989). As biological variables we have considered the ABO blood type, the RH, sex and age of our respondents. Our sample is composed of 265 people, 85 from Bulgaria and 180 from Romania. Out of them, 62 of are men and 203 women. The mean age of the respondents is 32,08 years. The distribution of the blood types in our sample is: 90 blood type 0, 113 blood type A, 42 blood type B and 20 blood type AB. A number of 173 respondents have positive Rh, while 54 have negative Rh (38 of the respondents do not know their Rh). Descriptive analysis shows that the most used coping mechanisms are: positive reinterpretation, planning and direct approach of problems. Seeking instrumental social support or emotional social support and acceptance are also preferred. The strategies less preferred are denial, behavioral disengagement and substance use. While the Rh shows no relevance for coping in the univariate analysis, the blood type appears to create a difference in using the social support dimension ($F = 2.742$ $p = .044$), with the A blood type being the last willing to make use of such support. We have also found differences between men and women. Women obtain significantly higher scores ($p < .05$)

on the scales measuring venting of emotions, the use of social support, active coping, planning and religious coping. Age shows positive correlations with active coping, planning and religious coping ($p = .001$), and negative correlations with mental disengagement and substance use ($p = .01$). We have also considered the joint influence of the biological variables upon the coping style, using GLM ANOVA-based statistical models. We have found some interaction effects, mainly for Rh and sex; for example, for the problem-focused dimension, we have found the highest mean for women with negative Rh ($F = 4.99$, $p = .007$). Based on the results we can conclude that the coping profile of each person is complex and can be linked to specific biological variables.

EMOTIONAL STABILITY AND SOCIAL MATURITY AMONG PSYCHOLOGY STUDENTS

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This study aims to explore the associations between emotional stability and social maturity in a sample of psychology students from a public Romanian university. To meet the objective of the study, we used two established personality inventories: the California Psychological Inventory (CPI) and the Revised NEO Personality Inventory (NEO-PIR). For the Emotional Stability variable we targeted the Neuroticism Factor (NEO PI-R) and, as a complementary indicator, the Well-Being (Wb) scale (CPI). For the variable social maturity we targeted the scales in the second group of the CPI: Responsibility (Re), Socialization (So), Self-control (Sc) and Tolerance (To). Both male and female subjects reported a low level of well-being, with high Neuroticism in men, sub-average CPI scores, while women exhibited slightly below-average values on most scales. The results indicated a positive and significant relationship between emotional stability and social maturity scales. Higher levels of emotional stability were associated with better social functioning among psychology students, highlighting the importance of emotional regulation skills for effective social adaptation during academic training.

PERFECTIONISM AND PROCRASTINATION AT WORK

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Although many negative implications of perfectionism (a personality trait characterized by a person's striving for perfection and setting high performance standards, accompanied by both critical self-evaluations and a preoccupation with evaluating others) are highlighted in clinical settings, striving for perfection is considered a valuable asset or a desirable flaw in the corporate context, because in the organizational setting perfectionism is often perceived as a positive trait leading to increased work efficiency. Procrastination has become a worrying issue, as it is often described as a harmful, unpleasant, dysfunctional phenomenon, the frequency of which seems to be increasing. The present research aims to investigate the relationship between perfectionism and procrastination at work in an organisational context. The study was carried out on a group of 110 participants, employed in sales organisations. The results identified a significant relationship between perfectionism and procrastination at work, which may have effects on professional performance and other organizational variables.

THE RESPONSE OF SOME NEW WINTER WHEAT GENOTYPES IN ARDS PITEȘTI CONDITIONS IN THE 2023-2024 AGRICULTURAL YEAR

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Abstract: Obtaining new winter wheat genotypes is of particular importance in wheat improvement, by increasing production, quality and resistance to the pedoclimatic conditions of the area. Being created under the conditions of ARDS Pitești, winter wheat lines exhibit increased resistance to aluminum ions found in the arable layer. Aluminum ions affect plants because they block the necessary mobile phosphorus, which is why it is necessary to apply amendments based on CaCO3. The studied material was represented by the Ursita variety, considered the control variant, and 4 new winter wheat genotypes, represented by lines A4-10, A44-13, A95-13 and A57-14. The experiment is of the AxBxC trifactorial type, where factor A is represented by the genotype, factor B, the variants that were treated in the seed and the untreated ones, factor C- different fertilization doses, organized according to the randomized block method in 4 repetitions. The results were statistically processed using the parameters: production, protein content, gluten content, hectoliter mass.

GENUS *CERAMBYX* (COLEOPTERA: CERAMBYCIDAE) IN ROSCI0045 CORIDORUL JIULUI (ROMANIA)

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Coridorul Jiului is a Natura 2000 area located in the south-western part of Romania, the climate with Mediterranean influences favoring the presence of thermophilous species of the genus *Cerambyx* Linnaeus 1758. Observations carried out in May-September 2022-2023 led to the identification of four species of *Cerambyx*, out of the five species present in the Romanian fauna: *C. cerdo* Linnaeus 1758, *C. miles* Bonelli 1812, *C. scopolii* Füssli 1775, and *C. welensii* Küster 1846. These saproxylic species dependent on dead wood in various stages of decomposition play an important role in forest ecosystems. *C. cerdo* benefits from protected species status, being included in the Natura 2000 network. Distribution maps and data about the population structure of the longicorns species in the Coridorul Jiului area are presented.

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RESEARCH ON MONITORING THE ECOLOGICAL QUALITY STATE OF THE BUDEASA RESERVOIR IN THE PERIOD 2018-2022

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The Budeasa Dam is part of the Argeş River Basin, which is located in the central-southern part of the country, being between the following geographical coordinates: 43°54'50" - 45°36'30" north latitude and 24°30'50" - 26°44'25" east longitude. It borders the Olt Basin to the north, the Vedea and Olt Basins to the west, the Danube Basin to the south, and the Ialomiţa Basin to the east, with an area of 12,550 km^2. The total theoretical water resource is 3,282 million m^3, and the usable resource is 2,574.279 million m^3 (surface and underground resources). To ensure the water source for various uses, 24 important reservoirs were built with a useful volume of 798.82 million m^3. In this paper, we aimed to monitor the ecological quality status of the Budeasa Reservoir during the period 2018-2022. To achieve the proposed goal, we established the following objectives: analysis of the values of physico-chemical parameters in terms of the quality standards that surface waters used for drinking water must meet; analysis of the values of microbiological indicators in terms of the quality standards that surface waters used for drinking water must meet; Study of the dynamics of seasonal variation of limnoplankton during the studied period; analysis of the ecological quality status based on the phytoplankton biological element and the calculated Multimetric Index (MI). Following the monitoring of the Budeasa Reservoir for the period 2018-2022, it is found that: the monitored physico-chemical parameters fall within the limits of NTPA 013, regarding the quality standards that surface waters used for drinking water must meet (Quality Categories A1 and A2); the monitored

microbiological indicators fall within the limits of NTPA 013 (Quality Category A2), with the exception of July 2018, when the values of the Total and Fecal Coliforms indicators fell within the limits of Quality Category A3; the monitored microbiological indicators fall within the limits of NTPA 013, regarding the quality standards that surface waters used for drinking water must meet (Quality Category A2), with the exception of July 2018, when the values of the Total and Fecal Coliforms indicators fell within the limits of Quality Category A3.

DIVERSITY OF WEED SPECIES FROM WINTER WHEAT CROP AND IT'S IMPORTANCE FOR NEW ACTUAL ECOLOGICAL WAYS

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In each year of wheat cultivation, weed species characterized as specific appear. The determinations were carried out on soils cultivated in private farms. The action becomes important both for the perspective of weed conservation from an ecological point of view, and for their response to the control actions that are taken. Following the weed inventory, a total of 39 species were found. Of these, 28 belonged to annual dicots, 9 to perennial dicots and 2 species were annual monocots. At the same time, this plant spectrum belonged to 16 botanical families, the most representative being the Asteraceae family group. Next, the weeds were grouped according to density and constancy and it was found that the Matricaria genus was dominant in wheat. With the help of these data, intervention decisions can be made to control either the entire weed spectrum in the wheat crop, or only for the dominant ones. This action also acquires a practical importance, with which some levels of economic control intervention are also established.

THE EFFECT OF *BACILLUS HALOTOLERANS*, *BACILLUS PUMILUS, BACILLUS SUBTILIS* ISOLATES ON YIELD AND QUALITY IN SUGAR BEET (*BETA VULGARIS* L.)

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This research was established to examine the effects of 3 *Bacillius* species isolated from soil on the yield and quality parameters of sugar beet. In 2023-2024, the research was conducted in a farmer's field in Kayseri, Turkiye, Turbata variety of sugar beet was used in the experiment. *Bacillius halotolerans*, *Bacillius pumilis* and *Bacillius subtilis* isolates were isolated from sugar beet roots by Aziz Şatana. Seeds were planted in the field on 10.04.2023 and 12.04.2024. Plants harvested on 26.10.2023 and 28.10.2024. Growing season period, reduced NPK was appiled and A total of 7 irrigations were made. Bacteria isolates were sprayed to the soil when the plants had 2-4 leaves at a concentration of $1x10^9$ CFU/ml.
In the research, beet yield, and sugar ratio, briks ratio, sodium ratio, potassium ratio, amino nitrogen etc. parameters were examined. According to statistical analysis, significant differences were found the applied bacteria isolates compared to the control in 2 years.

THE APPLICATION OF ORGANO-MINERAL FERTILIZERS TO AUTUMN WHEAT AS A RESPONSE TO CLIMATIC RESILIENCE OF THE REPUBLIC OF MOLDOVA

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The soils of the Republic of Moldova are characterized by a relatively high natural fertility, but still have a deficiency of macro- and microelements. Therefore, in order to obtain high and stable wheat yields, it is necessary to apply fertilizers in optimal doses and proportions, contributing to the man-soil-plant associative activity of managing the natural productivity potential.
However, the effectiveness of fertilizers depends to a large extent on the type of soil, the ability of the cultivated plant varieties and hybrids to use them, the amount of rainfall and soil water regime, and other complementary factors.
Thus, as a result of the data analysis, it is revealed that the formation of the vegetative part of the autumn wheat plants depended most on the application of organo-mineral fertilizers where, the height of the plants was below the organo-mineral background- 94.1-95.1 cm, compared to the control variant where it constituted- 90.4 cm. This shows that the application of fertilizers is the most important means of restoring the nutrients assimilated from the soil by the plants, a means of balancing the soil content of these elements in relation to the needs of plants during the growing season.

