MINISTERUL EDUCAȚIEI NAȚIONALE
MINISTERUL CERCETĂRII ŞI INOVĂRII

UNIVERSITATEA DE ŞTIINȚE AGRICOLE ŞI MEDICINĂ VETERINARĂ „ION IONESCU DE LA BRAD” DIN IAŞI

FACULTATEA DE HORTICULTURĂ

CONGRESUL ŞTIINȚIFIC INTERNAȚIONAL

PROGRAM

SECȚIUNEA
HORTICULTURĂ ŞI INGINERIA MEDIULUI

“HORTICULTURA – ŞTIINȚĂ, CALITATE, DIVERSITATE ŞI ARMONIE”

17-18 OCTOMBRIE 2019
IAŞI

MINISTRY OF NATIONAL EDUCATION
MINISTRY OF RESEARCH AND INNOVATION

UNIVERSITY OF AGRICULTURAL SCIENCES AND VETERINARY MEDICINE "ION IONESCU DE LA BRAD" FROM IAŞI

FACULTY OF HORTICULTURE

INTERNATIONAL SCIENTIFIC CONGRESS

PROGRAMME

SECTION
HORTICULTURE AND ENVIRONMENT ENGINEERING
"HORTICULTURE - SCIENCE, QUALITY, DIVERSITY AND HARMONY"

17-18 OCTOBER 2019
IAŞI, ROMANIA

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Romanian Academy, Iaşi Branch, Iasi, Romania
Academy of Economic Studies of Moldova
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“Stefan cel Mare” University of Suceava, Romania
“Gh. Asachi” Technical University of Iasi, Romania
„Apollonia“ University, Faculty of Dental Medicine, Iasi, Romania
University of Agronomical Sciences and Veterinary Medicine Bucharest, Romania
University of Agricultural Sciences and Veterinary Medicine of Cluj Napoca, Romania
University of Agricultural Sciences and Veterinary Medicine of Iasi, Romania
Banat’s University of Agricultural Sciences and Veterinary Medicine Timişoara, Romania
State Agrarian University of Moldova, Republic of Moldova
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University of Agricultural Sciences and Veterinary Medicine, Chisinau, Republic of Moldova
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Institute of Microbiology and Biotechnology, Chisinau, Republic of Moldova
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Station for Cattle Breedind, Dancu, Iasi, Romania
Vegetable and Flower Research and Development Institute Vidra, Romania
"Gh. Asachi" County Library Iasi, Romania
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S.C. FLORAL STUDIO S.R.L. Iaşi

S.C. IAS LAND S.R.L. Iaşi

S.C. TEO-GARDEN DESIGN S.R.L. Vaslui

PROGRAMUL CONGRESULUI

- **JOI, 17 OCTOMBRIE 2019**

08^{30} – 9^{30} - Primirea şi înregistrarea participanților - Aula Magna "Haralamb Vasiliu"

9^{30} – 10^{30} - Deschiderea festivă a congresului - Aula Magna "Haralamb Vasiliu"

10^{30} – 12^{30} - Lucrări în plen - Aula Magna "Haralamb Vasiliu":

- Gomez L.[1], Amalfitano C.[1], Teliban G.[2], Sellitto V.M.[3], Munteanu N.[2], Stoleru V.[2], Caruso G[1]. ([1]University of Naples Federico II, Naples, Italy, [2]University of Agricultural Sciences and Veterinary Medicine, Iasi, Romania; [3]MsBiotech SPA, Roma, Italy) - *Sustainable crop systems of chickpea (Cicer arietinum L.) under a holistic perspective*

12^{30} – 14^{00} - Masa de prânz (laborator Viticultură, etajul II)

14^{00} – 15^{00} - Deschiderea simpozionului Facultății de Horticultură (Aula Magna "Haralamb Vasiliu")
Aniversarea a 10 ani de Ingineria Mediului şi 15 ani de Peisagistică la Facultatea de Horticultură din Iaşi

15^{00} – 16^{45} - Prezentarea lucrărilor pe secțiuni

16^{45}- 17^{00} – Pauză de cafea

17^{00} – 18^{00} - Prezentarea lucrărilor pe secțiuni

19^{30} - **23^{30}** Masă festivă în onoarea invitaților (restaurantul „LA CASTEL")

- **VINERI, 18 OCTOMBRIE 2019**

9^{00} – 10^{15} - Prezentarea lucrărilor pe secțiuni

10^{30} – 12^{00} Workshop: *Protecția mediului – prezent şi viitor.* Facultatea de Horticultură (laborator Legumicultură, etaj II)
Tătaru Gheorghe (APM Iaşi);
Ghiga Simona Cecilia (Asociația Română pentru Reciclare RoRec)

10^{30} – 12^{00} Workshop: *Peisagistica – ştiință şi artă.* Facultatea de Horticultură (laborator Viticultură, etaj II)
Tabarcea Raluca (S.C. FLORAL STUDIO S.R.L. Iaşi); Bahrim Cezar (S.C. TEO-GARDEN DESIGN S.R.L., Vaslui); Ivaşcu Claudiu (S.C. IAS LAND S.R.L. Iaşi)

12^{30} -**13^{00}** Concluzii. Închiderea lucrărilor congresului

CONGRESS PROGRAMME

- **THURSDAY, OCTOBER 17TH, 2019**

08^{30} – 9^{30} - Registration of participants and guests - Aula Magna "Haralamb Vasiliu"

9^{30} – 10^{30} - Opening ceremony - Aula Magna "Haralamb Vasiliu"

10^{30} – 12^{30} – Plenary Session - Aula Magna "Haralamb Vasiliu"

- Gomez L.[1], Amalfitano C.[1], Teliban G.[2], Sellitto V.M.[3], Munteanu N.[2], Stoleru V.[2], Caruso G[1]. ([1]University of Naples Federico II, Naples, Italy, [2]University of Agricultural Sciences and Veterinary Medicine, Iasi, Romania; [3]MsBiotech SPA, Roma, Italy) - *Sustainable crop systems of chickpea (Cicer arietinum L.) under a holistic perspective*

12^{30} – 14^{00} - Lunch (Viticulture laboratory, 2nd floor)

14^{00} – 15^{00} - Opening ceremony Symposium Faculty of Horticulture (Aula Magna "Haralamb Vasiliu")
Celebrating 10 years of Environment Engineering and 15 years of Landscape Design academic programmes within the Faculty of Horticulture

15^{00} – 16^{45} - Paper sessions

16^{45}– 17^{00} – Coffee break

17^{00} – 18^{00} - Paper sessions

19^{30} - **23^{30}** - Gala Dinner ("LA CASTEL" restaurant)

- **FRIDAY, OCTOBER 18TH, 2019**

9^{00} – 10^{15} – Paper sessions

10^{30} – 12^{00} Workshop: *Environmental protection - present and future.* Faculty of Horticulture (Vegetable growing laboratory, 2nd floor)
Tătaru Gheorghe (APM Iaşi);
Ghiga Simona Cecilia (Asociația Română pentru Reciclare RoRec)

10^{30} – 12^{00} Workshop*: Landscape - science and art.* Faculty of Horticulture (Viticulture laboratory, 2nd floor)
Tabarcea Raluca (S.C. FLORAL STUDIO S.R.L. Iaşi); Bahrim Cezar (S.C. TEO-GARDEN DESIGN S.R.L., Vaslui); Ivaşcu Claudiu (S.C. IAS LAND S.R.L. Iaşi)

12^{30} – **13^{00} -** Conclusions. Closing ceremony of the Congress

CONGRESS SECTIONS

FACULTY OF AGRICULTURE

SOIL WATER AND ENVIRONMENTAL PROTECTION

AGRICULTURAL TECHNOLOGIES

ECONOMIC SCIENCE AND HUMANITIES

FOOD ENGINEERING

FACULTY OF HORTICULTURE

FUNDAMENTAL RESEARCH IN AGRICULTURE AND HORTICULTURE

HORTICULTURAL TECHNOLOGIES

LANDSCAPE ARCHITECTURE

ENGINEERING AND ENVIRONMENTAL PROTECTION

FACULTY OF ANIMAL HUSBANDRY

FUNDAMENTAL SCIENCES IN ANIMAL BREEDING

TECHNOLOGIES APPLIED IN ANIMAL BREEDING

CAPITALIZATION OF ANIMAL PRODUCTIONS

AQUACULTURE AND FISHERY

TOURISM AND PUBLIC ALIMENTATION

FACULTY OF VETERINARY MEDICINE

FUNDAMENTAL RESEARCH IN VETERINARY MEDICINE

CLINICAL AND THERAPEUTIC SCIENCES

PUBLIC HEALTH

SECȚIUNEA – HORTICULTURĂ ŞI INGINERIA MEDIULUI

SUBSECȚIUNEA I – ŞTIINȚE FUNDAMENTALE ÎN AGRICULTURĂ ŞI HORTICULTURĂ

Laborator Arboricultură ornamentală – etaj II

Biochimie
Chimie
Fizică
Biofizică
Matematică
Informatică
Botanică
Fiziologie vegetală
Genetică
Ameliorarea plantelor

SUBSECȚIUNEA a II-a – *TEHNOLOGII HORTICOLE*

Amfiteatrul A_6 – etaj II

Legumicultură
Pomicultură
Viticultură
Oenologie
Tehnologia produselor horticole
Floricultură
Construcții horticole
Fitoprotecția plantelor horticole
Horticultură ecologică

SUBSECȚIUNEA a III-a – *PEISAGISTICĂ*

Laborator Floricultură – etaj II

Arboricultură ornamentală
Dezvoltare durabilă în peisagistică
Evoluția istorică a peisajului
Estetica, filozofia şi psihologia peisajului
Managementul mediului în peisagistică
Peisagistica în restaurarea, reabilitarea şi conversia urbană
Compoziție şi design peisagistic

SUBSECȚIUNEA a IV-a – *INGINERIE ŞI PROTECȚIA MEDIULUI*

Laborator Legumicultură – etaj II

Climatologie şi agrometeorologie
Ecologie
Poluarea apei şi solului
Inginerie eoliană şi poluarea aerului
Surse de radiații şi securitate nucleară
Amenajarea şi gospodărirea resurselor de apă
Regularizări de râuri şi îndiguiri
Hidrologie şi hidrogeologie
Monitorizarea şi diagnoza calității mediului
Depozitarea şi reciclarea deşeurilor
Tehnologii şi instalații pentru depoluare
Studii de bilanț şi impact de mediu
Igiena mediului

SECTION - HORTICULTURE AND ENVIRONMENT ENGINEERING

1st SUBSECTION – FUNDAMENTAL RESEARCH IN AGRICULTURE AND HORTICULTURE

Ornamental Arboriculture Laboratory, second floor

Biochemistry
Chemistry
Physics
Biophysics
Mathematics
Computer Science
Botany
Vegetal Physiology
Genetics
Plant Breeding

2nd SUBSECTION – HORTICULTURE TECHNOLOGIES

6th Lecture room (A_6), second floor

Vegetable Growing
Fruit Growing
Viticulture
Oenology
Postharvest Technology of Horticultural Products
Floriculture
Horticultural Constructions
Horticultural Plants Protection
Ecological Horticulture

3rd SUBSECTION – LANDSCAPE ARCHITECTURE

Floriculture Laboratory, second floor

Ornamental Arboriculture
Suistainable Development in Landscape Architecture
Historical Evolution of the Landscape
Landscape Esthetics, Philosophy and Psychology
Environment Management in Landscape Architecture
Landscape Architecture in the Urban Restoration, Rehabilitation and Conversion
Landscape Composition and Design

4th SUBSECTION – ENGINEERING AND ENVIRONMENTAL PROTECTION

Vegetable Growing Laboratory, second floor

Climatology and Agro-meteorology
Ecology
Water and Soil Pollution
Wind Engineering and Air Pollution
Sources of Radiation and Nuclear Safety
Planning and Management of Water Resources
Regularization of Rivers and Dams
Hydrology and Hydrogeology
Environmental Quality Monitoring and Diagnostics
Storage and Waste Recycling
Technologies and Equipment for Decontamination
Balance Studies and Environmental Impact
Environmental Hygiene

1st SECTION

FUNDAMENTAL RESEARCH IN AGRICULTURE AND HORTICULTURE

BIOCHEMISTRY, CHEMISTRY, PHYSICS, BIOPHYSICS, MATHEMATICS, COMPUTER SCIENCE, BOTANY, VEGETAL PHYSIOLOGY, GENETICS, PLANT BREEDING

Ornamental Arboriculture Laboratory, Second floor

Chairmen:
Prof. dr. Lucia Carmen **TRINCĂ**
Şef lucr. dr. Alina **TROFIN**

Secretariat:
Şef lucr. dr. Emilian **BULGARIU**
Asist. dr. Ilie **BODALE**

Timp de prezentare: **5-7 minute**

ORAL PRESENTATIONS

Eperjessy Diana Beatrice[1], Trofin Alina[2], Trincă Lucia Carmen[2], Ungureanu Elena[2] ([1]"Saint Mary" Children's Clinical Emergency Hospital Iaşi, Romania; [2]University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

STUDY ON THE CHEMICAL COMPOSITION OF SOME BABY-FOOD AND JUICE PRODUCTS FOR CHILDREN
STUDIU ASUPRA COMPOZIȚIEI CHIMICE A UNOR PRODUSE DE TIP BABY-FOOD ŞI SUCURI DESTINATE COPIILOR

Blended food or baby-food products marketed for children contain a source of protein, often meat, or can be made entirely from cereals, fruit blends and vegetables. These products must be appropriate from the point of view of both nutritional and safety. Fruit or vegetable juices are recommended as a good source of vitamins and as an additional source of water for healthy infants and young children. With all their benefits, the addition of sugar from the marketed products should be carefully controlled so as not to lead to obesity or metabolic disorder. This paper includes the determination of the content of ions present in three commercially available juices and three types of baby-food from fruits, vegetables and meat.