EVALUATION OF WILD STRAINS OF *PLEUROTUS OSTREATUS* ISOLATED FROM SPONTANEOUS MYCOBIOTA BY MYCELIUM GROWTH CHARACTERISTICS *IN VITRO*

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Specimens of *Pleurotus ostreatus* mushrooms from spontaneous mycobiota were collected from different regions of Romania, in order to obtain mycelial isolates, preserve and use them for the development of the cultivated assortment. The mycelia of the PoBr and Po2T strains, obtained from a first collection series, were clonally multiplied and cultured *in vitro* to highlight the morphophysiological and cultural characteristics of the colonies, compared to two commercial strains of *P. ostreatus*. The wild isolates have developed on three variants of agarized media – with potato extract (PDA), with malt extract (MEA) and with compost extract (MECA) – viable, robust mycelial colonies, with morphology similar to that of commercial strains but also with their own peculiarities. The growth rate of wild mycelia was lower than in commercial ones. A similar behavior of the new isolates was highlighted during the preparation of the seeding mycelium/spawn grown on wheat grains and, subsequently, during the colonization period, on the lignocellulosic substrate prepared in two variants for the fruiting tests.

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INFLUENCE OF IMMUNOSTIMULATORS ON PRODUCTIVITY AND HARVEST QUALITY OF SUNFLOWER UNDER DRY CONDITIONS ON LUTO-ARGILOS LEVYED CERNOZYMOSM OF THE REPUBLIC OF MOLDOVA

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Sunflower is one of the strategic crops for the Republic of Moldova, cultivated on about 30% of the country's arable land. Under dry climatic conditions, yields decrease up to 0.8 -1.5 tons per hectare. This is explained by the negative humus balance and very low fertilizer norms of 20-30 kg/ha. To solve this problem in agricultural production it is necessary to make changes in the fertilization system by targeted application of fertilizer norms depending on the macroelement content in the soil before sowing and by including new types of fertilizers in combination with growth stimulators. The use of immunostimulants increased the sunflower yield by 2.32 - 2.45 t/ha compared to the control variant where an average of 1.51 t/ha was recorded. The application of the immunostimulant "Endofit L1" also increased the oil yield by 371-506 kg/ha compared to the control. The agronomic efficacy of the immunostimulant applied in doses of 50 ml/ha in the four-leaf stage and 200 ml/ha in the six-leaf stage, respectively, was 156 - 176 %.

CONTROL OF THE PATHOGENS ON BELL PEPPERS AND EGGPLANTS UNDER HIGH PLASTIC TUNNELS

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The experiments aimed to evaluate the efficacy of some fungicides for the control of pathogens in peppers and eggplants crops under high plastic tunnels. The crops (extended cycle) were established on May 9, in the 2024 year, at R.D.I.V.F.G.-Vidra. The biological material was represented by 2 bell pepper hybrids (Piedone F1 and Blancina F1) and 2 eggplant hybrids (Aragon F1 and Epic F1). Experiments included 5 variants (V5. Untreated control), with 3 replicates. Four treatments with fungicides were applied, at 10-day intervals. The tested products were: V1. Amistar 0.1%, V2. Dagonis 0.1%, V3. Ortiva Top 0.1% and V4. Cidely Top 0.1%. On peppers crops, the Piedone F1 hybrid was attacked by the pathogens Alternaria solani and Colletotrichum capsici, and the Blancina F1 hybrid only by the pathogen Alternaria solani. On eggplants crops, the Epic F1 hybrid was attacked by the pathogens Alternaria solani and Botrytis cinerea, and the Aragon F1 hybrid, only by the pathogen Botrytis cinerea. Among the tested fungicides, Ortiva Top 0.1% and Amistar 0.1% for peppers and Dagonis 0.1% and Amistar 0.1% for eggplants stood out for their efficacy and yield. The Blancina F1 peppers hybrid is less sensitive to the attack of the pathogens Alternaria solani and Colletotrichum capsici and the Aragon F1 eggplants hybrid is less sensitive to the attack produced by Alternaria solani and Botrytis cinerea.

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EFFECTS OF *BACLLIUS* SPP. AND MOLYBDENUM ON THE YIELD AND QUALITY OF CONFECTIONERY SUNFLOWER SEEDS (*HELIANTHUS ANNUUS* L.)

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This research was established to examine the effects of 2 *Bacillius* species from soil and different doses of molybdenum on the yield and quality parameters of confectionery sunflower. In 2024, the research was conducted in a farmer's field in Kayseri, Türkiye. 361 variety of confectionery sunflower originating from China was used in the experiment. Four molybdenum doses were applied to the plants, including *Bacillius halotolerans* and *Bacillius pumilis* isolates, isolated from sugar beet roots by Aziz Şatana, at a concentration of $1x10^9$ CFU/ml and the control at 0, 0.2, 0.8 and 1.6 ppm/da. Seeds were planted in the field on 19.04.2024 and harvested on 26.09.2024. Before planting, DAP was given at 30 kg/da, during the 8-10 leaf period, Ammonium was given at 10 kg/da twice, and in the second irrigation, Ammonium sulphate was given at 25 kg/da. A total of 5 irrigations were made. Bacteria isolates were applied to the soil and molybdenum doses were sprayed on the leaves when the plants had 6-8 leaves.
In the research, plant height, head diameter, 1000 seed weight, seed yield, oil ratio and fatty acid composition etc. parameters were examined. According to statistical analysis, significant differences were found between the applied bacteria isolates and mobile doses compared to the control.

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ASSESSMENT OF COLEOPTERA DIVERSITY AS BIOINDICATORS IN THE OPACI STEPPE ECOSYSTEM, REPUBLIC OF MOLDOVA

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Steppes are ecologically valuable ecosystems characterized by high biodiversity, including endemic species. In the Republic of Moldova, steppe habitats are declining due to human activities such as plowing, overgrazing, and soil degradation. This study aimed to assess the current state of the steppe ecosystem in the Opaci locality, Causeni district, by analying the diversity of Coleoptera, used as bioindicators of ecosystem health.
Fieldwork was conducted between May and October in 2023 and 2024, totaling approximately 18 weeks of collection each year. Coleoptera specimens were sampled using a Malaise trap installed in the Opaci steppe and emptied weekly.
A total of 26 Coleoptera families were identified. The most frequently encountered families included Coccinellidae, Chrysomelidae, Mordellidae, Melyridae, Curculionidae, Latridiidae, and Staphylinidae. Peak abundance was recorded in June.
The presence of a wide range of beetle families indicates a high level of faunal diversity in the Opaci steppe compared to other steppe ecosystems in the country. These findings highlight the ecological significance of this habitat and underscore the need for its conservation and restoration.

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STUDY OF THE RELATIONSHIP BETWEEN CLIMATIC CONDITIONS AND WHEAT PRODUCTIONS DURING 2020-2024 AT SCDA CARACAL

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Although Romania's climate is known as "moderate continental", in recent years extremely large variations have occurred (total amount of precipitation from one year to another, its distribution throughout the year), which determines water deficits frequently associated with heat during the growth and development of wheat on the chernozem of Caracal. To study the variability of some of the characters involved in drought resistance of winter wheat, 220 common wheat varieties of different origins were used. The presentation of the pluviometric regime was made based on the Angot index, an index that expresses how rainy the month is in relation to the overall precipitation in a year.
The frequency of months was determined according to the drought intensity classes. Based on the average yields obtained in the period 2020-2024, a restricted common assortment was established. Starting from this, were analyzed the relationship between the average yield and the Angot index, the reaction of varieties to contrasting water supply conditions, the interaction of temperatures x precipitation in

the May-June period (Triboi model, 2008) and the influence of water stress on production, productivity elements (number of grains/ear, weight of grains/ear, TKW) and production quality (TW, protein).

MINERAL NUTRITION OF TOMATOES BASED ON SOIL ANALYSIS

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Tomato (*Solanum lucopersicum* L.) is the second most cultivated vegetable crop throughout the world, with approximately 181 million tonnes from 5 Mha. In Southern Europe, it ranks as the highest yielding vegetable with 0.2 Mha, and the major producers in the Mediterranean basin are Turkey, Egypt, Italy, Spain, and Morocco. Tomato plants require at least twelve nutrients, also called "essential elements", for normal growth and reproduction. These are nitrogen (N), phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg), sulfur (S), boron (B), iron (Fe), manganese (Mn), copper (Cu), zinc (Zn) and molybdenum (Mo). To identify the essential elements soil samples were taken from Giurgiu County, Vărăști village, from a greenhouse where tomatoes are grown. The determinations of the soil sample recorded low ammonium, high amounts of sodium, magnesium, chlorides, phosphorus, nitrates and nitrites. Fertilization recommendations were made to correct the quantities of the main nutrients analyzed. After applying the recommended fertilizers, a soil sample was taken again to compare the results with the first sample.

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THE INFLUENCE OF SOWING DATE ON PRODUCTIVITY ELEMENTS AND PRODUCTION IN CORN GROWN ON CHERNOZEM

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The most important stage in the life cycle of any plant is emergence. Only after that can it be said that it has a chance to reach maturity and produce. A bifactorial experience: factor A – hybrid with 6 graduations: P 8834, P9398, P9889, P9944, P0450, P0710) and factor B – sowing time – with 2 graduations: 27.03.2024 and 16.04.2024, was placed on the chernozem of Caracal, in 2024. The hybrids were grouped in pairs and are part of three FAO groups (300-350, 350-450, and 450-500). The aim of the paper was to establish the influence of the sowing date on the elements of productivity and production.
In 2024, yields were extremely low (maximum 2600 kg/ha) but above the average yields obtained in Oltenia (500-800 kg/ha). While the hybrids of the FAO 300-350 group obtained higher yields by approximately 500 kg/ha in the first period, the hybrids in the following groups obtained lower yields by 500-550 kg/ha, and 230 kg/ha respectively, compared to the second period. Regardless of the hybrid, yields are almost identical at the two sowing dates.

COMPARATIVE STUDIES BETWEEN CONVENTIONAL & ORGANIC DEMETER AGRICULTURAL SYSTEMS ON THE MAIN AGRICULTURAL CROPS GROWN ON THE CHERNOZEM OF BAILEȘTI, DOLJ. I. CARBON FOOTPRINT OF WHEAT, BARLEY, CORN AND SUNFLOWER CROPS

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The agricultural sector is a significant contributor to global carbon emissions, through the use of agricultural machinery, crop protection chemicals such as herbicides, insecticides, fungicides and fertilizers. The proportion of the global carbon footprint due to agriculture is approximately 8%, of which 75% is directly related to the use of fertilizers. For 4 agricultural crops: wheat, barley, corn and sunflower, grown in 2 agricultural farms: Terra Nostra Farm from Băilești - Demeter organic technology and Trăistaru Farm Băilești - conventional technology, the carbon footprint was calculated in the years 2023 and 2024.
The ratio of carbon emitted/carbon sequestered in corn ranged between 176.32 and 349.65 in organic versus conventional technology, in wheat almost identical in both technologies - Demeter organic versus conventional technology (817.45, respectively 818). Close to wheat, barley appears with a ratio value of 777.5 in conventional. In sunflower, the ratio of carbon emitted/carbon sequestered was 523.15 also in conventional technology.