Mihnea Nadejda[1], Lupaşcu Galina[1], Vînătoru Costel[2], Cristea Nicolae[1] ([1]Institute of Genetics, Plant Physiology and Protection of Academy of Sciences, Chişinău, Republic of Moldova; [2]Vegetable Research and Development Station Buzău, Romania)

STUDIES ON THE MORPHOBIOLOGICAL CHARACTERISTICS, PRODUCTIVITY AND RESISTANCE TO HIGH TEMPERATURES AT TOMATOES
STUDII PRIVIND CARACTERELE MORFOBIOLOGICE, PRODUCTIVITATEA ŞI REZISTENȚA LA TEMPERATURI ÎNALTE LA TOMATE

The paper presents the results of the appreciation of varieties and lines from the collection of tomatoes of the Institute of Genetics, Plant Physiology and Plant Protection, Republic of Moldova based on productivity, resistance to stressing temperatures and some fruit characters. The analysis of the useful characters of the studied forms from the collection revealed a wide variability in the fruit characters, the overall productivity, the share of the fruits, which allows selection and recommendation of the most valuable forms for hybridization and obtaining new varieties and hybrids of different destination. Cluster analysis (k-means method) demonstrated that the 38°C temperature level manifested a higher discriminative capacity of tomato clusters based on root and strain length (controlled conditions), which revealed the more pronounced interaction specificity with this temperature level. Were identified clusters of tomato genotypes with diminished reaction at stressful temperatures, which is important for the involvement in programs to improve genotypes with increased resistance to heat. Key words: tomato, variability, fruit characters, productivity, strength, stressful temperatures.

Rotaru Vladimir (Institute of Genetics, Plant Physiology and Protection of Academy of Sciences, Chişinău, Republic of Moldova)

INTERACTIVE EFFECTS OF RHIZOBACTERIA INOCULATION AND PHOSPHORUS ON PROLINE AND NITROGEN CONTENTS IN ROOTS AND NODULES OF SOYBEAN GROWN UNDER CONSTANT P INSUFFICIENCY AND WATER DEFICIT

EFECTELE INTERACTIVE ALE INOCULĂRII CU RHIZOBACTERIA ŞI FOSFOR ASUPRA CONȚINUTULUI DE PROLINĂ ŞI AZOT DIN RĂDĂCINILE ŞI NODULII PLANTELOR DE SOIA CRESCUTE ÎN CONDIȚII CONSTANTE DE INSUFICIENȚĂ PENTRU FOSFOR ŞI DEFICIT DE APĂ

A greenhouse experiment with soybean was carried out with N-fixer rhizobacteria Bradyrhizobium japonicum applied single or in combination with P (20 and 100 mg kg^{-1} dry soil) and two soil moisture regimes 70% of whole holding capacity (WHC) as control and water stress 35% WHC. Plants cultivated under the combined effects of P deficiency and drought exhibited the highest proline accumulation than control and their separately influence. Soybean inoculated with B. japonicum showed increased root proline concentrations compared to uninoculated plants subjected to temporary water deficit. The results revealed that combined influence of drought and P insufficiency increased more pronounced the proline concentrations in nodules than in roots. There was a synergic interaction between rhizobacteria strain and P in terms of leaves and stems nitrogen contents of soybean. The inoculation with B. japonicum in conjunction with P fertilization attenuates partially adverse effects of constant low P availability and temporary drought on soybean plants.

Vasiliu Mihaela Păpuşa, Tomiță Daniela Ivona, Sachelarie Liliana, Fuioagă Codrin-Paul, Popovici Diana, Stadoleanu Carmen ("Apollonia" University, Faculty of Dental Medicine, Iaşi, Romania)

THE SATISFACTION DEGREE OF FOOD PROTECTED REFLECTED PATIENTS ON FRUIT AND VEGETABLES CONSUMPTION

GRADUL DE SATISFACȚIE AL PACIENȚILOR PROTEZAȚI AMOVIBIL REFLECTAT ASUPRA CONSUMULUI DE FRUCTE ŞI LEGUME

A healthy diet of the elderly is important in improving oral health. But the emergence of editorialism prevents the consumption of diversified foods. A nourishing and varied diet, including vegetables, fruits, cereals, dairy products and protein, is of great value especially at the elderly. Many patients regard the mobilizable dentures as a sign of aging and therefore accept them hard, and the accommodation process is difficult. After a rather long period of non-protection, when inserting prosthesis, it is very difficult to chew or speak with it. This is less common in prosthetic patients. Therefore, restoring the integrity of dental arches by applying mobilizable prostheses increases the satisfaction of edent patients during mastication.

Chiruță Ciprian, Bulgariu Emilian, Filipov Feodor, Călin Marius (University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

CONSIDERATIONS ON THE QUALITY OF SOIL DEEP RIPPING (MAS-60) USING MATHEMATICAL STATISTICS

CONSIDERAȚII ASUPRA CALITĂȚII LUCRĂRILOR DE AFÂNARE ADÂNCĂ (MAS-60) UTILIZÂND STATISTICA MATEMATICĂ

The analysis of the efficiency of the MAS-60 device can be done practically by measurements made by the researcher by observing the profiles obtained in a limited number of tests. The possibility of identifying a mathematical method for analyzing the area, volume and shape of the tiled surface will be investigated, this will allow the researcher a large number of checks under optimal conditions using the mathematical statistical apparatus.

POSTER PRESENTATIONS

Chairmen:
Şef lucr. dr. Ciprian **CHIRUȚĂ**
Şef lucr. dr. Elena **UNGUREANU**

Secretariat:
Şef lucr. dr. Emilian **BULGARIU**
Asist. dr. Ilie **BODALE**

Ungureanu Elena[1], Ungureanu O.C.[2], Trofin Alina[1], Ariton Adina-Mirela[3], Jităreanu Carmenica Doina[1], Popa V.I.[4] ([1]University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania; [2]"V. Goldiş" West University of Arad, Romania; [3]Station for Cattle Breeding, Dancu, Iaşi, Romania; [4]"Gh. Asachi" Technical University of Iaşi, Romania.)

GRAVITATIONAL SEDOMENTOMETRICAL ANALYSES APPLIED TO THE SARKANDA GRASS LIGNIN
ANALIZE SEDIMENTOMETRICE GRAVITAȚIONALE APLICATE LIGNINEI DIN IARBĂ

The lignin stands out by a very large range of applications in extremely various domains. The adsorption-desorption capacity, ion exchange capacity and its catalytic properties are just a few specific characteristics which are emphasizing the importance of harnessing the lignins. In this paper is shown by sedimentometrical analyses that lignin can be used in agriculture and zootech. The sarkanda grass lignin (L2) offered by the Granit Recherche Developement S.A. company, Lausanne-Schwitzerland was synthesized from annual plants.

Trincă Lucia Carmen[1], Mareci Sabol Harieta[2], Trofin Alina[1], Popescu Vericeanu Ilinca[1], Mărculescu Afrodita[3] ([1]University of Agricultural Sciences and Veterinary Medicine from Iaşi; [2]University of Suceava, Romania; [3]University of Medicine and Pharmacy Iaşi, Romania)

MAIN CHARACTERISTICS OF FOODS EATING HABITS ACCORDING TO THE BIBLE
PRINCIPALELE CARACTERISTICI ALE OBICEIURILOR ALIMENTARE DIN LUMEA BIBLICĂ

The bible diet based mainly on consuming whole grains (and derived products), vegetables, fruits (and derived products), dairy products and fish, as well as low and selective meat consumption may be able to provide the main nutrients (carbohydrates, dietary fibbers, lipids, proteins, minerals, and vitamins) needed for a healthy body. This paper proposes an overview of the foods eating habits according to the biblical world. The biblical traditional diet, based on the seven species (wheat, barley, grapes, figs, pomegranates, olives and date honey) with some additional dairy products and fish has been preserved over time and by remaining the background of the healthy modern dietary recommendations.

Apostol Laura-Carmen, Albu Eufrozina, Prisacaru Ancuța Elena, Ropciuc Sorina, Ursachi Florin-Vasile ("Ştefan cel Mare" University of Suceava, Romania)

PHYSICO-CHEMICAL EVALUATION OF CHILDREN'S PEACH YOGURTS QUALITY
EVALUAREA FIZICO-CHIMICĂ A CALITĂȚII IAURTURILOR CU PIERSICI PENTRU COPII

Nutritional research has mentioned that fortification of food by using natural resources is one of the best ways to improve the total nutrient intake of foods with minimal side effects.One of the product categories that can be enriched is fermented products, especially yoghurts.A special category is those for children. In this study the physico-chemical characteristics of four types of yogurts were evaluated.Following the color evaluation, the total color difference (TCD) increased with the increase in the peach purée concentration, and the values varied between 7.2 and 19. Total acidity values are between 118.75 and 150°T, respectively 3.85 and 4.17 pH units. At the sodium chloride concentration values between 0.14 and 0.2 g NaCl/100 g of product were obtained. For the determination of fat content, values were lower than those declared (3.2%; 2.7% and 0.8%). Rheological measurements performed showed that three of the samples behave like a yogurt. For Plasmon's yogurt, thethixotropy curve is difference, the yogurt breaks and returns to its original form.

Prisacaru Ancuța Elena, Apostol Laura-Carmen, Ropciuc Sorina, Albu Eufrozina, Ursachi Florin-Vasile ("Ştefan cel Mare" University of Suceava, Romania)

COMMERCIAL TETRA PACK JUICE - EVALUATION OF QUALITY PARAMETERS
SUCURI COMERCIALE LA TETRA PACK - EVALUAREA PARAMETRILOR DE CALITATE

The present study was conducted to investigate the physico-chemical parameters (titratable acidity, total soluble solids, antioxidant capacity and total phenolic compounds) of six different types of commercial Tetra Pack juices. The total phenolic content was measured by Folin-Ciocalteu reagent assay. Antioxidant activity determination was performed by the spectrophotometric method with the DPPH reagent (2.2-diphenyl-1-picrylhydrazyl). Results of the physico-chemical properties obtained show the following range of values for acidity 1.46-2.76 g/L malic acid, total solids 9.17-12.00°Bx. The highest total phenolic content was 1.138 mg GAE/100g and the lowest 0.003 mg GAE/100g. It was shown that the content of total antioxidant activity in juices varied between 0.639 and 1.554.

Avarvarei Bogdan-Vlad, Nistor Cătălin Emilian, Usturoi Alexandru (University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

SENSORIAL AND PHYSICAL-CHEMICAL ANALYSIS OF A "000" WHEAT FLOUR TYPE OBTAINED INTO A MID CAPACITY MILL
ANALIZA SENZORIALĂ ŞI FIZICO-CHIMICĂ A FĂINII DE GRÂU TIP "000" PRODUSĂ ÎNTR-O MOARĂ DE CAPACITATE MEDIE

The aim of the paper was to effectuate a sensorial and physical-chemical analyse for a "000" wheat flour type which was obtained into a mid capacity mill. Sensorial analyse of wheat flour targeted on appreciation of colour, taste, smell as well as on flour infestation degree. From physical-chemical analysis view point, the aims of the current paper were focused on the following parameters: moisture, wet gluten, ash, acidity, granulosity and falling index.

Eperjessy Diana Beatrice[1], Trofin Alina[2], Ungureanu Elena[2], Trincă Lucia Carmen[2] ([1]"Saint Mary" Children's Clinical Emergency Hospital Iaşi, Romania; [2]University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

ANALYSIS OF CHEMICAL PARAMETERS FOR THREE TYPES OF RECONSTITUTED MILK POWDER
ANALIZA UNOR PARAMETRI CHIMICI PENTRU TREI TIPURI DE LAPTE PRAF RECONSTITUIT

The infant formula means a breast milk substitute specifically made to meet the nutritional requirements of infants during the first few months of life until appropriate complementary feed is introduced. Milk intake in the baby's diet is recommended for at least the first two years of life, maternal - at least six months, the animal or the formula of reconstituted milk powder - further, due to the essential nutritional principles in growth and physical and cognitive development. The chemical parameters analyzed in the present paper follow the quality of three milk powders (infant formula, next step formula and lactose-free formula) and three types of water (marketed, tapped and filtered) used for reconstitution with regard to acidity and content in nitrate, chlorine, sulfite and phosphate ions spectrophotometry. The results indicate the presence of high concentrations of dithiolthiones (compounds with free thiol groups) in the oil and aqueous extracts of rosemary, as well as in the essential oil.

Gocan Tincuța-Marta, Andreică Ileana, Rózsa Sándor, Lazăr V. Bărbos Adrian (University of Agricultural Sciences and Veterinary Medicine of Cluj Napoca, Romania)

APPRECIATION OF THE FACTORS' INFLUENCE ON THE VIGOR - I INDEX, TREATMENT x GENOTYPE x STORAGE DURATION OF CORN SEEDS (*ZEA MAYS* L.)
APRECIEREA INFLUENȚEI FACTORILOR ASUPRA INDEXULUI VIGORII - I, TRATAMENT x GENOTIP x DURATA PĂSTRĂRII LA SĂMÂNȚA DE PORUMB (*ZEA MAYS* L.)

The size of the values of the parameters that characterize the quality of the seed from the aspect of the physiological and physical manifestation, has a very important role in the measures to improve the cultivation technologies for obtaining safe and superior harvests qualitatively and quantitatively, therefore it is necessary to promote a seed with high biological value, high production capacity, resistance to diseases, pests and stress conditions. The particularity of the seeds destined for sowing is that they can be kept in different forms for a longer period of time, offering the safety of production. Analysing the data by the size of the range and the size of the coefficient of variation (Cv) it can be seen that there are obvious differences between the variants, regarding the value of these indicators. There were large decreases in the values of the index the force registered in this stage "after 12 months", in the variant treated with fungicide + insecticide, except for Turda 200 and Turda Star hybrids..

2nd SECTION

HORTICULTURE TEHNOLOGIES

VEGETABLE GROWING, FRUIT GROWING, VITICULTURE, OENOLOGY, POSTHARVEST TECHNOLOGY OF HORTICULTURAL PRODUCTS, FLORICULTURE, ORNAMENTAL ARBORICULTURE, HORTICULTURAL CONSTRUCTIONS, HORTICULTURAL PLANTS PROTECTION, ECOLOGICAL HORTICULTURE

6th Lecture room, Second floor

Chairmen:
Prof. dr. Lucia **DRAGHIA**
Prof. dr. Gheorghe **GLĂMAN**
Prof. dr. Neculai **MUNTEANU**
Prof. dr. Carruso **GIANLUCA**
Prof. dr. Dorel **HOZA**
Prof. dr. Viorel **MITRE**

Secretariat:
Şef lucr. dr. Maria **APOSTOL**
Asist. dr. Monica **HEREA**
Asist. dr. Gabriel **TELIBAN**

Timp de prezentare: **5-7 minute**

ORAL PRESENTATIONS

Dascălu (Constantin) Delia-Cristina, Munteanu Neculai, Scurtu Ion, Mândru Iuliana (University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

PRELIMINARY STUDIES ON THE IMPROVEMENT OF SEED PRODUCTION TECHNOLOGY FOR EGGPLANT (*SOLANUM MELONGENA* L.) CROP

STUDII PERLIMINARE PENTRU ÎMBUNĂTĂȚIREA TEHNOLOGIEI DE PRODUCERE A SEMINȚELOR LA CULTURA DE PĂTLĂGELE VINETE (*SOLANUM MELONGENA* L.)

The paper presents a states of arts on the seed production of the open pollinated cultivars of the eggplant crop, on the basis of the scientific research and technological practices in Romania and in the world. The goal of this study is to underlie the researches for a project with a proposal to optimize certain technological steps of an eggplant seed crop by the seedling/ plantlet quality, time of crop establishing, crop fertilization and irrigation, seed extraction/ separation and conditioning.

Inculeț Carmen Simona[1,2], Teliban Gabriel[1], Stan Teodor[1], Cojocaru Alexandru[1], Stoleru Carmen Maria[1,2], Munteanu Neculai[1], Caruso Gianluca[3], Burducea Marian[4], Sellitto Vicenzo Michele[5], Stoleru Vasile[1] ([1]University of Agricultural Sciences and Veterinary Medicine, Iaşi, Romania; [2]"Virgil Madgearu" High School, Department of Food Science, Iaşi, Romania; [3]University of Naples Federico II, Naples, Italy; [4]"Alexandru Ioan Cuza" University of Iaşi, Romania; [5]MsBiotech SPA, Rome, Italy)

THE AGRO-PRODUCTIVE REACTION OF TOMATO CULTIVARS FROM PROTECTED AREAS OF CHEMICAL NUTRITION FACTORS

REACȚIA AGRO-PRODUCTIVĂ A CULTIVARELOR DE TOMATE DIN SPAȚII PROTEJATE SUB INFLUENȚA FACTORILOR DE NATURĂ CHIMICĂ

Tomato (Lycopersicon esculentum Mill.) is one of the popular vegetables as well as an important source of antioxidants such as lycopene, phenolic and vitamin C in human nutrition. The plant area of tomato was 48 mil. ha worldwide in 2012, with an annual production 1600 mil. t. Processing tomato principally provides source of significant phytonutrients such as β-carotene and lycopene. The highest yields, according to the scientifically literature, are obtained under the influence of different chemical factors, especially fertilizers. Fertilization is thought to be one of the key factors to influence plant growing and development status. The results show that the height of the plants, the number of fruits per plant, the average mass of the fruits and the production depend largely on the cultivar and the fertilization system used. This work was supported by the CNCS-UEFISCDI, PN III PCCDI 41/2018 project.

Bezdadea-Cătuneanu Ioana Laura, Andreea Stan, Mihaela Zugravu, Frîncu Mihai, Bădulescu Liliana (University of Agricultural Sciences and Veterinary Medicine Bucharest, Romania)

PHYSIOLOGICAL PARAMETERS OF SOME POMOLOGICAL SPECIES FOR THE INITIAL MOMENT BEFORE STORAGE PERIOD- PRELIMINARY DATA

PARAMETRII FIZIOLOGICI A UNOR SPECII POMICOLE PENTRU MOMENTUL INTRODUCERII ACESTORA ÎN SPAȚIU DE DEPOZITARE – DATE PARȚIALE

Due to the high perishability of the fruits, new ways of decreasing the physiological processes rates during the storage period are tested. Depending of the pomological characteristics of the fruits, the mass loss and soluble solids are influenced by the respiration intensity and the transpiration rate. The aim of this study was to establish the values of the physiological parameters of organic fruits in view of subsequent correlations with the parameters determined during storage. The species chosen for this research were strawberries, blueberries, chokeberries, plums and apples. The respiratory intensity and transpiration rate are correlated with water content and soluble solids of the fruits. The differences obtained are explained by the different levels of maturation process and the fruit's large variability. The differences between the climacteric and non-climacteric fruits were pointed out in order to choose the best storage conditions for these.

Dumitrachi Petru Emanuel, Corduneanu Oana, Băetu Marius, Roşca Radu, Cârlescu Petru, Țenu Ioan (University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

RESEARCHES REGARDING THE USE AS A BIOMASS OF THE BRANCHES RESULTING FROM ORCHARD PRUNING OF DIFFERENT SPECIES OF TREES

CERCETĂRI PRIVIND UTILIZAREA CA BIOMASĂ A RAMURILOR REZULTATE DE LA TĂIERILE DE FRUCTIFICARE DE LA DIFERITE SPECII DE POMI FRUCTIFERI

Biomass is the most abundant renewable resource on the planet. This includes absolutely all the organic material produced by the metabolic processes of living organisms. Biomass can be used in the form of solid or liquid fuels, being used both for direct combustion, for space heating, and for liquid biofuel (bioethanol) for supply the thermal engines. The research carried out had as an objective the collection of the branches resulting from the fruiting cuts from the varieties of apple, hair, cherry and plum, located in the plantations of the Experimental Station within the USAMV Iaşi, Farm "V. Adamachi", and the determination of the calorific power for each category of fruit trees. From the analysis of the results it appears that the calorific power is different from one species to another, as well as depending on the variety of the respective species. Also, the energy value of the harvested branches is high, being close to that of firewood, which allows us to specify that they can be valued as biomass, constituting an important renewable source of solid biofuel, which can be used in the form of pellets and lighters.

Negru Ion, Peşteanu Ananie (State Agrarian University of Moldova, Chişinău, Republic of Moldova)

PRODUCTIVITY OF APRICOR OCHARD BY THE METHOD OF CONDUCTING THE CROWN IN THE PERIOD OF GROWING AND FRUCTIFICATION OF THE TREES

PRODUCTIVITATEA PLANTAȚIEI DE CAIS ÎN FUNCȚIE DE MODUL DE CONDUCERE A COROANEI ÎN PERIOADA DE CREŞTERE ŞI FRUCTIFICARE A POMILOR

The experimental plot is placed in the orchard "Agroparc Management" Ltd. founded in 2015 year. The study subject of the experience was Spring Blush and Pinkcot apricot varieties grafted on Mirobalan 29C rootstock, conducted by 6 forms of crowns. The distance of plantation is 5.0 x 3.0 m. The research was conducted during the period of 2018 year. During the research, it was studied, amount of flowers and degree of setting, number of fruits, mean fruit weight and yield. It was established that, the formation of crowns of the apricot trees influence on amount of flowers, degree of setting, number of fruits, mean fruit weight and yield of studied varieties.
Key words: Apricot, varieties, crowns, setting, yield.

Peşteanu Ananie, Bostan M. (State Agrarian University of Moldova, Chişinău, Republic of Moldova)

THE EFFECT OF BIOREGULATOR GERBA 4LG ON LATERAL SHOOT FORMATION IN MAIDEN APPLE TREE

EFECTUL TRATĂRII CU REGULATORUL DE CREŞTERE GERBA 4LG LA OBȚINEREA LĂSTARILOR LATERALI ÎN PEPINIERĂ LA POMII DE MĂR

The object of the research was apple varieties Golden Delicious Reinders, Red Velox, Gala Buckeye and Red Jonaprince, grafted on M 9 rootstock. The grafting method was Chip budding. Planting distance was 80x35 cm. In order to intensify the formation of the anticipated shoots in the area of the crown formation, various technological processes were used: 1. Free eyelid growth (control); 2. Topping of apical leaves combined with two treatments with Gerba 4LG at a dose of 25 ml/liter of water. It was established that the most reasonable garnishing of the crown formation with anticipated shoots at all studied varieties was obtained by topping the apical leaves in the apex area once when the graft reaches 65-70 cm height combined with twice the sprinkling Gerba 4LG at 25 ml/liter of water. The first treatment was done after breaking the apical leaves and the next at 5-7 days.

Sîrbu Sorina, Gherghel Mădălina Iuliana, Iurea Elena, Corneanu Margareta, Chelaru Simona Mihaela (Research and Development Station for Fruit Tree Growing, Iaşi, Romania)

POMOLOGICAL CHARACTERISTICS TO APRICOT VARIETIES CULTIVATED IN THE NORTHEAST OF ROMANIA

CARACTERISTICI POMOLOGICE LA SOIURI DE CAIS, CULTIVATE ÎN ZONA DE NORD-EST A ROMÂNIEI

The aim of this paper was to evaluated of some apricot genotypes in the Romanian North Eastern area conditions. In period 2016-2018 studies were done at seven apricot cultivars ('Mamaia', 'Ovidiu', 'Fortuna', 'Amiral', 'Goldrich', 'Traian' and 'Dacia') which were in the experimental plot at RSFG Iaşi, Romania. Fruit weight of 'Dacia' registered 89.3 g but at 'Amiral' were 75.3 g as average for three years, but statistically there were no significant differences from the average. Regarding the period from the swelling of buds to blooming, the shortest period was of 10 days for the 'Dacia' and 'Traian' and the longest period was 14 days for the 'Ovidiu'. The sum of the active temperatures above the biological limit has varied according to the climatic conditions of the studied years from 103°C to the 'Dacia' and 'Traian' to 136°C for the 'Ovidiu'.