STUDIES ON THE INFLUENCE OF THE BIOSTIMULATOR UTRISHA AND THE STABILIZER INSTINCT ON ROOT AND SHOOT BIOMASS IN CORN GROWN IN THE CENTRAL AREA OF OLTENIA

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The Utrisha biostimulator presents a new approach to the use of nitrogen applied to corn crops. A three-factorial experience with corn hybrids was located for two years (2023 and 2024) on the chernozem of Caracal. Three corn hybrids (factor A) fertilized with 3 doses of urea (factor B) were sown after their seed was treated with the Utrisha biostimulator and the Instinct stabilizer with 4 doses (factor C). The corn hybrids used were: P9944, P0260, P0450.
The tested urea doses were: 50 kg/ha, 100 kg/ha and 150 kg/ha and the biostimulator doses: untreated, Instinct 1 liter/ha + Utrisha N 250 g/ha, Instinct 1.7 liter/ha + Utrisha N 333 g/ha and Instinct 2.5 liter/ha + Utrisha N 400 g/ha. The root biomass and plant height were analyzed in terms of the influence of the studied factors and their interaction. Among the factors, only factor C had a very strong influence on the root biomass and among its graduations, the seed treatment with Instinct 1 liter/ha + Utrisha N 250 g/ha had a very significant influence, this being a lower dose than the recommended one.

RESEARCH ON THE RELATIONSHIP BETWEEN DETERMINED CHARACTERS AND PRODUCTION, UNDER THE INFLUENCE OF THE YMPACT BIOSTIMULATOR, IN WHEAT GROWN ON CHERNOZEM AT SCDA CARACAL

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For 3 years (2021-2023) on the chernozem of Caracal, the influence of the Ympact biostimulator on the winter wheat variety Glosa was studied through the prism of numerous characters classified according to phenophases as follows: plant growth and development (number of sprouted plants/m^2, number of siblings/plant, total plant biomass in spring, root biomass in spring, height); formation of generative organs (number of fertile siblings/m^2, spike length, number of grains/spike, weight of grains/spike), production formation (number of spikes/m^2, number of grains/m^2, mass of 1000 grains); harvest production and its quality (production, total plant biomass, harvest index, hectoliter mass).
In addition to Ympact, the biostimulator Kerafol was also tested, both in two doses and 2 variants not treated with biostimulator. The correlations calculated for the entire experiment showed that production was correlated with the number of siblings/plant, root biomass, grain weight/ear, total dry biomass and harvest index, and those calculated strictly for the variants treated with Ympact revealed strongly positive correlations with the number of plants/m^2 and total dry biomass.

STUDIES ON THE VARIABILITY OF THE CHARACTERS IDENTIFIED BASED ON THE UPOV GUIDE IN A VARIETY OF WINTER WHEAT GROWN ON THE CARACAL CHERNOZEM

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A winter wheat assortment comprising 190 varieties of different origins was sown on the chernozem of Caracal in the fall of 2023. Based on the observations underlying the characterization of wheat plants according to the UPOV (The International Union for the Protection of New Varieties of Plants) guide, distributions were made for several characters, namely: plant habit, frequency of plants with recurved flag leaves, earing date, plant height, ear compactness (density), awn length, ear length, ear shape in profile.
For the characters determined by measured values, the coefficient of variability was calculated to highlight the presence or absence of stability. The same characters were also evaluated based on the box-plot to highlight the existence of outliers or extreme values, values that deviate significantly from all the determinations made. Also, for each score for the characters mentioned above, new examples were added to simplify subsequent determinations and to broaden the base of reference varieties. The determined variability can be the basis of the wheat breeding program for the selection of parents.

DETERMINANTS OF HUMAN INTELLIGENCE VARIABILITY: GENE-ENVIRONMENT INTERACTIONS, SOCIOECONOMIC MODULATION, AND IMPLICATIONS FOR PERSONALIZED EDUCATION

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This study comprehensively examines the determinants underlying human intelligence variability, integrating evidence from behavioural genetics, epigenetics, and psychometric analyses. Genetic factors account for 50–80% of intelligence heritability, with genome-wide association studies (GWAS) identifying over 1,200 loci linked to cognitive traits, including genes such as *FOXP2*, *BDNF*, and *COMT*. Epigenetic mechanisms, particularly DNA methylation and histone modifications, dynamically regulate gene expression in response to environmental influences like nutrition, stress, and early cognitive stimulation. Twin studies underscore increasing heritability with age, highlighting gene-environment interactions where socioeconomic status (SES) modulates genetic effects, environmental factors dominate in low-SES contexts, while genetic influences prevail in high-SES settings. The Flynn effect, illustrating secular IQ gains, underscores environmental contributions such as education and healthcare advancements. An empirical analysis of 202 adolescents (10–15 years) revealed significant IQ correlations with parental education (Spearman's r=0.233, p=0.001) and age-related cognitive development (Kruskal-Wallis, p=0.003), with urban environments and higher birth weight weakly associated with elevated IQ. These findings emphasize the synergistic role of genetic predispositions and environmental exposures in shaping cognitive outcomes. The study advocates for personalized educational strategies and ethical frameworks to address genetic equity, urging policies that bridge socioeconomic disparities to optimize intellectual potential across diverse populations.

THE INFLUENCE OF CLIMATIC CONDITIONS ON THE PHENOLOGICAL AND ORNAMENTAL BEHAVIOR OF SOME VARIETIES OF THE GENUS *NARCISSUS* L.

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The article presents the results of the study of 16 varieties of the genus *Narcissus* L., from an ecological and ornamental point of view. In the 3 consecutive years (2021, 2022, 2023), measurements were made on the plant height (H), flower diameter (Ɵ); the duration of the flowering period (days) was determined. *Narcissus cyclamineus* 'Tete-a-Tete' recorded the lowest average height (15 cm), but also the smallest average calyx diameter (3 cm). *Narcissus poeticus* 'Sinopel', *Narcissus poeticus* 'Recurvus' and *Narcissus tazetta* 'Martinette' had heights ranging between 33 cm and 35 cm. The duration of the flowering phase varied on average from 7 days for 'Martinette' to 18 days for 'Tete-a-Tete'. The following varieties stood out for their cup diameter (between 8 and 12 cm) and the beauty of their flowers: 'Tickled Pinkeen'; 'Kedron'; 'Gay Kybo'; 'Czardas'; 'Samantha', 'Sovereign', 'Geneve', 'Pink Charm'. Phenological observations showed that the flowering time for all the studied varieties depends on meteorological parameters and the category in which they are classified. Varieties with small flowers were used in seasonal floral compositions and in traditional ceramic vases. Varieties with large and beautifully shaped flowers, unicolor or bicolor, strong peduncles, pleasant aroma were introduced into floral arrangements in elegant vases.

ASSESSMENT OF PLANT PRODUCTIVITY AND FRUIT QUALITY IN TWO ELDERBERRY (*SAMBUCUS NIGRA* L.) CULTIVARS GROWN IN MĂRĂCINENI, ARGEȘ

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Elderberry (*Sambucus nigra* L.) is recognized for its rich profile of bioactive compounds and its broad potential in promoting health. Gaining deeper insights into these properties can help maximize its use within the food industry. The fruit is notably abundant in biologically active substances, especially (poly)phenols and terpenoids. Researchers indicates that various food processing methods can significantly impact the concentration and efficacy of these compounds. From a health perspective, both in vitro (laboratory-based) and in vivo (animal or human) studies have demonstrated that elderberry exhibits a variety of beneficial effects, including antioxidant, anti-inflammatory, anticancer, antiviral (particularly against influenza), antimicrobial, antidiabetic, cardioprotective, and neuroprotective activities. These effects are believed to occur through modulation of key cellular signaling pathways and molecular targets. Despite the encouraging evidence, clinical trials confirming these health benefits in humans are still relatively scarce. Nonetheless, elderberry remains a promising natural ingredient with strong potential for use in functional foods and nutraceuticals designed to help prevent or manage chronic health conditions. The objective of this study is to analyze the plant productivity and fruit quality of two edelberry cultivars in Mărăcineni, Argeş.

THE ADAPTABILITY OF THE EARLY CORN LINES, CREATED AT S.C.D.A SUCEAVA, TO THE STRESS OF CLIMATIC FACTORS SPECIFIC TO THE S.C.D.A PITEȘTI-ALBOTA AREA

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The increasingly variable yields of field crops are due to increasing climate change in recent years. Thus, an important objective of breeding programs in the country and abroad it consists of improving the adaptability to drought and heat of field plants (especially maize). As a result of research, it has been found that drought and heat are very dangerous for corn, as they occur during and after pollination, as well as at different stages of grain filling. In order to reduce losses, it is recommended to identify and use genotypes that can provide an increase and stability of the harvest regardless of the climatic conditions. Thus, emphasis is placed on the expansion of early hybrids in production. Breeding maize for early sowing requires basic germplasm with germination capacity and vigorous growth under low temperature conditions.

The purpose of this research, in which we used as research material 19 early inbred lines and the Suceava M Hybrid (control); was to evaluate and identify inbred lines with tolerance and adaptability to adverse conditions. Of all the lines analyzed, the L19 line showed considerable adaptability to the dry climate, evidenced by the highest level of production, supported by a higher number of rows per cob.

INFLUENCE OF SOME BIO-FERTILIZERS ON THE MORPHOLOGY AND QUALITY OF WINTER WHEAT

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Research conducted in recent years has shown the need for a gradual reduction in NPK fertilizers. At the same time, the promotion of fertilizers characterized as being as gentle as possible on the growing environment has begun. This material presents results obtained with such fertilizers, namely for the cultivation of winter wheat, the products were specific: N-Durro 46 and Fertisfera 64 in different doses that can be applied in production farms. The results obtained have demonstrated particularly favorable levels, with some small differences in addition. Thus, the total production of biomass oscillated between 13-16 t/ha, the production of ears between 6.5-9.9 t/ha and the production of grains was between 5.7- 6.8 t/ha. An important index from a practical point of view was the mass- MTG of a thousand grains, which had values between 39 and 43 gr. Regarding the influence of the factors, positive correlations were generally found between the analyzed elements, which recommends the use of the 2 products in agricultural fields, especially on the soils specific to the station.

ANTIMICROBIAL ACTIVITY OF DIFFERENT COMMERCIAL PLANT EXTRACTS

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Due to the development of adverse effects and microbial resistance to the chemically synthesized drugs, the interest in various plant extracts for their antibacterial properties increased over the years. Plants were once considered as a daily food. Now, plants are popularly used as a common source in medicinal agents, food additives, cosmeceuticals and nutraceuticals (as a promising source of antimicrobial, antioxidant and anti-inflammatory substances). The aim of this paper was to establish the antimicrobial properties of some alcoholic plant extracts against three reference bacterial strains (*Staphylococcus aureus ATCC 25923, Bacillus subtilis ISM 68/53* and *Escherichia coli ATCC 25922*). The ethanolic and methanolic extracts of two types of cabbage (red and white), two types of onion (red and green) and turmeric were used. The disk diffusion method was used, and the most promising results were obtained for ethanolic extracts of red and green onion against *E. coli* and for turmeric ethanolic extract. Common plants have therefore some antibacterial effects and can be used both in food and pharmaceutical industries.