Cimpoi Vlăduț Ion[1], Roțaru Liliana[1], Colibaba Lucia Cintia[1], Călin Ioana[1], Scutăraşu Elena Cristina[1], Alexandru Lulu Cătălin[2] ([1]University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania; [2]Research-Development Station for Viticulture and Winemaking Iaşi, Romania)

INFLUENCE OF CARBOHYDRATE CONTENT ON GRAFTING IN TABLE GRAPE VARIETIES GELU AND PAULA

INFLUENȚA CONȚINUTULUI DE HIDRAȚI DE CARBON ASUPRA CALUSĂRII LA ALTOIRE LA SOIURILE PENTRU STRUGURI DE MASĂ GELU ŞI PAULA

The factors that determine the formation of the callus at the grafting point, respectively the percentage of vines capable of being planted in the nursery, are of genetic, technological and ecological nature. Thus, the genetic nature of the two symbionts is crucial to the success of grafting. In the present work determinations were made regarding the behavior of table grape varieties Gelu and Paula grafted on three rootstocks Riparia Gloire, Berlandieri x Riparia Selection Oppenheim 4-clone 4 Blaj and Berlandieri x Riparia Selection Crăciunel 2. It was found that the highest total content of carbohydrates had the rootstock Riparia gloire (13.49%), followed by Crăciunel 2 (12.78%) and SO4-4 (12.02%). In the Vinifera varieties the same indicator was higher for Paula grape variety (14.32%) and for Gelu variety (13.07%). As a result of the grafting and forcing, the following aspects resulted: the percentage of vines suitable for planting was the highest in the Paula variety grafted on Crăciunel 2, respectively 99%, and in the Gelu variety grafted on Riparia gloire, of 98%. The vines for which the grafting point was complete, where the buds entered vegetation and the root primordia was in maximum percentage were found at the Paula / Crăciunel 2 variant, at 76%. Gelu / Crăciunel 2 variant resulted in obtaining the most vines (7%) that formed root primordia at the intermediate node as well.

COFFEE BREAK / PAUZĂ DE CAFEA

Chairmen:
Prof. dr. Valeriu **V. COTEA**
Prof. dr. Liliana **ROTARU**
Conf. dr. Gheorghe **NICOLAESCU**
C.S. I dr. ing. Doina **DAMIAN**

Secretariat:
Şef lucr. dr. Maria **APOSTOL**
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Asist. dr. Gabriel **TELIBAN**

Irimia Liviu Mihai[1], Patriche Cristian Valeriu[2], Cotea V. Valeriu[1], Quenol Hervé[3], Renan LeRoux[3], Valerie Bonnardot[3], Cyrill Tissot[4], Etienne Neethling[5], Laure De Resseguier[6], Théo Petitjean[6], Cornelis van Leewen[6], Gonzaga Santesteban[7], Marco Hoffman[8], Manfred Stoll[8], Chris Foss[9], Corentin Cortiula[9]
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VITICULTURE IN THE CONTEXT OF CLIMATE CHANGE: DEVELOPMENTS, FORECASTS, ADAPTATION MEASURES. RESULTS FROM THE LIFE ADVICLIM PROJECT

VITICULTURA ÎN CONTEXTUL SCHIMBĂRII CLIMATICE: EVOLUȚII, PROGNOZE, MĂSURI DE ADAPTARE. REZULTATE DIN PROIECTUL EUROPEAN LIFE ADVICLIM

The LIFE ADVICLIM project coordinated by CNRS and the Rennes 2 University from France is studying, since 2014, the impact of climate change on European viticulture. Temperature sensors installed in 2014 in the Bordeaux

and Loire Valley (France), Rhine Valley (Germany), Cotnari (Romania), Rioja (Spain) and South Sussex (United Kingdom) wine-growing regions, continuously record the air temperature at the vines canopy level. By processing the recorded data, the shifts that occur in the suitability of local climate for wine grape growing and the wine production are determined. Changes in the specific climate profile of vineyards, spatial and structural shifts in their climate suitability for viticulture, as well as the occurrence of conditions for the production of new wine types were highlighted. Forecasts developed within the ADVICLIM project based on climate models, show that shifts in climate suitability for the wine production will continue to occur in the coming decades and will require the adaptation of viticulture to a new climatic context.

Godoroja Mariana[1], Nicolaescu Gheorghe[1], Mogâldea Olga[1], Nicolaescu Ana Maria[2], Nicolaescu Ana[3], Procopenco Valeria[1], Vartic Dumitru[1] ([1]State Agrarian University of Moldova; [2]Academy of Economic Studies of Moldova; [3]NGA Infoconsulting Ltd., Republic of Moldova)

AGROBIOLOGICAL AND ECONOMICAL PARTICULARITIES OF TABLE GRAPES VARIETY – ITALIA, FOR FRESH PRODUCTION

PARTICULARITĂȚILE AGROBIOLOGICE ŞI ECONOMICE ALE CULTIVĂRII SOIULUI ITALIA ÎN PRODUCEREA STRUGURILOR DE MASĂ PENTRU CONSUM ÎN STARE PROASPĂTĂ

Table grapes represent a strategic sub-sector of the viticulture and wine production complex in the Republic of Moldova. Therefore, it is necessary to study table varieties in order to obtain competitive production. The article represents the results of the researches by table grape variety Italia. In order to achieve the purpose and objectives and to successfully study the agrobiological and economical aspects, the plants were classified into 3 groups according to the growth vigour, namely - low growth vigour, medium growth vigour and high growth vigour. For studying of the agrobiological particularities of the variety, we determined the coefficients and indices of fertility, the structure of the grapes and the berries, the yield per 1 plant and 1 ha, the sugar and the total titratable acidity content, indices of the economic efficiency. As a result of the research, it has been shown that the quality, productivity and economic indices that are highlighted were obtained at the different plants with medium and high vigour.

Mogâldea Olga[1], Nicolaescu Gheorghe[1], Godoroja Mariana[1], Nicolaescu Ana Maria[2], Nicolaescu Ana[3], Procopenco Valeria[1] Kimakovski Andrei[1], Oinescu Cornelia[1] ([1]State Agrarian University of Moldova; [2]Academy of Economic Studies of Moldova; [3]NGA Infoconsulting Ltd., Republic of Moldova)

ECONOMICAL AND AGROBIOLOGICAL PARTICULARITIES OF FETEASCĂ NEAGRĂ WINE VARIETY – IN DIFFERENT ECOLOGICAL REGIONS OF THE REPUBLIC OF MOLDOVA

PARTICULARITĂȚILE AGROBIOLOGICE ŞI ECONOMICE ALE CULTIVĂRII SOIULUI FETEASCĂ NEAGRĂ ÎN DIFERITE CONDIȚII PEDOCLIMATICE ALE REPUBLICII MOLDOVA

The wine sector in the Republic of Moldova is considered to be a strategic for the National Economy. Therefore, it is necessary to study wine varieties in order to obtain competitive production, especially from local varieties. The article included the results of the researches with Fetească neagră wine variety cultivated in different pedoclimatic regions of the Republic of Moldova. In order to reach the proposed purpose and objectives and to successfully study the agrobiological and economic aspects of the cultivation of the Feteasca neagra wine variety, we selected the model experimental sectors, in different companies in the Wine Regions - Codru, Valul lui Traian and Ştefan Vodă. In order to study the agrobiological particularities of the variety, we determined the coefficients and indices of fertility, the structure of the grape and the berries, the yield per 1 plant and 1 ha, the total sugar and titratable acidity content, the economic efficiency indices. As a result of the research, it has been shown that the value of the quality, productivity and economic indices depends on the canopy and number of buds and shoots and the pedoclimatic conditions of the region.

Călugăr Anamaria, Corbean D., Pop Tiberia Ioana, Bunea C.I., Iliescu Maria, Babeş Anca Cristina, Chiciudean Gabriela Ofelia, Mureşan Iulia (University of Agricultural Sciences and Veterinary Medicine of Cluj Napoca, Romania)

THE ECONOMIC IMPACT OF PARAFFIN ON THE PRODUCTION OF GRAFTED VINES - CASE STUDY MUSCAT OTTONEL

IMPACTUL ECONOMIC AL PARAFINEI ASUPRA PRODUCȚIEI DE VIȚE ALTOITE – STUDIU DE CAZ MUSCAT OTTONEL

In Romania, grafted vines are used for establish new vineyards in many grapevine growing regions. The production of grapevine grafts involves high labour and material costs. In this study, Muscat Ottonel grape variety grafted on S.O.4, rootstock was parrafined with different types of wax: standard wax, paraffin with 8-chinolinol and paraffin with oxiquinolein before callusing and paraffin of silver colour (aluminium particles) and blue colour used after grafting callusing and before planting in nursery. The unit cost price was calculated based on total expenses and the yield of grafts obtained in vine nursery. The lowest price per unit cost was recorded for variant with 8-quinolinol/ silver paraffin, directly related to the first quality yield. Also, the highest profit rate was for the variant with 8-chinolinol/silver paraffin while the lowest was registered variant with standard/standard paraffin.

Călugăr Anamaria, Pop Tiberia Ioana, Coldea Teodora Emilia, Iliescu Maria, Bunea Claudiu Ioan, Gal Emese, Bora Florin Dumitru, Manolache Mihail (University of Agricultural Sciences and Veterinary Medicine of Cluj Napoca, Romania)

OENOLOGICAL PARAMETERS OF SAUVIGNON BLANC WINES AGED DIFFERENT PERIODS OF TIME WITH OAK CHIPS AND OAK BARREL

PARAMETRII OENOLOGICI LA VINURILE SAUVIGNON BLANC MATURATE PE PERIOADE DIFERITE DE TIMP CU CIPSURI DE STEJAR ŞI ÎN BARICURI DE STEJAR

Oenological parameters of Sauvignon blanc wines from Teaca wine growing region, Lechinta Vineyard, have been analysed. Samples were unaged wines (initial) and aged wine for 1, 2 and 3 months in untoasted oak barrel (225 l) and with untoasted oak chips (4 g/l) and light toast chips (4 g/l). Ageing methods and ageing period showed statistical difference among wines samples. The alcohol content has decreased with time for all aging methods. Volatile acidity increased with time, due to the oxidation of ethanol during aging. The total acidity, the non-reducing dry extracts and total dry extract slightly decreases in aged samples over time. Time and ageing method has the most influence on alcohol content and volatile acidity. The other oenological parameters were significantly dependent on the ageing period, but and interaction between time and ageing method had no influence

Savin Gheorghe, Cornea Vladimir, Baca Ivan (Research and Practical Institute for Horticulture and Food Technologies, Chişinău, Republic of Moldova)

EVALUATION OF DIVERSITY OF SEGMENT OF GRAPEVINE GENETIC RESOURCES IN CONTEXT OF CLIMATE CHALLENGES

EVALUAREA DIVERSITĂȚII UNUI SEGMENT AL RESURSELOR GENETICE ALE VIȚEI DE VIE ÎN CONTEXTUL PROVOCĂRILOR CLIMATICE

In the paper is presented a segment from the diversity of the grapevine genetic resources accumulated in the Genofond of the Research and Practical Institute for Horticulture and Food Technologies: genotypes with grapes for table with early maturation, seedlessness. About 30 varieties were highlighted, including with increased or advanced resistance to environmental abiotic and biotic unfavorable factors. Described genotypes represent a wide diversity by genetic origin, the color of the berry, the agrobiological properties. The highlighted sources of useful features are proposed for use in improving, innovating the grapevine assortment, inclusivelly in the context of climate challenges.

Herea Monica, Tălmaciu Mihai, Tălmaciu Nela (University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

OBSERVATIONS REGARDING THE ABUNDANCE, DYNAMICS AND DAMAGE CAUSED BY THE *CYDIA POMONELLA* L. AND *ADOXOPHYES RETICULANA* HB. IN APPLE TREE ORCHARDS

OBSERVAȚII PRIVIND ABUNDENȚA, DINAMICĂ ŞI PAGUBELE PRODUSE DE SPECIILE *CYDIA POMONELLA* L. ŞI *ADOXOPHYES RETICULANA* HB. ÎN PLANTAȚIILE POMICOLE DE MĂR

Dynamics of the flight adult of Cydia (Laspeyresia) pomonella and Adoxophyes reticulana were tracked in two stationary of apple tree orchards, these belonging to the didactic farm Vasile Adamachi from Iaşi. The observations were made in the two fields (ecological and conventional), with readings being recorded at intervals of 3-5 days, inventing catches at each reading, and the captured butterflies were removed from the trap. Depending on the results achieved, the abundance and dynamics of the butterfly flight was established for each generation: the beginning of the flight; maximum flight; the end of flight. Finally, according to this data, the time of application of the treatments for each generation was established, and depending on the number of catches and the opportunity of their application.

Luca Mihail, Marcoie Nicolae, Luca Alexandru-Lucian, Tămăşanu Fabian (Technical University "Gheorghe Asachi" of Iaşi, Romania)

CONSIDERATIONS CONCERNING THE DESIGN OF MICRORIGATION IN HORTICULTURAL PLANTS

CONSIDERAȚII PRIVIND PROIECTAREA SISTEMELOR DE MICROIRIGARE LA PLANTAȚII HORTICOLE

The paper deals with the concepts of realization of the micro-irrigation systems in the horticultural plantations located under the conditions of the Plain and the Plateau of Moldavia. In the N-E area of Moldova, drip irrigation systems were developed for the planting of shrubs and fruit trees on small surfaces (4-8 ha). Drip irrigation systems must be designed according to the characteristics of wetted horticultural crops, pedoclimatic soil parameters, climatic parameters of the site, water volume available at source. Drip irrigation equipment is adapted to the particularities of the irrigated crop. Research has highlighted a number of negative aspects. The research highlighted the lack of correlation between the parameters of the watering equipment and the planting characteristics of the shrubs or trees. The results of the research highlight negative aspects in the design of the irrigation system, the supply flow of the system and the pressures on the watering pipes.

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ENVIRONMENTAL SUSTAINABILITY, FRUIT QUALITY AND PRODUCTION IN MYCORRHIZAL TOMATO PLANTS WITHOUT P FERTILIZING

SUSTENABILITATEA MEDIULUI, CALITATEA ŞI PRODUCȚIA FRUCTELOR LA PLANTELE DE TOMATE MICORIZATE FĂRĂ FERTILIZARE CU FOSFOR

The influence of root colonization by arbuscular mycorrhizal (AM) fungus Funelliformis mosseae, on fruit quality, production and environmental sustainability were evaluated in field-tomato plant grown (Solanum lycopersicum) exposed to P-limited soil 5 µg.g-1soil (basal-soil) with nitrate fertilization (50 µg.g-1soil), after greenhouse germination and fungus colonization. After 60 days sowing (DAS), when the percentage of mycorrhizal root length (%RLC) raised at about 50%, the plants were transplanted in open field. During the experiment, the mycorrhization has affected a lot of physiological aspects like vegetative and reproductive growth, improving them and ended the fruiting with a major fruit production that was 50% higher than at mycorrhizal (NM) plants. The ripening process of the fruits was also followed by testing sugars content and ß-amylase activity in fruits of NM and mycorrhizal (M) plants fruits. At 140 DAS, in the harvesting fruits stage, fruits of M plants showed significantly higher mineral nutrient sugars and organic nitrogen compounds as amino acids and protein, compared to fruits from NM plants. In particular, GLU-GLN-ASP and ASN raised about 35% more than fruits from NM plants, improving nutritional aspect and flavor of the product. THR-ILEU-LEU-VAL and LYS, essential aminoacids in man nutrition, increased around 25% more than fruits from NM plants, too. In this context, lycopene, total carotenoids, ascorbic acid and glutathione (GS) and reduced form (GSH) were also tested in ripe fruits. The over all results suggest that tomato roots colonization by mycorrhizal fungus Funelliformis mosseae affects host plant nutritional status, modifying reproductive behavior, fruits production and nutritional quality.

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THE INFLUENCE OF ENVIRONMENTAL FACTORS IN POLYTUNNELS ON SOME TAMATOES NONPARASITIC DISORDERS

INFLUENȚA FACTORILOR DE MEDIU DIN SOLARII ASUPRA UNOR AFECȚIUNI FIZIOLOGICE LA TOMATE

Frequently, in polytunnels are some found some nonparasitic or physiological disorders vegetables plants such as tomatoes, peppers, eggplants, and some melons. These disorders occur due to some soil and climate deficiencies. One of the objectives of the paper is the environmental factors characterization on which has been identified tomatoes plants affected by nonparasitic disorders. It was studied polytunnels from several locations in North-Eastern Romania. Following the investigations, it was found that the symptoms on tomatoes were not due to a parasite action. The correct identification and differentiation of parasitic disorders caused by the environmental factors, presents a particular practical importance in order to establish prevention measures and cultural recommendations.

Gache (Lungu) Mirabela, Munteanu Neculai, Stoleru Vasile, Teliban Gabriel Ciprian, Hrițcu (Maftei) Adriana (University of Agricultural Sciences and Veterinary Medicine, Iaşi, Romania)

RESEARCH ON THE BEHAVIOR OF SOME VEGETABLE SPECIES IN POTS AND CONTAINERS

CERCETĂRI PRIVIND COMPORTAREA UNOR SPECII LEGUMICOLE ÎN GHIVECE ŞI CONTAINERE

The paper presents the research results regarding the evaluation of morphological, physiological and production characteristics in some vegetable plants grown in pots and containers.Vegetable plants studied, for container cultivation was cherry tomatoes, peppers, lovage, oregano, climbing beans and dwarf beans and for potted cultivation was hot peppers, salad, parsley, dill, thyme and basil.The remarkable results were obtained in the following tomato species 1656.0g / pl, peppers 2305, 0g / pl, climbing beans 1852.9g / pl and dwarf beans 2262.2g / pl.

POSTER PRESENTATIONS

Chairmen:
Prof. dr. Mihai **ISTRATE**
Prof. dr. Olimpia **IORDĂNESCU**
C.S. II dr. ing. Ancuța **NECHITA**
Dr**.** Vincenzo Michelle **SELLITTO**
C.S. I dr. ing. Gelu **CORNEANU**
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Asist. dr. Alexandru **COJOCARU**

Cărbune Răzvan, Mihalache Gabriela, Pereş Cătălina, Gache Mirabela, Stoleru Vasile (University of Agricultural Sciences and Veterinary Medicine, Iaşi, Romania)

GERMINATION RATE OF LEGUMINOUS SEEDS ACCORDING TO CLIMATIC CONDITIONS
RATA DE GERMINARE A SEMINȚELOR DE LEGUMINOASE ÎN FUNCȚIE DE CONDIȚIILE CLIMATICE

The seed is the generator of a new, miniature plant, which by its morphological and physiological characteristics and properties, ensures the development of the young plant, which has become an autotrophic organism. The most important and remarkable feature of the seed in the evolution of the plant is given by the ability to remain viable in a dehydrated state, the water content can be greatly decreased, giving the seeds resistance to unfavorable environmental conditions. The aim of the paper was to evaluate the germination rate of seeds in three leguminous species: garden peas, garden peas and garden beans. In the absence of light, at 15^{0}C and 75% humidity, the bean seed regardless of variety, produced in 2016, germinated at a rate of 90% compared to that of 2017 and 2018 where the germination rate ranged from 65 to 85 %.

Maftei (Hriscu) Adriana, Munteanu Neculai, Stoleru Vasile, Teliban Gabriel Ciprian (University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

PARTIAL RESULTS REGARDING THE TYPES OF SUBSTRATES USED TO OBTAIN VEGETABLE PRODUCTS OF MICROGREENS TYPE
REZULTATE PARȚIALE PRIVIND TIPURILE DE SUBSTRATURI FOLOSITE PENTRU OBȚINEREA PRODUSELOR LEGUMICOLE DE TIP *MICROGREENS*

The research was carried out in the greenhouse belonging to the Teaching Station of USAMV Iaşi, using four types of substrates, namely: substrate 1- based on coconut shell, substrate 2 - peat 80% + 20% walnut shell coconut, substrate 3 - peat 80% + 20% sand and substrate 4 peat 80% + 20% pearlite. The vegetable species chosen were the following: pea, red basil, green basil, red cabbage, white cabbage, red moon radish and summer radish. Based on the research, observations and determinations were made regarding: seed germination, average days of plant growth and development, average days of harvesting; and crop uniformity depending on the type of substrate chosen. In this way, establishing which is the best type of substrate for the production of vegetable plants of microgreens type.

Pereş Cătălina[1], Cazacu Ana[1], Bodale Ilie[1], Mihalache Gabriela[1,2], Teliban Gabriel Ciprian[1], Cojocaru Alexandru[1], Munteanu Neculai[1], Iurea Dorina[2], Stoleru Vasile[1] ([1]University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania; [2]Integrated Center of Environmental Science Studies in the North East Region (CERNESIM), "Alexandru Ioan Cuza" University of Iaşi, Romania; [3]Institute of Biological Research Iaşi, Romania)

YIELD AND PHYSIOLOGICAL PARAMETERS OF SIRIANA F1 UNDER UNCONVENTIONAL AND CONVENTIONAL STIMULANTS
REZULTATE PRIVIND PRODUCȚIA ŞI PARAMETRII FIZIOLOGICI AI CULTIVARULUI DE TOMATE SIRIANA F1 SUB INFLUENȚA STIMULATORILOR CONVENȚIONALI ŞI NECONVENȚIONALI

Tomato (Lycopersicon esculentum Mill), is a leading vegetable crop, in terms of global cultivation (open field and protected area) and consumption. The chemical nutrients of plants serve as critical factors that determine plant growth, vigour besides crop yield and these nutrients play a particular role in contributing to the survival of crop plants under environmental stress conditions. Under climatic or nutritional stress, the productivity is affected in a percentage that range between 45-70%. In order to achieve this goal, at the UASVM Iasi carried out an experiment on a tomato crop from the Syrian F1 hybrid, where eight treatments were tested compared to a control version. The lowest values of the physiological and production indicators were realized in the version treated with citrate and the highest value in the conventional version where the BNOA stimulator was used.

Rózsa Melinda, Apahidean Maria (University of Agricultural Sciences and Veterinary Medicine of Cluj Napoca, Romania)

INFLUENCE OF DIFFERENT TYPES OF GRANULATED SUBSTRATE ON *CORDYCEPS MILITARIS* MUSHROOM MYCELIUM GROWTH

INFLUENȚA DIFERITELOR TIPURI DE SUBSTRAT GRANULAT ASUPRA CREŞTERII MICELIULUI CIUPERCII *CORDYCEPS MILITARIS*

Mushroom mycelium is a biological preparate that is obtained under sterile laboratory conditions and which, in an optimal microclimate, can reproduce the mushrooms from which it originates. Mushroom mycelium is used to inoculate the prepared substrates. This inoculum consists of a supportive material completely colonized by fungal mycelium. The type of support material varies depending on the cultivated mushroom species, although rye is the choice of most mycelium producers. In our experience, we have been looking at how to grow Cordyceps militaris mushroom mycelium on various substrates of cereal grains. The growth was followed for 10 days under laboratory conditions, and the most intense increase was recorded on millet grains with an average increase of 1.65 mm/day and the worst growth was recorded in the case of rye with an increase average of 1.05 mm/day.

Rózsa Sándor, Lazăr Vasile, Gocan Tincuța-Marta, Măniuțiu Dănuț-Nicolae, Poşta Gheorghe (University of Agricultural Sciences and Veterinary Medicine of Cluj Napoca, Romania)

INFLUENCE OF DIFFERENT TYPES OF SODIUM CHLORIDE ON GREEN TOMATOES - *SOLANUM LYCOPERSICUM* L. PRESERVED BY LACTIC FERMENTATION

INFLUENȚA DIFERITELOR TIPURI DE CLORURĂ DE SODIU ASUPRA TOMATELOR VERZI - GOGONELELOR (*SOLANUM LYCOPERSICUM* L.) CONSERVATE PRIN FERMENTAȚIE LACTICĂ

When green tomatoes are immersed in water and salt solution, an anaerobic environment is created for acidifying bacteria - lactobacilli - that are present at the surface of all living organisms, abundant above the leaves and roots that grow near the soil. As soon as the plants are immersed in water, fermentation begins. Lactobacilli begin to consume sugars from vegetables and fruits and produce, among other things, lactic acid. The lactic acid produced by these bacteria is a natural preservative that inhibits the growth of putrefaction bacteria and other pathogenic aeorobic microorganisms, such as mold. This paper presents the evolution and the influence of lactic fermentation on green tomatoes (Solanum lycopersicum L.) using different sources of water and salt. The highest amount of lactic acid (0.092%) was obtained with the use of non-iodate, recrystallized salt and spring water.