THE INFLUENCE OF SILVER NANOPARTICLES ON GAMETOPHYTE DIFFERENTIATION IN SOME LEPTOSPORANGIATE FERNS

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Currently, silver nanoparticles (AgNp) have a wide applicability, being used in more and more fields, including industrial, medical, agricultural, environmental protection, etc. Once in the environment, nanoparticles can have negative effects on living things, neutral or beneficial effects. The aim of this research was to highlight the influence of silver nanoparticles on spore germination and gametophyte differentiation in *Asplenium scolopendrium*, *Athyrium filix-femina* and *Dryopteris filix-mas* fern species. In the *in vitro* experiment, AgNp (Thermo Scientific Chemicals) with a size of 20 nm, 0.02mg/mL, supplied in 2mM sodium citrate, diluted 10 (N1), 100 (N2) and 1000x (N3) were used. The control variants were cultivated on Knop solution (Control 1), as well as on the mixture of Knop solution and 2mM sodium citrate (1:1) (Control 2). The cultures maintained at room temperature (18±2°C) were periodically analyzed microscopically after 3 and 8 weeks, respectively. The results obtained indicate that the AgNp solution, dilution 10^{-1}, inhibits spore germination in the three tested species. The other two nanoparticle solutions (dilution 10^{-2} and 10^{-3}) to which the spores and gametophytes were exposed determined a gametophyte differentiation similar to the control variant.

THE INFLUENCE OF HEAVY WATER ON THE GROWTH AND PIGMENT CONTENT IN SOME CULTIVATED PLANTS

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Water is essential for life and is the most widely used solvent. Heavy water, or deuterium oxide (^2H_2O or D_2O), is a type of water with diverse uses in nuclear magnetic resonance, organic chemistry, infrared spectroscopy, neutrino detection systems, medicine, etc.
The aim of this study was to identify the influence of heavy water on the development of three cultivated species of plants: cucumber, wheat, and peas. The two species of dicotyledons used, *Pisum sativum* and *Cucumis sativus,* were bought from the store, while the seeds of *Triticum aestivum* variety Trivale were purchased from the Agricultural Research and Development Station Pitești, Albota. The seeds were hydrated for one hours in distilled water. The immersion period in heavy water was also one hour. The seeds were placed on filter paper in Petri dishes, maintained at room temperature (18±2°C), and watered periodically. After two weeks, the roots, stems, and leaves of seedlings were measured using millimetric paper, and the pigments were determined in an acetonic extract using a spectrophotometer. Heavy water exposure significantly inhibited root, stem, and leaf development in *Pisum sativum.* In cucumber plants, inhibition was observed in all three organs, but was significant only in the leaves. Although there were no significant differences in terms of seedling length growth in *Triticum aestivum,*the amount of carotenoid pigments in the heavy water variant was lower than that in the control. For the other two species, the content of chlorophyll had a descedent trend in the D_2O variants, but the differences weren`t significant.

EVALUATION OF PGPR ISOLATES AS BIOSTIMULANTS FOR ENHANCING GROWTH IN COMMON BEAN (*PHASEOLUS VULGARIS* L.)

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Green Bean is an important floriculture plant worldwide. This study was conducted to investigate the effects of seed-inoculated PGPR (Plant Growth-Promoting Rhizobacteria) applications on the growth of common bean (*Phaseolus vulgaris* L.). The experiment was carried out under unheated greenhouse conditions using a commercial NPK fertilizer (18:18:18) and five different PGPR isolates: *Bacillus megaterium* U2-1, *Pseudomonas putida* 9-4-2, *Bacillus thuringiensis* 2B-2-2, *Bacillus* spp. 2B-3-1, and *Bacillus pumilus* EU-20. The bacterial treatments were applied by soaking the seeds for one minute in bacterial suspensions at a concentration of 1×10^3 cfu; the control group was treated with sterile distilled water under the same conditions. Observations were conducted until the beginning of the flowering stage to evaluate the effects of PGPR on plant development. The results revealed that bacterial applications significantly enhanced plant height, stem diameter, fresh and dry plant weight, root fresh and dry weight, root length, leaf area, and leaf number compared to the control. Overall, the effects of different rhizobacterial isolates on growth parameters were found to be comparable to those of commercial fertilizer applications. These findings highlight the potential of PGPR formulations as promising biostimulant agents in vegetable production and their role in promoting sustainable and environmentally friendly cultivation practices.

INVESTIGATION OF THE EFFECT OF *BACILLUS SUBTILIS* AND *BACILLUS THURINGIENSIS* AS BIO-AGENTS ON ANTHRACNOSE (*COLLETOTRICHUM* SPP.) DISEASE IN KALANCHOE

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Kalanchoe is a perennial succulent plant belonging to the Crassulaceae family and is highly susceptible to various pathogens, particularly fungal and bacterial diseases. Among these, anthracnose is one of the most prevalent disease factors affecting *Kalanchoe*. This study aimed to evaluate the efficacy of a bioformulation containing four plant growth-promoting rhizobacteria (PGPR) strains—*Bacillus subtilis* (61.29e and 3.3a) and *Bacillus thuringiensis* (2B3-1 and 2B2-2)—in controlling anthracnose disease. PGPR solutions were prepared at two concentrations (3×10^8 and 3×10^3 CFU/mL), and six treatment groups were established by foliar spraying on the plants: (1) application of diluted bacterial solution (3×10^3 CFU/mL) four days after anthracnose inoculation, (2) full-dose bacterial solution (3×10^8 CFU/mL) applied four days after inoculation, (3) repeated full-dose application at four-day intervals post-inoculation, (4) culture medium application four days after inoculation, (5) bacterial application followed by anthracnose inoculation after four days, and (6) control group with anthracnose inoculation only. The results demonstrated that the application of PGPR prior to disease inoculation was the most effective strategy in reducing disease symptoms. This was followed by the application of the full-dose bacterial solution post-inoculation. In contrast, application of the diluted solution after infection showed higher disease incidence. Nevertheless, all PGPR treatments, whether applied before or after infection, significantly outperformed the

control and culture medium treatments in suppressing anthracnose. These findings highlight the potential of *Bacillus* spp. based PGPR formulations as promising biological control agents for anthracnose management in ornamental plants, contributing to the development of sustainable and environmentally friendly plant disease management strategies.

FOUR SPECIES OF SAPROXYLIC COLEOPTERANS (INSECTA: COLEOPTERA) FROM THE REPUBLIC OF MOLDOVA, FIRST REPORT

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The paper includes four species of saproxylic beetles collected in 2023–2024 from the Plaiul Fagului and Codrii Reserves and which are the first reported in the fauna of the Republic of Moldova. Both forest reserves have plant associations typical for Central Europe located at the extreme southeast of their range. The specimens were collected under the bark of dead and decaying trees, affected by molds and fungi. The saproxylic species *Lymexylon navale* (Linnaeus, 1758) was captured using trunk traps in the Plaiul Fagului Reserve. The species is found in Central Europe, but is quite rare. The second species *Pediacus dermestoides* (Fabricius, 1792) was collected from the Plaiul Fagului Reserve, being fungivorous species, with a Palearctic distribution. The third species *Leiestes seminiger* (Gyllenhal, 1808) was also collected from the Plaiul Fagului Reserve. This fungivorous species, has a European distribution. In Slovakia, it is placed in the vulnerable category. The fourth species *Grynocharis oblonga* (Linnaeus, 1758) was collected from the Codrii Reserve. This mycetophagous species is widespread in Central Europe. Despite the fact that saproxylic research has been carried out regularly in recent years, new species of coleoptera are still being identified.

Acknowledgments
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ANATOMICAL-MORPHOLOGICAL AND ITS-BASED PHYLOGENETIC EVALUATION OF SELECTED LICHENIZED FUNGI FROM ROBERT ISLAND (ANTARCTIC PENINSULA, ANTARCTICA)

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In this study, taxonomic investigations were conducted on six lichenized fungi species from Robert Island (Antarctic Peninsula). The anatomical and morphological characteristics of the specimens were examined, along with molecular data. Internal Transcribed Spacer (ITS) primers were used as molecular markers for six species. Phylogenetic analyses were performed using sequences obtained from both the collected specimens and reference data from GenBank. The phylogenetic relationships and evolutionary tree construction were based on the Maximum Likelihood method. As a result of the study, the following lichenized fungi species were identified: *Austrolecia antarctica* Hertel, *Lecanora polytropa* (Ehrh.) Rabenh., *Placopsis antarctica* (Nyl.) I.M.Lamb, *Rhizocarpon geminatum* Körb., *Rhizocarpon polycarpum* (Hepp) Th.Fr., *Usnea aurantiaco-atra* (Jacq) Bory.

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We would like to thank Erciyes University Dean of Research for providing the necessary infrastructure and laboratory facilities at the ArGePark research building.

We acknowledge the support of Prof. Dr. Mehmet Gökhan Halıcı for his valuable guidance during the fieldwork and species identification process. Special thanks are extended to the sequencing facility staff for their assistance in molecular data generation. This study forms part of the MSc thesis of Sema Seda Yüksel and was conducted under academic supervision and institutional ethical standards.

COMPARISON OF FORAGE YIELD AND NUTRITIONAL VALUES OF NEWLY DEVELOPED GENOTYPES OF HAIRY VETCH (*VICIA VILLOSA* ROTH.)

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The research was conducted to comprise the forage yield, quality and nutritional values of newly developed hairy vetch (*Vicia villosa* Roth.) genotypes. The experiment was carried out in subtropical ecological conditions at Güveçli village Süleymanpaşa-Tekirdağ, Türkiye with three replications in randomize block design. Nineteen newly developed hairy vetch lines and cv. Ceylan were used as seed materials. The genotypes were harvested at 30% flowering stage to determine green and dry fodder yields (t ha^{-1}). According to the results of the study, natural plant height of hairy vetch genotypes varied between 54.30-100 cm, plant height 124.16-187.85 cm, green fodder yield 41.89-63.29 t ha^{-1}, dry fodder yield 6.35-16.73 t ha^{-1}, dry matter ratio 88.98-89.99%, crude protein ratio 16.72-16.99%, crude fiber ratio 23.51-24.00%, crude ash ratio 7.48-8.10%, NDF 45.63-45.97%, ADF 35.59-35.61%, ADL 12.15-12.20%, P 0.51-0.47%, K 1.93-1.96%, Ca 3.93-4.12%, Mg 0.47-0.50%, tetany ratio 0.42-0.44, digestible dry matter (DDM) 61.16-61.25%, dry matter intake (DMI) 2.61-2.63%, total digestible nutrients (TDN) 55.40-55.54%, net energy for lactation (Nel) 0.5631-0.5647(Mcal lb^{-1}), net energy for maintenance (Nem) 0.5982-0.6000 (Mcal lb^{-1}), net energy for gain (Neg) 0.2712-0.2730 (Mcal lb^{-1}) and relative feed value (RFV) 123.93-124.69%. The highest green fodder yield was recorded in lines TYF16 and TYF12, and the highest dry fodder yield in line TYF14. The highest crude protein ratio was found in line TYF17. When the RFV were examined, it is seen that the hairy vetch lines have the characteristic of being high quality roughage. The highest RFV was found in lines TYF16 and TYF9 and cv. Ceylan. The promising lines TYF9, TYF12, TYF14, TYF16 and TYF17 come to the fore to be used as a basis for future studies.