Stan (Tudora) Cătălina[1,2], Burnichi Floarea[3], Muscalu Adriana[2], Vintila Marian[4], Israel-Roming Florentina[1] ([1]University of Agricultural Sciences and Veterinary Medicine Bucharest, Romania; [2]National Institute of Research-Development for Machines and Installations Designed to Agriculture and Food Industry (INMA) Bucharest, Romania; [3]Vegetable Research and Development Station Buzau, Romania; [4]IICDIMPH-HORTING, Bucharest, Romania)

CULTIVATION AND EXTRACTION OF VOLATILE OILS OBTAINED FROM NEW VARIETIES OF BASIL (*OCIMUM BASILICUM* L., FAM. LAMIACEAE)

CULTIVAREA ŞI EXTRACȚIA ULEIURILOR VOLATILE OBȚINUTE DIN SOIURI NOI DE BUSUIOC (*OCIMUM BASILICUM* L., FAM. LAMIACEAE)

The paper presents the experimental research carried out within INMA Bucharest regarding the cultivation of two new varieties, "Aromat de Buzău" and "Serafim", created by SCDL Buzău. These belong to the two varieties of Basil (Ocimum basilicum L., Lamiaceae) yellow and purple, which were grown in the agricultural years 2017 and 2018, years that were different in terms of agrometeorological conditions. It also presents the method for obtaining vegetal extracts (volatile oil and floral water), obtained by processing the vegetal raw material while applying a process based on water vapour pressure distillation. Extraction yields obtained are presented comparatively. The results are the premises for obtaining new products with a high market value, which can be applied in the future for vegetable crops protection in greenhouses and solariums.

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BIOCHEMICAL PARAMETERS OF TOMATO UNDER CHEMICAL FERTILIZERS

INFLUENȚA FERTILIZĂRII CHIMICE LA TOMATE ASUPRA UNOR INDICATORI BIOCHIMICI

Fertilizers play an important role in providing nutrients to plants and in sustaining an optimal crop yield. In general, plants need three major elements for their optimal growth and development: nitrogen (N), phosphorus (P) and potassium (K). Most of the modern chemical fertilizers contain one or all of these nutrients. Other important elements are sulphur, magnesium and calcium. Micronutrients such as iron, chlorine, copper, manganese, zinc, molybdenum and boron are needed just in small amounts, but are equally important for the plants. In this context, at the UASVM Iaşi was organized an experiment to obtain important information regarding to use chemical nutrients on tomato biochemical indicators. Humidity from fruit, dry weight, fenols and antioxidant capacity varied under different chemical fertilizers. This work was supported by the CNCS-UEFISCDI, PN III PCCDI 41/2018 project.

Şovărel Gabriela, Buzatu Alina Mihaela, Doltu Mădălina (Vegetable and Flower Research and Development Institute Vidra, Romania)

RESEARCH REGARDING THE BEHAVIOUR OF GRAFTED EGGPLANTS TO BIOTIC AND ABIOTIC FACTORS IN CROPS IN GREENHOUSE

CERCETĂRI PRIVIND COMPORTAREA UNOR CULTIVARURI DE VINETE ALTOITE FAȚĂ DE FACTORII BIOTICI ŞI ABIOTICI, LA CULTURILE DIN SPAȚII PROTEJATE

Areas cultivated with eggplants occupy a very large surface in greenhouses and greenhouses, after tomatoes, peppers and cucumbers. The rootstocks assure to the eggplants high productivity, high quality of fruits and resistance/ tolerance to diseases and pests. The biological material was represented by eggplant cultivars Luiza and Aragon F1 and rootstock Torvum vigor. The purpose of the experience was to study the rootstock's influence on the growth, fructification and resistance to pathogens and pests of grafted eggplants. Eggplant plants grafted on Torvum vigor had a 20% higher vigour than Luiza and 25% Aragon F1 ungrafted. The yield was higher in grafted plants with 34.4% to Luiza variety and 14.4% to Aragon F1 compared with ungrafted variant. The Torvum vigor rootstock gives graft plants a high resistance to the attack of soil pathogens Verticillium dahliae and Fusarium oxysporum.

Zăgrean Alexandru-Valentin, Neguț Daniel, Miță Ioana, Şovărel Gabriela, Nicolcioiu Mihai (Vegetable and Flower Research and Development Institute Vidra, Romania)

GAMMA-IRRADIATION EFFECT ON MYCELIUM OF IN VITRO CULTIVATED *PLEUROTUS ERYNGII* AND *AGARICUS BLAZEI* STRAINS

EFECTUL GAMMA-IRADIERII ASUPRA MICELIULUI UNOR TULPINI DE *PLEUROTUS ERYNGII* ŞI *AGARICUS BLAZEI* CULTIVATE IN VITRO

The application of the Gamma radiations has proven useful for enhanced characteristics organisms obtaining, either by mutagenesis or by secondary metabolites and some medically important bioactive compounds production stimulation. The present work focuses on evaluating the effect of some low Gamma radiation doses on the mycelium of some Pleurotus eryngii (King Oyster) and Agaricus blazei (Almond Mushroom) strains. The cultivated mycelium on agar media and liquid medium (submerged culture) was irradiated with doses between 50 and 2000 Gy. The culture characteristics and growth rate of the irradiated and non-irradiated mycelium were verified. The higher doses determined the decrease of the mycelium growth and the reduction of the obtained biomass quantity. There were also analysed the morphological and structural changes of the irradiated mycelia and repairing phenomena were observed, in succesive transfers.

Boboc Cristina Ionela, Iurea Elena, Sîrbu Sorina, Gherghel Mădălina Iuliana, Chelaru Simona Mihaela, Perju Ionel, Ungureanu Ionuț Vasile (Research and Development Station for Fruit Tree Growing, Iaşi, Romania)

NEW STRATEGIES FOR THE PREVENTION AND CONTROL OF DISEASES AND PESTS IN THE CHERRY SPECIES

NOI STRATEGII DE PREVENIRE ŞI COMBATERE A BOLILOR ŞI DĂUNĂTORILOR LA SPECIA CIREŞ

The research was carried out within the S.C.D.P Iaşi, in order to test ecological alternatives regarding the control of diseases and pests in the cherry species. The observations were made in 2019 having as research material 2 varieties of cherry (Cătălina, Maria), grafted on mahaleb, the planting distance of 5X4 being in year VII from planting, the experience was placed on 4 experimental variants. The climatic conditions of this period were particularly favorable both for the evolution of the attack of the diseases (anthracnose and monilosis) and for pests. In the fight against diseases (moniliasis and anthracnose) the best results were obtained in the case of the chemical variant with Signum products 0.03%, Folicur Solo 0.075%, Mospilan 20 SG 0.03% and in the ecological variant the best results were obtained with the products Deffort 0,3%, Copfort 0,3%, Mimox 0,2%, Laser 240 SC 0,06%.
Keywords: cherry, pathogen, ecological.

Gocan Tincuța-Marta, Ileana Andreica, Bărbos Adrian, Poşta Daniela, Rózsa Sándor (University of Agricultural Sciences and Veterinary Medicine of Cluj Napoca, Romania)

INFLUENCE OF THE CULTURE AREA ON TWO SEA BUCKTHORN (*HIPPOPHAE RHAMNOIDES* L.) VARIETIES

INFLUENȚA AREALULUI DE CULTURĂ ASUPRA A DOUĂ CULTIVARE DE CĂTINĂ (*HIPPOPHAE RHAMNOIDES*)

Sea buckthorn (Hippophae rhamnoides L.) has been used in Chinese and Russian medicine for several decades. Research in the field of medicinal plants is growing more and more, sea buckthorn being a particularly important plant because it contains both nutritional and medical biodiversity of constituents due to the bioactive fruit which is one of the most important sources of constitutive bioelements. The chemical components give value to the products obtained from this miraculous plant. Sea buckthorn is a pure store of natural antioxidants, its rich content of flavonoids, glucosides, phenols, terpene, vitamins E, A, C, β-carotene, and trace elements including iron, zinc, manganese, antioxidants of very small molecular weight with role in neutralizing of free radicals. The results for soluble dry substance in fresh fruit range between 7.6-11.4%. Total sugar quantity range between 5.57-9.61 mg / 100g fresh substance.

Zlati Cristina, Istrate Mihai, Paşcu Roxana (University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

SWEET CHERRY CULTIVARS EVALUATION IN ROMANIA
EVALUAREA SORTIMENTULUI DE CIREŞ ÎN ROMÂNIA

The North East region, Iaşi County, is the most important sweet cherry production region in Romania. However, in the last two decades, fresh cherry production consisted primarily of few cultivars as 'Stella', 'Van', 'Boambe de Cotnari'. In recent years, there has been increased interest in planting new cultivars by North Eastern growers. New cultivars from around the world currently are being tested in high density orchards. Some selections are being evaluated for harvest timing, fruit size, productivity, firmness, resistance to rain-induced cracking and flavor. The most promising cultivars/selections include 'Kordia', 'Karina', 'Regina', 'Ferrovia', 'Sunburst', 'Canada Giant' and 'Sweetheart'.

Căuş Maria, Dascaliuc Alexandru (Institute of Genetics, Plant Phyisiology and Protection of Academy of Sciences, Chişinău, Republic of Moldova)

BIOSTIMULANT EFFECTS OF REGLALG PREPARATION ON BIOCHEMICAL PARAMETERS OF HORTICULTURE PLANTS
EFECTELE BIOSTIMULANTE ALE PREPARATULUI REGLALG ASUPRA PARAMETRILOR BIOCHIMICI AI PLANTELOR HORTICOLE

In this study, data are reported on the biostimulant effects of Reglalg preparation, used for pre-germination treatments of cucumber seeds, on seed germination, plant growth parameters, and biochemical indices, including catalase and peroxidase activity, the content of total phenols and total antioxidant activity in the roots. It was also demonstrated the beneficial effect of Reglalg preparation, used for spraying tomato plants under field conditions during the season, on plant growth and development, leaf chitinase activity, for both early and late repining cultivars. Soaking cucumber seeds in Reglalg preparation solutions and spraying of tomato plants during vegetation with this preparation represents a promising method of applying Reglalg to horticulture crops.

Florea Marius, Istrate Mihai, Apostol Maria (University of Agricultural Sciences and Veterinary Medicine of Iasi, Romania)

RESEARCHES ON THE GROWTH AND DEVELOPMENT OF SEEDING MATERIAL AT THE GRAFTED WALNUT BY THE CHIP BUDDING METHOD
CERCETĂRI PRIVIND CREŞTEREA ŞI DEZVOLTAREA MATERIALULUI SĂDITOR LA NUCUL ALTOIT PRIN METODA CHIP BUDDING

The determinations aimed the studying of the growth and development of four varieties of walnut grafted by the chip budding method (Anica, Grădinari, Miroslava and Velnița). Biometric observations focused on the percentage of grafting survival, tree height and diameter. In addition to the biometric observations, biochemical determinations were made regarding the content in photosynthetic pigments and the peroxidase activity at the grafted combinations in the first year of vegetation. The research results revealed differences between the four varieties of walnut regarding the the vigor of growth, the content in photosynthetic pigments and the peroxidase activity.

Iurea Elena, Boboc Cristina Ionela, Sîrbu Sorina, Corneanu Margareta, Gherghel Mădălina Iuliana, Chelaru Simona (Research and Development Station for Fruit Tree Growing, Iaşi, Romania)

THE ASSESSMENT OF FRUITS' TECHNOLOGICAL FEATURES IN SOME CHERRY CULTIVARS GROWN UNDER THE ECOLOGICAL CONDITIONS FROM THE N-E OF ROMANIA
EVALUAREA ÎNSUŞIRILOR TEHNOLOGICE ALE FRUCTELOR LA UNELE SOIURI DE CIREŞ CULTIVATE ÎN CONDIȚII ECOLOGICE DIN N-E ROMÂNIEI

The aim of this paper is to present the valuable characteristics of some cherry cultivars created at SCDP Iasi that improve the autochthonous assortment. Analysing the values of the fertility index during the three years of study, the 4 cultivars show high productivity because the recorded values were between 30.0 – 36.2%. Regarding fruits' weight (g) and equatorial diameter (mm), the cultivars that got highlighted are Lucia (8.2 g and 25.2 mm) and Cătălina (8.0 g and 24.0 mm). The SUS values were between 17.8% (Iasirom) and 19,4% (Radu), the titratable acidity (AT) of the fruits varied within large limits with values between 0.44 – 0.90 mg malic acid/100 mL juice, with a ratio between SUS and AT between 20.36-40.58%. Moreover, the values of the total polyphenols varied between genotypes, this indicator positioning itself between 382.15 – 588.33 mg gallic acid/100 mL fresh juice.

Sîrbu Sorina, Chelaru Simona Mihaela, Iurea Elena, Corneanu Margareta, Gherghel Mădălina Iuliana (Research and Development Station for Fruit Tree Growing, Iaşi, Romania)

POMOLOGICAL TRAITS OF PEACH VARIETIES CULTIVATED IN THE NORTHEAST OF ROMANIA
ÎNSUŞIRI POMOLOGICE LA SOIURI DE PIERSIC CULTIVATE ÎN ZONA DE NORD - EST A ROMÂNIEI

The research was carried out at Research Station for Fruit Growing Iasi for three consecutive years. Three peach cultivars as followes 'Raluca', 'Cora' and 'Delta' were studied. The analysis of the results highlights the fact that the phases from the swelling buds to the beginning of the blossoms occurred from a calendar point of view between 25 February and 12 April. The vigor of the tree was expressed through the trunk section surface that ranged between 34.7 cm^2 (Raluca) and 59.3 cm^2 (Cora). In terms of the weight of the fruit (g), Raluca (103.3 g) were noted in the three years that statistically significant differences from the average.

Enache Viorica, Tăbăranu Gabriel, Donici Alina (Research and Development Station for Vine and Winemaking Bujoru, Romania)

THE INFLUENCE OF PROBABLE CLIMATE CHANGE ON EVOLUTION OF THE VEGETATION PHENOPHASES TO THE FETEASCĂ REGALĂ VARIETY IN THE DEALU BUJORULUI VINEYARD
INFLUENȚA SCHIMBĂRILOR CLIMATICE PROBABILE ASUPRA EVOLUȚIEI FENOFAZELOR DE VEGETAȚIE LA SOIUL FETEASCĂ REGALĂ ÎN PODGORIA DEALU BUJORULUI

The unfolding of vegetation phenotypes and fructification in the vine is influenced by the cumulative action of daily average temperatures exceeding 10ºC, a value that is considered a biological threshold for vine. In the climatic conditions of the last few years a random evolution of the amount of active and useful temperature levels necessary to trigger the phenological stages was observed. The research was carried out during 2008-2018 on the Feteasca Regala variety in the experimental field of the Research and Development Station for Viticultural and Winemaking Bujoru. The main objective of the paper is to establish the active and useful thermal balance necessary for the development of the vegetation phenophases and the determination of the trend of their evolution. There is a slight tendency to increase the active temperature for budburst and harvesting phenophases and a decreasing pronounced trend for the flowering and ripening phenophases.

Filimon Roxana[1], Damian Doina[1], Filimon Vasile Răzvan[1], Nechita Ancuța[1], Rotaru Liliana[2] ([1]Research-Development Station for Viticulture and Winemaking Iaşi, Romania; University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

ASSESSMENT OF THE AGROBIOLOGICAL AND AMELIORATIVE POTENTIAL OF SOME RESISTANT GRAPES VARIETIES
EVALUAREA POTENȚIALULUI AGROBIOLOGIC ŞI AMELIORATIV AL UNOR SOIURI REZISTENTE DE VIȚĂ DE VIE

Grape varieties with high biological resistance are the crossing result of two or more Vitis species. Due to the lack of recent and complete data regarding grape quality, breeding potential and ornamental value of the hybrid grapevine genotypes created in the last decades, the purpose of this study was to evaluate the agrobiological and technological value of resistant varieties: Purpuriu, Radames and Moldova, having variety Villard blanc as common genitor, and the variety Mara (Ozana × Seyve Villard 12-303), frequently cultivated in the temperate climate vineyards, recreational areas and private gardens. Grape maturity of consumption was achieved in the last decade of September, their colour varying from red to black - purple. Grape yield ranged from 17 to 22 t/ha, with a balanced sugars/acidity ratio and good antioxidant activity. The obtained results contribute to a better understanding of the ameliorative value of the resistant varieties studied.

Nechita Ancuța, Zaldea Gabi, Filimon Răzvan, Filimon Roxana, Damian Doina, Nechita Constantin Bogdan (Research-Development Station for Viticulture and Winemaking Iaşi, Romania)

EVALUATION OF THE PHENOLIC POTENTIAL OF SOME VARIETIES FOR RED WINE CULTIVATED VINEYARDS IN THE WINE CENTER OF IAŞI COPOU
EVALUAREA POTENȚIALULUI FENOLIC AL UNOR SOIURI PENTRU VINURI ROŞII CULTIVATE ÎN CENTRUL VITICOL COPOU IAŞI

The tendency to increase the thermal regime from Copou Iaşi viticulture center, observed in last years, determine the increase of the favorability and extension of the cultivation area of grape varieties for red wines. So, to evaluate phenological potential of red wine grape varieties growth in Copou Iaşi viticulture center, were taken into the study during two years the varieties: Arcaş and Cabernet Sauvignon. The results confirm the possibility of obtaining through an appropriate technology of some red varieties of quality wines.

Zaldea Gabi, Nechita Ancuța, Alexandru Lulu Cătălin, Pisticiuc Iustin (Research-Development Station for Viticulture and Winemaking Iaşi, Romania)

TECHNOLOGICAL SEQUENCES FOR RECOVERY OF VINEYARD PLANTS AFFECTED BY EXTREME CLIMATE PHENOMENES

SECVENȚE TEHNOLOGICE DE REFACERE A PLANTAȚIILOR VITICOLE AFECTATE DE FENOMENE CLIMATICE EXTREME

In the Copou Iaşi wine center, in recent years, there is a frequent extreme climatic fenomena, frozen and drought, that affected the vegetative potential and the productivity of the vine plants. To highlight the levels at which temperature drops are possible and to assess the degree to which they have a destructive influence on vines, were analyzed the lowest values of the temperatures, established the number of days with character of climatic accident, the frequency and periodicity of the years in which these temperatures occur. Also, the analysis of the rainfall regime, in recent years, shows us an increase in the frequency of drought. In the drought years, the high values of the temperatures corroborated with the water deficit of the soil have lead to the accentuation of the atmospheric and pedological drought with unfavorable effects on the state of vegetation of the buds and on the productions of grapes.

Dumitrachi Petru Emanuel, Corduneanu Oana, Băetu Marius, Roşca Radu, Cârlescu Petru, Țenu Ioan (University of Agricultural Sciences and Veterinary Medicine of Iaşi, Romania)

RESEARCHES REGARDING THE USE AS A BIOMASS OF VINES RESIDUES RESULTING FROM THE DORMANT PRUNING

CERCETĂRI PRIVIND UTILIZAREA CA BIOMASĂ A COARDELOR DE VIȚĂ DE VIE REZULTATE DE LA TĂIREA ÎN USCAT A PLANTAȚIILOR VITICOLE

At the global level, biomass is considered one of the main forms of renewable energy, as it ensures the conservation of the sun's energy in chemical form, being one of the most popular and universal resources on Earth, used for energy purposes since the discovery of fire by man. Today, biomass can be used for different purposes from room heating to producing electricity and fuel for cars. Biomass is the biodegradable part of agricultural products, waste and residues, including plant and animal substances, forestry and related industries, as well as the biodegradable part of industrial and urban waste. Considering these elements, we can consider that vine plantations can make a significant contribution to the development of the biomass source, by using the vine ropes resulting from the cuts in the land. The research aimed at determining the biomass potential of vine plantations, harvesting ropes from wine varieties and at different dates during plant rest to determine the evolution of their humidity. The samples were taken from the plantation within the Teaching Station of the University of Agricultural Sciences "Ion Ionescu de la Brad" in Iaşi, the farm "Vasile Adamachi". The varieties studied were: Busuioacă de Bohotin, Cabernet Sauvignon, Fetească Albă, Fetească Neagră, Fetească Regală, Muscat Ottonel, Pinot Noir and Sauvignon Petit. Following the research carried out it was found that the humidity of the strings is different, depending on the variety and the date of harvest.

Călin Ioana, Cotea V. Valeriu, Luchian Camelia-Elena, Colibaba Lucia-Cintia, Scutăraşu Elena Cristina, Andrieş Mitică-Tiberiu, Popîrdă Andreea, Nistor Alina Mihaela, Cimpoi Vlăduț-Ioan (University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

INFLUENCE OF SULPHUR DIOXIDE AND DIMETHYL DICARBONATE ON WHITE WINES QUALITY

INFLUENȚA DIOXIDULUI DE SULF ŞI A DIMETIL DICARBONATULUI ASUPRA CALITĂȚII VINURILOR ALBE

Being a complex system in continuous evolution, wine needs different stabilization and conditioning treatments. Sulphur dioxide and dimethyl dicarbonate are one of the most used in winemaking because they have an important role in wine protection and stabilization. For this study, nine wine variants were obtained from a blend of Fetească Regală and Muscat Ottonel varieties. All samples were treated with SO_2 6% and dimethyl dicarbonate, in various concentrations. The aim of this experiment was to follow the evolution of physical-chemical and chromatic parameters of wines. The analyses were repeated and compared at three months difference. Both treatments showed significant influence on the physical-chemical and chromatic characteristics of wines, depending on added concentration and the analysis period, representing a good alternative for modern winemaking. Keywords: wine stabilization, dimethyl dicarbonate, sulphur dioxide, physical-chemical parameters, color parameters.

Filimon Vasile Răzvan, Paşa Rodica, Filimon Roxana, Nechita Ancuța, Damian Doina (Research-Development Station for Viticulture and Winemaking Iaşi, Romania)

PRELIMINARY SELECTION OF MALOLACTIC BACTERIA STRAINS ISOLATED FROM INDIGENOUS MICROBIOTA

SELECȚIA PRELIMINARĂ A UNOR TULPINI DE BACTERII MALOLACTICE IZOLATE DIN MICROBIOTA INDIGENĂ

Malolactic fermentation (MLF) is defined as the enzymatic bioconversion of malic acid in lactic acid, a process performed by lactic acid bacteria. The procedures for the isolation of lactic acid bacteria strains from red

wines in spontaneous MLF, obtained in Copou - Iaşi wine center, resulted in the obtaining of 12 strains with a high potential for conversion of malic acid, in synthetic wine. Catalase-negative and Gram-positive isolates were tested for their ability to produce biogenic amines by decarboxylation of amino acids and to use citrate as the sole source of carbon and energy (Simmon's medium). Also, the ability of lactic bacterial isolates to produce acetoin from both citrate and glucose has been tested. The tested malolactic strains showed low citrate utilization capacity, eight of them being able to decarboxylate arginine. Although they did not produce acetoin from citrate, three of the bacterial isolates produced acetoin by glucose metabolism.

Scutăraşu Elena Cristina, Luchian Camelia Elena, Colibaba Lucia Cintia, Cotea V. Valeriu, Călin Ioana, Andrieş Mitică Tiberiu, Cimpoi Vlăduț Ioan (University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

INFLUENCE OF ENZYME TREATMENT ON THE QUALITY OF SAUVIGNON BLANC WINES
INFLUENȚA ENZIMELOR ASUPRA CALITĂȚII VINURILOR OBȚINUTE DIN SOIUL SAUVIGNON BLANC

Enzymes are currently used in modern wine technology for diverse biotransformation reactions from prefermentation to fermentation, post-fermentation and wine aging stage. Industrial enzymes gives quantitative (increased juice yields) and qualitative conveniences (improved color extraction and flavor enhancement) and processing benefits (shorter maceration, settling and filtration time). This study investigates the effects of enzyme treatments on some physical-chemical parameters of white wines obtained in Iaşi vineyard. The grapes representing Sauvignon blanc variety were processed in autumn 2018 by the classic method for obtaining white wines. For this study, five commercial enzymes with different activities were used, such as β-glucosidases and pectinases, thus contributing to release aroma compounds. Six variants (control sample included) were obtained. For this experiment, physical-chemicals and sensory parameters were analysed. Significant influence in the composition of the analysed samples was observed, depending on the type of enzyme used as pre-treatment. The study results are useful in improving wine-making process and sensorial quality of final product.