PHYSIOLOGICAL AND HEAT SHOCK PROTEIN RESPONSES IN BELL PEPPER PLANTS UNDER HEAT STRESS

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The effects of heat stress on the relative water content (RWC), turgidity loss, total soluble protein (TSP), SDS-PAGE protein profiles, and heat shock protein of bell pepper (Capsicum annuum L. cv. "Kandil") leaves were studied. During the seedling stage, leaf samples were obtained from the plants and subjected to heat stress treatments in a water bath at 35, 40, 45, 50, 55, and 60°C in 30-minute increments. Heat stress tolerance (LT50) was then computed. The results revealed that the LT50 value for the bell pepper cultivar was 41.2°C. As temperature rose, leaf RWC decreased and turgor loss increased. The TSP content was higher in the 35 and 40°C treatments compared to the control group, a significant decrease was observed at 60°C. SDS-PAGE analysis revealed various protein bands ranging from 7 to 54 kDa. The HSP60 antibody identified a band around 40 kDa under all temperature treatments. Moreover, the intensity of 40 kDa protein in plants at 35, 40, and 55°C was higher than in the control group. Furthermore, the strength of this band fell considerably at 60°C. These results suggest that the 40 kDa protein may play a role in enhancing HST in bell pepper plants.

WATER QUALITY ASSESSMENT OF A TUNISIAN COASTAL AQUIFER: IRRIGATION AND DRINKING PURPOSES

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This work aimed to study the water quality of a Tunisian costal aquifer system. The study area is characterized by a semi-arid climate. The excessive exploitation of this aquifer, during the last few decades, has induced declining piezometric levels and deterioration of groundwater quality by salinization.

To better understand the hydrochemical properties of this groundwater, a multidisciplinary study is conducted to study the aquifer system. Indeed, many indices have been calculated to define the water quality for irrigation and drinking purposes.

The high nitrate contents are essentially the result of the domestic uses and the anthropogenic activities (agricultural return flow and the use of fertilizers). The investigation of the water quality showed that it couldn't be used for irrigation and it isn't suitable for drinking due to their chief threat on soil vulnerability and water use.

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CURRENT TRENDS ON FORTIFICATION AND ADDITION OF PLANT BIO-BASED INGREDIENTS IN THE BAKERY MANUFACTURING PROCESS

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Beside the nutritional value, food may deliver specific health benefits through the addition of bioactive/ functional ingredients. This paper provides a comprehensive analysis regarding the key biochemical compounds used to fortify bakery products, and on bioactive ingredients and mixtures frequently used in such food products. The study highlights current trends in the integration of plant-based ingredients, such as tubers, legumes, pseudocereals, and fruits, as well as pure compounds including vitamins, minerals, complex carbohydrates and proteins, into bread and biscuits, with the aim to improve their nutritional profile and to address global nutritional deficiencies. Based on a literature review covering the period 2016–2025, the effects of fortification on dough rheology, fermentation processes, final product structure, and shelf stability were evaluated. The paper emphasizes the beneficial effects of ascorbic acid on gluten gas retention capacity, crumb structure, dough extensibility, and the potential impact on product shelf life. A broader overview of the complex interaction between added bioingredients and baking processes was also described, stressing the need for adapted technological strategies, such as microencapsulation and recipe optimization. The conclusions support bakery product fortification as a strategic direction for the development of innovative enhanced products, offering significant nutritional value, biologically active properties and functional benefits to public health.

RESISTANCE OF HONESTY PLANTS OF DIFFERENT GENOTYPES TO ABIOTIC ENVIRONMENTAL FACTORS

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This work aimed to determine the level of resistance of Lunaria plants to abiotic environmental factors. The study's objects were two species of honesty: Lunaria annua (an annual species) and Lunaria rediviva (a perennial species). This plant is interesting because of the high level of nervonic acid in the plant material. Nervonic acid is the base of the production of many drugs for diseases of the human nervous system.
To work, the method for determining the resistance of plants by seed germination in artificial conditions that mimic the effect of environmental factors (germination in the refrigerator, germination in the Drying cabinet, and germination with solutions with different concentrations of salts) was used.
It was established that honesty is not resistant to high temperature, has a relatively high cold resistance, and is resistant to solid pollution. These plants are generally suitable for growing in the South-East part of Ukraine when all farming rules are correctly followed.

EXTRACTION OF CRITICAL METALS FROM END-OF-LIFE PRINTED CIRCUIT BOARDS

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The rapid growth of waste electrical and electronic equipment (WEEE) in the European Union demands sustainable recovery solutions for valuable raw materials. Among these, printed circuit boards (PCBs) from end-of-life computers are rich in critical metals such as copper, silver, gold, and palladium.

This study proposes a cost-effective and environmentally compliant process for extracting critical metals from PCBs. The experimental approach involved manual comminution of PCBs followed by acid leaching in an H_2SO_4–HCl solution over a period of four weeks. The resulting polymetallic concentrate was subjected to filtration, rinsing, melting via electric induction, and multi-stage refining.

Chemical characterization through XRF and EDS revealed that copper was the predominant element, followed by significant concentrations of zinc, lead, tin, bismuth, and antimony. Economically recoverable amounts of silver, gold, and palladium were also identified. Microstructural analysis under optical microscopy confirmed the efficacy of the refining stages.

Our findings underscore the value of PCB recycling as a viable path for critical metal recovery, contributing to the circular economy and reducing reliance on virgin mining. By optimizing each stage of the recycling chain, from sorting to refining, the environmental footprint of electronic waste can be substantially diminished

PLANT ACTIVATORS AND SUSTAINABILITY OF FIELD CROPS

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Human existence depends on a healthy environment and food. Today, agricultural production models based on sustainability have gained importance due to the gradual decrease in resources, the extinction of some living beings, inadequate and unbalanced nutrition, and the emergence of hunger problems. Agricultural control methods are used to protect products from damage that diseases and pests may cause. In this context, agricultural control is a kind of insurance for agricultural areas. Producers and consumers who are aware of sustainable life in a balanced ecosystem have started to prefer the produce and consuming of agricultural based products which are produced with the methods no destroying of nature besides no toxic effects on humans. Based on the sustainability goal, the introduction of biologically sourced plant activators in plant production systems is important in terms of creating an alternative for using of the chemicals inputs in agricultural production. In today's conditions, where environmentally friendly applications are needed more, comprehensive research is needed in line with the principles of sustainability by focusing on studies conducted with plant activators. In this study prepared with these basic justifications, studies conducted on plant activators are examined and the basic concept of sustainability is emphasized.

EFFECTS OF DIFFERENT SOWING RATES ON HUNGARIAN VETCH AND OAT MIXTURES ON FORAGE YIELD AND QUALITY

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Mixtures of annual legumes with cereals in forage production had numerous advantages. Cereals help vetch grow better by supporting it, allowing more light to reach it, and making it easier to harvest, while common vetch in the mix makes the forage better quality. The aim of the study was to investigate how different mixtures of Hungarian vetch (*Vicia pannonica*) and oat (*Avena sativa*) at various ratios affect the amount and quality of forage produced. Treatments included sole oat, sole Hungarian vetch, 70% oat + 30% Hungarian vetch, 50% oat + 50% Hungarian vetch, and 30% oat + 70% Hungarian vetch. Experiment was conducted in a randomized complete block design with four replications in Kayseri ecological conditions (Türkiye) during the 2015-2016 growing season. Plant height, green herbage yield and dry matter yield, crude protein ratio, crude protein yield, acid detergent fiber (ADF), neutral detergent fiber (NDF), digestible dry matter (DDM), dry matter intake (DMI), relative feed value (RFV), Ca, Mg, K, and P content, and Ca/P and K/Ca+Mg were analyzed. As a result of the study, the highest dry matter yield was obtained from sole oat, while the highest crude protein yield was obtained from 70% Hungarian vetch + 30% oat.

DETERMINATION OF FORAGE YIELD AND SILAGE QUALITY OF VARIOUS MAIZE (*Zea mays* L.) CULTIVARS UNDER KAYSERI ECOLOGICAL CONDITIONS

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This study investigated the forage yield and silage quality features of some maize (*Zea mays* L.) cultivars under Kayseri ecological conditions. The field experiment was conducted in 2019 using a randomized block design with three replications, testing 12 maize cultivars (Simpatico, NK Vitorino, Hiva F1, Kerbanis, 9628 HP F1, Kontigos, Sy Antex, Kolosseus, Sy Inove, DKC 7240, Kilowatt, and Sy Dracma) that have different maturity groups. Measured parameters included plant height (2.54-3.16 m), stalk diameter (23.67-27.83 mm), leaf number (11.63-16.07 leaves), ear number (1-1.07 ears), first ear height (84-151 cm), leaf, stem, and ear ratios (12.5-16.55%, 44.85-58.45%, and 27.27-40.77%, respectively), green herbage yield (6080-9158 kg/da), and dry matter yield (1912-2638 kg/da). Silage quality characteristics included dry matter content (25.24-31.99%), pH (3.67-4.12), Flieg score (97.36-119.50), crude protein ratio (4.45%-6.34%), neutral detergent fiber (41.16%-48.62%), acid detergent fiber (23.52%-32.17%), digestible dry matter (63.84-70.58%), dry matter intake (2.48-2.92%), and relative feed value (123.20-156.72). As a result, DKC 7240 had the highest green herbage yield, while DKC 7240, Kolosseus, and Sy Dracma had the highest dry matter yields. Hiva F1, NK Vitorino, and Simpatico achieved the highest crude protein rate in silage. The highest Flieg scores were recorded for Kerbanis, Kolosseus, Hiva F1, Sy Antex, 9628 HPF1, and Kontigos, and the highest relative feed

values were observed in Kerbanis, Sy Antex, Sy Dracma, Simpatico, Kolosseus, NK Vitorino, and Hiva F1.

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GENOME SEQUENCING AND MINING OF PLANT GROWTH-PROMOTING TRAITS IN BACILLUS PUMILUS STRAIN 10B ISOLATED FROM THE ALFALFA RHIZOSPHERE

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Bacillus pumilus (*B. pumilus*) is recognized as an effective plant growth-promoting rhizobacterium (PGPR) that enhances crop productivity through multiple mechanisms. Therefore, this study aimed to perform genome sequencing of the *B. pumilus* strain 10B, which is characterized as a multi-trait PGPR, to identify its PGP properties. The 10B strain was isolated from the alfalfa rhizosphere and showed efficacy in promoting the growth of tomato and watermelon plants. The ability of the 10B strain to fix nitrogen was investigated by inoculating it onto Jensen's nitrogen-free medium (NFM); its growth was considered positive for nitrogen fixation. Subsequently, whole-genome sequencing, assembly, and annotation were performed. The RAST annotation server was used to identify PGP properties encoded by the 10B genome. This study found that the 10B strain possesses genes/gene clusters responsible for nitrogen fixation, including denitrifying reductase gene clusters, ammonia assimilation, and nitrate and nitrite ammonification. The *B. pumilus* 10B genome also contains several phosphatases predicted to be involved in the mineralization of organic phosphorus and the solubilization of inorganic phosphate. Moreover, 2,3-butanediol dehydrogenase, which catalyzes the oxidation of 2,3-butanediol to acetoin, and various gene clusters associated with bacterial siderophores or siderophore precursors are encoded in the genome of

the 10B strain. In addition, *B. pumilus* 10B has the potential to produce auxins by possessing the *ipdC* gene, which encodes indole pyruvate decarboxylase. This enzyme is involved in the biosynthesis of indole-3-acetic acid (IAA) from tryptophan via the indole pyruvate pathway. In conclusion, the *B. pumilus* 10B strain was found to possess multiple plant growth-promoting traits and could be a promising candidate for the development of a biofertilizing inoculant that provides plants with essential bioactive compounds.

EFFECT OF PROTECTION ON FLORISTIC DIVERSITY OF THE HAMMADA SCOPARIA STEPPE IN THE NÂAMA REGION (WESTERN ALGERIA)

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The southern Oranian steppe of Nâama (Algeria) is a landscape open to grazing whose vocation is mainly pastoral. The extent of the Nâama steppe rangelands is estimated at 2,182,311 ha, or 74% of the total area of the wilaya. It is also a representative example of arid zones threatened by the scourge of desertification, strong anthropogenic pressure and climatic constraints. Pastoral management consists of carrying out a set of essential analyses to understand the richness and potential of natural environments and to specify present and future socio-economic needs. The management of these formations, by ensuring sustainable management of pastoral floristic resources, therefore contributes to the conservation objective. Among these pastoral management techniques, it is the pastoral improvement technique "putting into defense". The objective of this technique is to promote natural regeneration, the most suitable for inducing the natural biological recovery of steppe rangelands. At the end of this assessment, rehabilitation using the *Hammada scoparia* steppe protection technique has a positive impact on biological recovery through a quantitative and qualitative increase in the vegetation recovery rate, floristic richness and phytomass. The floristic diversity of the *Hammada scoparia* steppe is very particular due to its biological, systematic and phytogeographical characterization. This examination highlights the importance of Saharan-endemic species thanks to a more favorable adaptation and resistance under arid bioclimate.

SPONTANEOUSLY FERMENTED SOURDOUGHS FROM ANCIENT WHEAT AND CORN FLOUR: IMPACT OF FLOUR QUALITY ON SOURDOUGH PROPERTIES

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This study aimed to comprehensively characterize sourdoughs obtained by spontaneous fermentation from Enikorn wheat, corn and rye flour under controlled conditions of temperature, humidity and time. The fermentation process was optimized, and the quality of sourdoughs was evaluated by monitoring the exogenous parameters with major influence (dough consistency, proofing method, fermentation temperature and time, pH and acidity values, oxygen content in the dough). The obtained physicochemical and microbiological results provide useful information about the importance of the type of flour and the parameters of sourdough production process. During the fermentation period, sourdough was characterized for lactic acid bacteria and yeasts counts, pH, total titratable acidity (TTA), fermentative activity. A single fermentation temperature value (25 °C) was tested, and for each variant obtained, 7 refreshing stages were performed to obtain mature doughs according to the traditional type I dough scheme.
The sourdough variants produced similar lactic bacteria populations but significant differences can be observed in yeasts count. Yeast populations at 24 hours of fermentation, especially in the case of the variants with Einkorn wheat flour, showed high populations, from 7.08 log cfu/g to 7.20 log cfu/g. The yeast growth rate in the case of the mixture of rye flour with corn flour was slightly lower, the population having a relatively low growth at 24 hours of fermentation. Einkorn wheat flour resulted in a different composition compared to the rye/corn mixt, even though the water/flour

percentage was the same, the hydration capacity of Einkorn flour being much higher. By formulating the fermentation medium based on Einkorn wheat flour, rye flour and corn flour, supplemented with wheat flour 650, fermented under controlled conditions, an optimized bioprocess was developed to obtain two sourdoughs with enriched bioactive properties.

Considering that the dough microflora and the characteristics of sourdough bakery products are, among other things, strongly influenced by the nature of the raw materials used, it could be assumed that old wheat flours and corn flour could represent quite original ecological niches for type I fermentation that can provide bakery products with interesting quality attributes.

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WASTE TYRES CONVERSION TO CLEAN ENERGY AND SUSTAINABLE FUELS

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Due to the increase of vehicles number, the number of used tires also increases, which can be a catastrophic problem for the environment. Worldwide, 1.5 billion used tires are reported and represent a major concern because tires are made of rubber, carbon black and additives, which makes them resistant and cannot be biodegradable. To eliminate these wastes, thermochemical conversion processes can be used, such as: pyrolysis, gasification or incineration. The most environmentally friendly thermochemical process is pyrolysis and the optimal temperature for the process is between 300°C-550°C. Following the pyrolysis process, 3 types of products result: oil, gas and char. The obtained oil can be a source of raw material for benzene, toluene, xylene, styrene and can be used in the chemical industry. The gas obtained from the pyrolysis process is rich in hydrogen, is an environmentally friendly gas and an efficient fuel. Hydrogen can be used in the production of fuel cells, in different industries, but also in the synthesis of ammonia. The char obtained has a high carbon content, a high porosity and a large specific surface, which makes it optimal to be used in gas cleaning processes or in energy storage processes.

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DETERMINATIONS REGARDING THE PRODUCTION OBTAINED IN SOME EARLY POTATO VARIETIES CULTIVATED ON THE SANDY SOILS OF SOUTHERN OLTENIA

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In the 2023-2024 agricultural years, research was carried out on the behavior of four potato varieties for early consumption, in the conditions of the sandy soils at SCDCPN Dăbuleni. The potato varieties studied showed different results in the years of study, depending on their biological potential and pedoclimatic conditions. After harvesting at 75 days, in 2023 the varieties Prada (which achieved a production of 46.30 t/ha) and Riviera, which achieved an average production of 46.23 t/ha, stood out, and in in 2024, the Carrera and Riviera varieties stood out with an estimated production of 46.98 t/ha and 45.19 t/ha, respectively. From a qualitative point of view, in terms of the starch content of the tubers, the Riviera variety stood out with 15.16%, the average being 14.08%, and the total dry matter was between 17.61% for the Natalia variety and 22.84% in the Carrera variety, with an average of 18.94%.
The vitamin C content varied according to the analyzed variety, the Prada variety standing out with 16.72 mg. s.p., the average for the five varieties being 12.49 mg.s.p.

Acknowledgments
This work was supported by a grant from the Romanian Ministry of Agriculture under the Project no: 563/1.1.5/15.03.2023 "Improving the assortment of early potato varieties by selecting the most adapted varieties to the pedoclimatic conditions in the area of sandy soils and to market requirements".

IMPACT OF ZOOCOMPOST ON MICROELEMENTS CONTENT IN HONEYSUCKLE BERRIES

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Honeysuckle (*Lonicera caerulea* L.) berries are rich in microelements like iron (Fe), zinc (Zn), copper (Cu), manganese (Mn), and boron (B), offering potential health benefits. While various studies have explored these berries nutritional composition, little is known about how different fertilizers and their rates impact the contents of microelements. This study evaluates the effect of zoocompost on the microelement content of honeysuckle berries.
A field experiment was conducted in 2024 in Alytus district (Lithuania) on three honeysuckle cultivars ('Zojka', 'Wojtek', 'Indigo Yum'). The honeysuckle bushes were fertilized with black soldier fly larvae zoocompost at rate of 0 (unfertilized (control)), 1000, 1500, and 2000 kg ha-1. Microelements (Fe, Cu, Mn, Zn, and B) in berry samples were analyzed.
The results showed that cultivar and fertilization significantly affected the microelement contents of honeysuckle berries. The highest content of Fe was found in 'Wojtek' berries in the unfertilized variant, while the highest contents of Zn and B were observed in 'Zojka' berries when zoocompost of 1500 kg ha-1 and 2000 kg ha-1 was used. The highest content of Cu was in 'Indigo Yum' berries when zoocompost of 2000 kg ha-1 was applied. The greatest content of Mn was in 'Wojtek' berries in the unfertilized variant.

INNOVATIVE TECHNIQUES IN AGRICULTURE - A CIRCULAR APPROACH TO BY-PRODUCTS

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Population dynamics, climate change, ecosystem degradation, and trends in consumer behavior in the agri-food market are among the main challenges in the transition toward sustainable development. At the same time, these factors also serve as key drivers for shifting from linear to circular production and consumption models. In the global context of the 2030 Agenda for Sustainable Development (United Nations, 2015), a series of strategic initiatives have been launched at the European level and embraced by member states to facilitate the transition toward sustainability. The European Green Deal (EC, 2019), with the Circular Economy Action Plan (EC, 2020) as a central component, constitutes a key element of this process. Promoting economic growth that is decoupled from resource use is widely regarded as one of the most effective responses to the challenges faced by today's society. This research adopts a circular economy perspective to highlight the benefits of converting agricultural residues into biochar, particularly at the farm level. One of the main objectives is to estimate the cost effectiveness of investments in specific equipment required for the pyrolysis process. At the level of agricultural producers, one of the main barriers to capitalizing on circular economy opportunities is the lack of financial resources. To enhance investment profitability, a series of European funding opportunities will be highlighted.

Acknowledgments
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DETERMINATION OF 4 EU PRIORITY POLYCYCLIC AROMATIC HYDROCARBONS IN OILSEEDS BY GC-MS/MS COMBINED WITH D-SPE QUECHERS TECHNIQUE

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In this study, a method for the simultaneous determination of 4 EU priority polycyclic aromatic hydrocarbons (PAHs): benzo[a]anthracene, chrysene (Chr), benzo[b]fluoranthene, and benzo[a]pyrene (BaP) from oilseeds by GC-MS/MS was developed and validated. Optimal sample preparation involved the use of modified QuEChERS extraction with hexane, followed by concentration of the extract and taking up in acetonitrile, followed by two-step purification, by freezing (-20°C) and by solid phase extraction (d-SPE QuEChERS).

The developed method was validated by evaluation of the selectivity, linearity on solvents (R^2= 0.9947-0.9987) and sunflower seeds (R^2= 0.9920-0.9980), matrix effect (≤ ±20%), recovery (80.89-109.79%) and precision (RSD= 0.34-11.82%) for 3 concentration levels. A high analytical sensitivity was obtained for 4 PAHs in oilseeds (LOD= 0.05-0.33 µg/kg; LOQ= 0.18-0.82 µg/kg), fulfilling the criteria imposed by the Commission Regulation (EU) No 836/2011.

Sunflower seeds (n=27) harvested from different areas of Romania were analyzed using the proposed method. The 4 PAHs in the sunflower seeds ranged from not found to detectable and quantifiable concentrations (>LOQ), with maximum values of 0.72 µg/kg for Chr. BaP, considered a marker for assessing the carcinogenic risk of PAHs in food, was not quantifiable in any sample but was detected (<LOQ) in about 26% of the analyzed oilseeds.

Acknowledgments

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ASSESSMENT OF MODERN CONSUMER NUTRITIONAL REQUIREMENTS AND PREFERENCES FOR NOVEL FOOD PRODUCTS: A SURVEY-BASED STUDY

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In the context of a growing societal emphasis on health and well-being, dietary choices have become increasingly significant in promoting balanced lifestyles. Contemporary shifts—driven by urbanization, time constraints, and heightened health awareness—have led to the emergence of evolving consumer nutritional needs and preferences.
This study presents the results of a cross-sectional survey conducted in Romania in August 2024, aimed at assessing consumer expectations regarding nutrition and their openness to novel food products. A total of 204 responses were collected via an online questionnaire distributed through digital platforms (e-mail, Facebook, WhatsApp). The instrument included demographic variables (age, gender, education level) and a series of nine items measuring attitudes and preferences related to food and nutrition. Data analysis was performed using Microsoft Excel. Participation was voluntary, and informed consent was obtained from all respondents.
The results indicate a strong consumer inclination toward natural and health-promoting food options. Notably, 60% of respondents (n = 122) reported a preference for additive-free products, highlighting an increasing demand for clean-label formulations. This segment primarily includes individuals with high to moderate interest in maintaining a nutritionally balanced diet.

Moreover, the study identifies a marked interest in innovative fruit-based products tailored to specific health outcomes. A total of 73 respondents expressed a preference for fiber-enriched fruit products to support digestive health, while 68 favored jams without artificial additives, and 63 preferred no-added-sugar options.

These findings suggest a cross-generational concern for digestive health and a growing consumer demand for functional foods, particularly among individuals aged 25 to 55 with moderate to high dietary awareness. Insights from this study can guide food industry stakeholders in the development of products that align with modern nutritional expectations.

The results of this study will be applied in future research focused on the development of innovative food products from agri-food by-products, in order to meet the nutritional needs and preferences of modern consumers.

Acknowledgments

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INFLUENCE OF SEED STORAGE CONDITIONS ON GERMINATION AND SEEDLING GROWTH

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The aim of the research is to study the influence of storage conditions on the germination parameters of seeds from different plant species. The following factors were studied: storage time and temperature. The objectives of the research were: determining the germination energy and capacity of seeds under different conditions; determining the growth intensity of seedlings (roots and stems); establishing correlations between storage conditions and certain parameters determined at the seeds or plants. As a result of extracting wheat, barley, rapeseed, pea and sunflower seeds from storage cells with different temperature conditions and different storage periods, determining growth parameters, the following results were obtained: increasing the temperature in the storage cell caused a significant increase in germination energy in barley, and increasing the storage time caused a significant decrease in germination energy in barley and rapeseed. In wheat and barley, with the increase in temperature in the storage cell, there was a significant increase in the intensity of root growth, and the increase in storage time had the effect of a significant decrease in the intensity of root and stem growth, for the values tested in the experiment. Regarding the correlation with temperature and storage time, the difference that appears between the tested species is determined by the fact that, for each species, the conditions in the storage cells were different. The determinations can be continued with an experiment through which a uniform setting of the parameters in the storage cells takes place, which allows a comparative study of germination and growth, depending on the species.

POLYPHENOL CONTENT AND ANTIOXIDANT ACTIVITY OF PRUNELLA VULGARIS L. EXTRACTS

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Prunella species have been used since ancient times to treat various conditions, having healing, antimicrobial, hypotensive, carminative, antioxidant, tonic, antiseptic, anti-inflammatory, diuretic and antihemorrhagic effects, etc. One of the important groups of bioactive compounds characteristic of the species is polyphenols, recent research mentioning: rosmarinic acid, salviaflaside, esculetin, 2-hydroxycinnamic acid, 3,4-dihydroxybenzaldehyde, 7,8-dihydroxycoumarin, caffeic acid, tanshinol, ferulic acid, p-coumaric acid, etc. In relation to the extraction method and the solvents used, Prunella vulgaris extracts revealed a varied composition in polyphenols. New extraction techniques, involving microwaves and ultrasound, qualitatively and quantitatively increase the polyphenol content of the obtained extracts and, implicitly, their antioxidant potency, as well as other associated biological activities.

RESEARCH ON THE LETHAL DOSE OF AZOXYSTROBIN FOR *DANIO RERIO* SPECIES

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The active ingredient in Amistar, Azoxar, Azoxipro, Kier, Fulial etc. is azoxystrobin, a broad-spectrum systemic fungicide belonging to the β-methoxyacrylate strobilurins, whose metabolite, (E)-2-(2-[6-cyanophenoxy)-pyrimidin-4-yloxyl]-phenyl-3-methoxyacrylic acid, has been shown to have high toxicity to aquatic organisms.
In order to establish the lethal dose of azoxystrobin for the *Danio rerio* species, a case study was initiated and conducted, the general objective of which was to identify the concentration of azoxystrobin doses with direct/indirect effects on the physiology and behavior of the analyzed species.
The research conducted confirmed the hypotheses launched at the beginning of the study, namely that exposure of *Danio rerio* species to a dose of 1, respectively 2 mg/L azoxystrobin does not induce physiological and behavioral changes in the first 48 hours after exposure, respectively that exposure of the analyzed species to doses of 3, 4 and 5 mg/L azoxystrobin induces physiological and behavioral changes.
The dose of 5, respectively 6 mg/L azoxystrobin is lethal at an interval of 144, respectively 48 hours after exposure of the species to this fungicide.

DEMOGRAPHIC AND CLINICAL PROFILE OF PATIENTS WITH CHRONIC HEPATITIS B AND C AND ALCOHOLIC AND NON-ALCOHOLIC CIRRHOSIS IN ARGES COUNTY DURING 2019-2023

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Chronic hepatitis, along with alcoholic and non-alcoholic cirrhosis, represents an important cause of death due to complications. According to World Human Organization in Romania, liver cirrhosis is the 6th cause of death among men, with an incidence of 68.2 cases per 100,000 inhabitants and the 7th cause of death among women, with an incidence of 36 [3-51 range] cases per 100,000 inhabitants.
This paper contributes to the knowledge of the demographic and clinical profile of patients with various liver diseases (chronic hepatitis B and C, alcoholic and non-alcoholic cirrhosis) who presented to the Pitesti County Emergency Hospital during 2019-2023 and were evaluated in terms of age, gender, residence and occupation.
Our study indicates a number of 1802 patients with chronic hepatitis B with a mean age of 46.69 years, 2266 patients with chronic hepatitis C with a mean age of 67.06 years, 1441 patients with alcoholic and non-alcoholic cirrhosis with a mean age of 59.09 years. A higher prevalence of chronic hepatitis C is found in females, while in alcoholic and non-alcoholic cirrhosis men have a higher prevalence.

RESEARCH ON THE CONSUMER PERCEPTION OF DAIRY MILK VERSUS PLANT BASED ALTERNATIVES

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Romanian consumers are open to new things, but the dairy market is extremely competitive, with companies constantly looking for new products to attract customers. However, Romanian consumers are embracing this trend. This research aims to identify the direct and indirect factors influencing consumers' intentions to purchase and consume cow's milk versus plant-based alternatives. Data were collected online using Google Forms (n = 450) and a conventional sampling technique was employed to reach consumers. The study explores consumer behaviour towards dairy milk versus plant-based alternatives, focusing on purchase patterns, marketing, motivations for purchase and the influence of socio-demographic factors. The results suggest that consumers are motivated by the nutritional and health benefits of consuming milk and milk alternatives. 67% prefer milk, while 31% are open to plant-based alternatives — figures that reflect the current market size of plant-based alternatives. In conclusion, Romanian consumers are open to new products, but intense promotion and attractive marketing strategies are needed to increase their intention to purchase dairy or alternative products.

Acknowledgments
This research work was carried out with the support of the Faculty of Animal Production Engineering and Management, University of Agronomic Sciences and Veterinary Medicine Bucharest.

RESEARCH ON MONITORING AND COMBATING THE PEST RHAGOLETIS CERASI L. IN CHERRY PLANTATIONS IN THE NORTH-EAST AREA OF ROMANIA

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Cherry plantations are attacked by the pest, *Rhagoletis cerasi* L., causing significant damage to production, especially in late-maturing varieties.
Climate change has favored the appearance of the pest in the plantation much earlier, thus causing damage to both late-maturing and early-maturing varieties.
Research on monitoring and combating the pest *Rhagoletis cerasi* L. was conducted at SCDP IAȘI during 2023-2024. During the 2 years of study, Decis Trap traps were used, placed when the trees at BBCH 81, the earliest appearance of the pest was on 08.05.2023, and the latest appeared on 18.07.2023. The pest was controlled both with the help of Decis Trap traps, (80 per/ha) but also with the help of specific insecticides, recording an attack rate between 4.5% in 2023 and 6.5% in 2024.

Acknowledgments
This research was carried out within the thematic plan, theme 2.4. The study of biology, ecology, symptomatology and preventive measures a the attack of the main harmful agents from plantations of trees, fruit bushes and strawberry.

RESEARCH ON THE INFLUENCE OF THE APPLICATION OF ECO-SCHEMES IN CHERRY ORCHARDS IN NORTH-EAST ROMANIA

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The general objective of the research aims to achieve a sustainable fruit-growing ecosystem, by identifying and introducing into fruit-growing plantations some beneficial plant species (floral strips, ground cover plants, sanitary and companion plants), as well as the technological elements that allow the creation of this ecosystem to limit the attack of pathogens and pests that cause damage in cherry orchards. The introduction of repellent plants in the crop gives us confidence that we can limit the number of treatments with their help, even if phytosanitary treatments were also used in the experience, a limitation of the attack produced by pests in the analyzed crop is observed, also the area in which the plantation is located greatly influences the evolution of pathogens and pests, these aspects must be taken into account when we want to establish a plantation regardless of the crop system.

Acknowledgments
This research was carried out within the project ADER 6.1.9.- Influence of the application of eco-schemes regarding permanent crops in fruit plantations in the context of ensuring biodiversity and environmental impact.

RESEARCH ON THE USE OF BLACK WALNUT (*JUGLANS NIGRA* L.) PROTECTIVE CURTAINS IN THE CONTEXT OF CURRENT CLIMATE CHANGE

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In recent decades, climate change has become an observed reality of extreme weather events, representing the greatest threat facing humanity and the environment. An unbalanced distribution of Romania's green cover in the current climate change, requires as a long-term solution the planting of protective forest curtains to maintain the sustainability of the agricultural sector. Selecting genotypes with high resistance not only protects agricultural crops, but also contributes to the creation of natural barriers against wind and soil erosion, directly improving the quality of the environment and ensuring the protection of agricultural infrastructures and local ecosystems. In this context, the present study aims to analyze and highlight the role and importance of the black walnut species (*Juglans nigra* L.) with resistance and suitability for protective curtains. The selection and conservation of black walnut genotypes that show high adaptability and resistance to climatic variations are essential for the development of sustainable and efficient protective curtains. These vegetal curtains have the role of reducing the negative effects of climate change on agricultural crops and ecosystems, thus contributing to ensuring the sustainability of agriculture and environmental protection. The results obtained highlighted the fact that the implementation of activities to identify and conserve resistant genotypes not only protects agricultural crops, but also contributes to the creation of natural barriers against wind and soil erosion, directly improving the

quality of the environment and ensuring the protection of agricultural infrastructures and local ecosystems.

Acknowledgments

This research work was carried out with the support of the Ministry of Agriculture and Rural Development of Romania, within the ADER 6.3.17 project, "Research on the improvement of technological sequences of cultivation of black walnut (*Juglans nigra* L.) in the perspective of introducing genotypes as protective curtains to reduce the negative impact of climate change and improve environmental protection" - Contract no. ADER 6.3.17./18.07.2023.

OBSERVATIONS ON THE STRUCTURE AND DYNAMICS OF ARTHROPOD SPECIES COLLECTED FROM PEA CROPS

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This study presents an analysis of the structure and dynamics of arthropod species collected from a pea crop located in Răducăneni commune, Iași County, during the 2023–2024 period. Entomological material was collected using Barber traps, a passive and efficient method widely used in ecological studies of ground-dwelling fauna. Captured insects were euthanized using a 2.5% NaCl solution and preserved in 40% ethanol, ensuring the morphological integrity necessary for subsequent taxonomic identification.

Twelve traps were installed in two parallel rows. In 2023, ten sampling sessions yielded 1,962 specimens belonging to 77 taxa, while in 2024, six sessions resulted in 2,041 specimens from 70 taxa. The most abundant species included *Dermestes laniarius*, *Coccinella septempunctata*, *Pseudophonus pubescens*, ants, dipterans, and *Opatrum sabulosum*.

Identified arthropods belonged to the classes *Insecta, Arachnida*, and *Diplopoda,* with insects representing over 91% of total specimens. The diversity and temporal variation of the communities reflect the influence of seasonal conditions, particularly between May and September. The presence of predatory species highlights the ecological potential of agroecosystems as temporary habitats and supports their role in the natural regulation of pest populations.

OBSERVATIONS ON DIAPAUSE AND MIGRATION OF THE *EURYGASTER INTEGRICEPS* SPECIES IN THE CLIMATIC CONDITIONS OF THE IAȘI AREA DURING 2020-2024

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The species *Eurygaster integriceps* (suun pest) has a biological cycle that is significantly influenced by climatic conditions. Diapause, which lasts between 8 and 9 months, is divided into two stages: aestivation (during the warm season) and hibernation (during the cold season). Aestivation ranged from 3 to 4.5 months during 2020-2024, and hibernation gradually decreased from 7 months in 2020 to 4 months in 2024, reflecting milder winters. These changes indicate an adaptation to changing climatic conditions and a greater potential for impact on crops.

Spring season migration begins in April, and mass migration occurs when temperatures exceed 10°C, lasting between 55 and 75 days, depending on the year.

The time of migration from field to forest is longer than the migration in the opposite direction. In 2024, migration was faster, suggesting possible climate change. The species' prolificacy increased steadily between 2020 and 2024, from 25% to 50%, influenced by fat consumption and feeding conditions.

Feeding of plants in the grass family favors efficient reproduction, and embryonic development differs significantly, so in 2024 it was considerably extended (25 days).

The essential processes of the bedbug are supported by warm, dry and bright conditions, while cold and wet weather, accompanied by winds, limit them. These conditions are fundamental for migration, sexual maturation, feeding, reproduction, hatching and development.

Their effective management is essential for the management of infestations.
In addition, nutrition has a significant restrictive role when the growth of the host plant progresses ahead of the pest cycle, inhibiting its normal development.

OBSERVATIONS ON THE EVOLUTIONARY CYCLE OF THE *EURYGASTER INTEGRICEPS* SPECIES IN THE NORTHEASTERN REGION OF ROMANIA

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Eurygaster integriceps, commonly known as the sunn pest, begins its biological activity in the second decade of April, when adults emerge from hibernation at temperatures of 12–16°C, with mass flights occurring on sunny days at temperatures above 18°C. Males appear a few days before females, and the migration to wheat fields is completed by May. After feeding, mating takes place, and females lay between 70 and 100 eggs, grouped in batches of 14, on leaves, stems, and preferably on emerging spikes. Egg hatching occurs within 7–15 days, from early May to mid-June. The larvae go through four instars and three molts, followed by the nymph stage. The full development cycle lasts 30–40 days, with new adults emerging between the second half of June and July. These adults feed intensively for about 10 days to accumulate fat reserves necessary for hibernation, after which they migrate to deciduous forests. Comparative studies between Gorban and Țuțora (2020–2024) reveal differences in the development rate, influenced by microclimatic conditions: maturation occurs faster in Gorban, while delays in hatching, larval development, and adult emergence are observed in Țuțora.

OBSERVATIONS ON THE ATTACK CAUSED BY *EURYGASTER* SPP. ON CEREAL CROPS IN THE MOLDOVA-ROMANIA AREA

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The assessment of the damage caused by the Eurygaster spp. genus in wheat crops was carried out during the period 2020-2024, analyzing their impact on grain quality. In 2020, a significant attack was recorded in the localities of Comarna, Prisăcani and Dolhești, where most of the grains were affected, and the frequency of infestation varied between 0.1-1% and 3.1-4%. In 2021, the attack was more extensive, with a large number of grains affected, and the localities of Prisăcani and Dolhești recorded severe infestations, with over 80% of the production affected in the categories 2.1-3% and 3.1-4%. In 2022, a positive trend was observed in some areas, with a decrease in the intensity of the attack, especially in the localities of Comarna and Răducăneni. In 2023, the attack continued, but was less severe than in previous years, with a significant decrease in affected grains in the higher infestation categories. In 2024, a low level of infestation was recorded in most localities, with a decrease in severe attacks. The data suggest increased efficiency of control measures and less favorable conditions for pest development. However, the constant presence of attacks highlights the need for continued protection measures to limit the economic impact on wheat producers.

NATURE CONTEMPLATION: SELF-COMPASSION, AWARENESS, AND CONGRUENCE

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Nature contemplation has been shown to have many benefits for well=being, from the restorative effects on the nervous systems, to the support for self-regulation. The objective was to explore the details of the effects of nature contemplation on the awareness and acceptance of the here-and-now experience, the way of turning towards oneself, in a caring or critical manner, and the feeling of self-fulfillment resulting from meeting personal needs. To accomplish the objectives, we conducted a quasi-experimental, exploring the effects of watching a film from nature compared to a creative exercise and a non-treatment condition, and a correlational study, investigating the associations of some facets of self-compassion, congruence, and mindfulness. When compared to the non-treatment condition, watching the film from nature, resulted in higher scores on the self-disparagement scale of self-compassion, and, when compared to a creative exercise, it resulted in lower feelings of internal congruence. The self-care dimension of self-compassion was positively associated with the awareness in general, and awareness of personal incongruences in particular, and negatively with the acceptance of the here and now experience, while the self-disparagement was positively associated with self-care and the awareness of personal incongruence, and negatively with the acceptance of present experience.

THE QUALITY OF RELATIONSHIPS WITH OTHERS, HEALTH OR ILLNESS

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Several studies have shown that attachment security and the quality of the relationship with the parents are important for the well-being of a person. The objective of our research was to investigate the differences between the quality of relationships and the awareness of the here and now experience according to the illnesses experienced in the past or in the present and that of the healthy persons, and after suffering a surgical intervention either minor or major. We have studied the associations among the quality of the relationship with each parent, the attachment anxiety, awareness and acceptance of the here-and-now experience, narcissism, and different dimensions of personal well-being like positive relationships, the feeling of having a purpose and so on. The results indicated significant differences between ill and healthy participants, between participants who were ill and healthy ones, between those who have had a major or minor surgical intervention and those having no intervention at all. The relationship with the father was involved in most of the differences and had significant correlations with the overall narcissism, but also with its facets, suggesting that narcissism may be a way of protecting oneself from hurt when the relationship with the father was cold, distant or oppressive. It was interesting to find out that it also involved differently the dimensions of the awareness of the here-and-now experience.

IMPERFECTIONS ARE JUST THE BEGINNING: THE ROLE OF SELF-COMPASSION CREATIVE MEDITATION ON RECONVERTING THE NEGATIVE ASPECTS OF PERFECTIONISM

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The present study explores the dynamic interactions between the three dimensions of perfectionism (rigid perfectionism, self-critical perfectionism and narcissistic perfectionism) and the components of self-compassion (self-kindness, self-judgement, common humanity, mindfulness, overidentification and isolation). The main objective was to identify the most significant correlations between perfectionism and self-compassion. Results indicated significant negative correlations between each of the three types of perfectionism and self-kindness. These results were further applied in a cvasi-experiment focused on highlighting the effectiveness of a humanistic-experiential exercise that combined multiple expressive-creative techniques (loving-kindness and self-compassion creative meditation, mindfulness and drawing) in diminishing the negative aspects of perfectionism. Paired Samples T test analyses showed significant differences regarding self-critical perfectionism, socially prescribed perfectionism, other-oriented perfectionism and general perfectionism score after the experiment. Being able to self-centre in a gentle, supportive and understanding manner, gave the participants the context to access the personal resources of warmth and compassion and to enhance the capacity of self-acceptance.