Herea Monica, Tălmaciu Mihai, Boboc Cristina, Tălmaciu Nela (University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

OBSERVATIONS ON EXISTING ARTHROPODS FAUNA IN SOME ORCHARDS
OBSERVAȚII PRIVIND FAUNA DE ARTROPODE EXISTENTE ÎN UNELE PLANTAȚII POMICOLE

Observations on the structure of the arthropods entomofauna were carried out between April-August 2018 in the apple tree orchards belonging to SC Loturi Service SRL Deleşti, Vaslui. For the collection of insects in the orchard, the method of soil traps type Barber has been chosen, in total 6, placed 3 at row, which have as fixative solution a salt solution (NaCl) with a concentration of 15%. The insects thus collected were cleaned from the plant and soil debris, then the insects was coservate in alcohol 90°. As soon as they were brought into the laboratory, they were determined and centralised. The collected material is represented by species belonging to artropods fauna, which is systematically falling in the following order: Coleoptera, Hymenoptera, Diptera, Colembola, Gastropoda, Arachnida et al.

3rd SECTION

LANDSCAPE ARCHITECTURE

ORNAMENTAL ARBORICULTURE, SUISTAINABLE DEVELOPMENT IN LANDSCAPE ARCHITECTURE, HISTORICAL EVOLUTION OF THE LANDSCAPE, LANDSCAPE ESTHETICS, PHILOSOPHY AND PSYCHOLOGY, ENVIRONMENT MANAGEMENT IN LANDSCAPE ARCHITECTURE, LANDSCAPE ARCHITECTURE IN THE URBAN RESTORATION, REHABILITATION AND CONVERSION, LANDSCAPE COMPOSITION AND DESIGN

Floriculture Laboratory, Second floor

Chairmen:
Prof. dr. arh. Doina Mira **DASCĂLU**
Conf. dr. Elena Liliana **CHELARIU**

Secretariat:
Şef lucr. dr. arh. Mirela **COJOCARIU**
Asist. dr. arh. Codrina **GRECU**

Timp de prezentare: **5-7 minute**

ORAL PRESENTATIONS

Dascălu Doina Mira, Cojocariu Mirela, Grecu Codrina, Paşcu Roxana (University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

MEDIEVAL GARDENS - EVOLUTIONS AND TYPES
GRĂDINILE MEDIEVALE - EVOLUȚII ŞI TIPOLOGII

The Middle Ages is a special period in the history of human culture and civilization, because it is under the sign of decanting the interferences of ancient cultures. Starting with the 11th century, the flourishing of the world culture is significantly felt through its rebirth from the ashes of antiquity. Even though in the historical interval called "medievality" the gardens were specific to each region, we can highlight the persistence of some common general features. The paper compares the evolution and typologies of medieval gardens, in Europe and in the East, between the 11th and 14th centuries.

Ciobanu Oana Viorica[1] Anghel Roxana Mihaela[2] ([1]"Gh. Asachi" County Library Iaşi, Romania; [2]University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

INVOLVING VOLUNTEERS IN THE DEVELOPMENT OF PARK BIODIVERSITY
IMPLICAREA VOLUNTARILOR ÎN DEZVOLTAREA BIODIVERSITĂȚII PARCURILOR

The Faculty of Horticulture from USAMV Iaşi, SC APAVITAL SA Iaşi, the Environmental Protection Agency Iaşi, the Technological High School "Petru Poni" and the County Library "Gh. Asachi" Iaşi had as permanent concern the realization of projects that support the educational collaboration in the community of Iasi by establishing a close connection between students, students and teachers. Noting the benefits of this link between the educational and scientific area and non-formal development, this partnership approach offers the possibility of achieving a high level of technical and didactic performance. The main practical activities carried out within the projects concern:
- Technologies of plant cultivation: planting and care.
- The importance of the concept of biodiversity and of the dendrological parks in the city of Iaşi.
- Advocacy for environmental protection.

Ciobanu Oana Viorica[1] Anghel Roxana Mihaela[2] ([1]"Gh. Asachi" County Library Iaşi, Romania; [2]University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

OPPORTUNITY FOR PROFESSIONAL AFFIRMATION AND CAREER GUIDANCE OF STUDENTS
OPORTUNITATE DE AFIRMARE PROFESIONALĂ ŞI DE ORIENTARE ÎN CARIERĂ A ELEVILOR ŞI STUDENȚILOR

In the last years, the County Library "Gh. Asachi" Iaşi had a special concern for encouraging the development of non-formal education, of the practical and technical sense by developing workshops within the Library and Science - Intersections program. Together with the University of Agricultural Sciences and

Veterinary Medicine "Ion Ionescu de la Brad" from Iaşi, the Technical University "Gh. Asachi" Iaşi, the University of Medicine and Pharmacy "Gr. T. Popa" Iaşi and the Colleges of Iaşi, these workshops will capitalize on the overlap between literature and the different branches of science. The partners of this project create the opportunity to broaden the opportunities for professional affirmation and career guidance of the students and students, who have become motivated to capitalize on their scientific skills within the circles of development of creative abilities.

Chelariu Elena Liliana, Cojocariu Mirela, Melu Ramona-Cosmina (University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

STUDY REGARDING THE MAIN RUSSIAN GARDENS AND PARKS
STUDIU PRIVIND PRINCIPALELE GRĂDINI ŞI PARCURI ALE RUSIEI

Landscape designs of Russian gardens were introduced later than in other countries such as: Spain, France, Italy or England, even if in Russian documents could be found mentions about monasteries gardens like Suzdal, Kiev, Vladimir, where were grown trees and fruit shrubs. In Russia, landscape design of gardens appeared since Xth century, but in Moscow, the beautification of green spaces has grown starting with XIVth century, moment in which due to some fires it was concluded that the existent vegetation between buildings is a protection factor against fire. In the current paper are presented four of the Russian gardens and parks: gardens from Sankt Petersburg, gardens of Ropsha Palace, Pavlovsk Park, Tsarskoe Selo Park.

Chelariu Elena Liliana, Draghia Lucia, Apostol Maria, Manache Elena Diana, Amişculesei Petronica (University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

INFLUENCE OF SOME FACTORS ON MULTIPLICATION OF ORNAMENTAL SPECIES *PASSIFLORA COERULEA* AND *PASSIFLORA QUADRANQULARIS*
INFLUENȚA UNOR FACTORI ASUPRA ÎNMULȚIRII SPECIILOR ORNAMENTALE *PASSIFLORA COERULEA* ŞI *PASSIFLORA QUADRANQULARIS*

In the current paper are presented the results of a research regarding the influence of cuttings' type, substrate and treatments on cuttings rooting at floral species Passiflora coerulea and Passiflora quadranqularis. Research was carried out in the didactical greenhouse of Floriculture discipline from USAMV Iaşi, experiments being organized in 8 variants. During research was observed the influence of cuttings type, substrate and treatments with bio-stimulators on rooting capacity of cuttings. At the end of research was noticed that at those two studied species rooting of cuttings had good results if are treated with a rooting stimulator and placed into a perlite substrate for rooting. The type of manufactured cuttings, it influences to a lesser extent the rooting ability.

Grigoraş Claudia-Daniela[1], Vâşcă-Zamfir Diana[1], Vînătoru C.[2], Muşat Bianca[2], Bratu Camelia[2], Dobre Ovidia[2], Barcanu-Tudor Elena[2], Toma Florin[1] ([1]University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania; [2]Vegetable Research and Development Station Buzău, Romania)

GLEBIONIS CORONARIA (EDIBLE CHRYSANTHEMUM), A MULTI-PURPOSE PLANT
GLEBIONIS CORONARIA (CRIZANTEMA COMESTIBILĂ), O PLANTĂ CU MULTIPLE ÎNTREBUINȚĂRI

Edible Chrysanthemum (Glebionis coronaria) is a plant native to the Mediterraneanarea. This species was acclimatized and bred at VRDS Buzău, where 3 genotypes were obtained from three distinct varieties that were tested in two culture environments, greenhouse and field. The plant has multiple uses, being both food, medicinal but also ornamental.

Filipov Feodor, Chelariu Elena Liliana, Bernardis Roberto, Draghia Lucia (University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

CONSIDERATION ON SOME RECLAMATION METHODES OF URBAN COMPACTED SOILS IN RESIDENTIAL AREAS
CONSIDERAȚII ASUPRA UNOR METODE DE AMELIORARE A SOLURILOR COMPACTE DIN ZONE REZIDENȚIALE

The effects of urbanization on compactness state of soil can be extensive. In strong compacted soil infiltration of water through soils can be greatly diminished. The method commonly used to valor capacted soil is to cover it with fertile soil from different sources. Although results can be obtain using some annual plants with shallow root system, but in a short time, most of the cultivated plants are stagnant growing due to waterlogging and asphyxiation roots. Even if the compacted layer is covered with fertile soil constraints of compacted layer are maintained which actsas a barrier to water infiltration and roots penetration. In this work we proposed some reclamation methods in order to prevent the negative effects of water stagnation and improve the soil internal drainage.

POSTER PRESENTATIONS

Chairmen:
Conf. dr. Elena Liliana **CHELARIU**
Conf. dr. Diana **VÂŞCĂ-ZAMFIR**
Şef lucr. dr. Roberto **BERNARDIS**

Secretariat:
Şef lucr. dr. arh. Mirela **COJOCARIU**
Asist. dr. Roxana **PAŞCU**

Bernardis Roberto[1], Dascălu Marius[1], Sandu Tatiana[1], Poşta Daniela[2], Zlati Cristina[1], Paşcu Roxana[1] ([1]University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania; [2]Banat's University of Agricultural Sciences and Veterinary Medicine Timişoara, Romania)

OBSERVATIONS ON THE ANNUAL GROWTH IN SOME DENDROLOGICAL SPECIES IN THE CONDITIONS OF IAŞI COUNTY
OBSERVAȚII PRIVIND CREŞTERILE ANUALE LA UNELE SPECII DENDROLOGICE ÎN CONDIȚIILE JUDEȚULUI IAŞI

Within the multitude of dendrological species, the species in the Cupressaceae family are of particular importance in the arrangement of green spaces and especially in the conditions from us in the country which are generally favorable and very favorable for these species. The purpose of the paper is to highlight the evolution of annual growths in some species of conifers under the conditions from Iaşi County. Observations were made on the species Chamaecyparis lawsoniana Blue Piramidal Al. (Murr. Parl), Juniperus scopulorum skyrocket Sarg., Thuja occidentalis fastigiata L. During the vegetation period observations were made regarding the determination of the annual growth length and the influence of the complex chemical fertilizers N, P, K (1: 1: 1) on the annual growths.

Chelariu Elena Liliana, Grigoruță Monica-Mihaela (University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

STUDY REGARDING GARDEN'S ART FROM LISBON, PORTUGAL
STUDIU PRIVIND ARTA GRĂDINILOR DIN LISABONA, PORTUGALIA

Since ancient times, gardens represent an argument for a certain culture. Often, is said about Portuguese gardens that absorbed design type from anywhere, either from the Arabs from the neighbouring country, from Italian renaissance garden, or from French baroque garden. Nevertheless, Portuguese succeeded to offer to gardens an own style. A short note could make the difference between Portugal and Spain, for example, in Spain gardens have been arranged in according with Habsburg's and Bourbon's demands while in Portugal were arranged for the kings of Portuguese House originally from Bragança, being observed a national character. In the current paper are presented and analysed the main gardens from Lisbon, Portugal, such as: the gardens of Queluz, Belem and Calhariz Palaces, as well as the gardens from Piedade, Manserrate and Regaleira. After analysing the main gardens from Lisbon was observed three specific particularities for Portugal, as follows, utilization of ceramic tiles (Azulejos), design of pools and basins in terraces and utilization of a special type for vegetal design.

Cojocariu Mirela, Chelariu Elena Liliana, Grecu Codrina, Paşcu Roxana (University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

POSSIBILITIES OF USING ENGLISH ROSES IN LANDSCAPE DESIGN
POSIBILITĂȚI DE UTILIZARE A TRANDAFIRILOR ENGLEZEŞTI ÎN DESIGNUL PEISAGER

From the variety of species, we enjoy today, the group of English roses attract attention not only for their size diversity but mainly because of the tenderness flowers which are extremely scented. These combine the graceful style of old roses from 19th century, full of brightly colored petals, with the elegance of modern varieties. Most of them bloom repeatedly and abundantly and this is why these old-fashioned roses are appreciated by people who love their nostalgic and timeless aspect. English roses are very versatile, being created to adapt in a large range of simple or mixed compositions, where their flowers abundance and scent will have a special impact. This paper treated some possibilities of using English roses in various landscaping.

Grecu Condrina[1], Sandu Tatiana[1], Purcaru Andrei[2] ([1]University of Agricultural Sciences and Veterinary Medicine of Iaşi, Romania; [2]"Gh. Asachi" Technical University of Iaşi, Romania)

ECOLOGICAL AND SELF-SUSTAINING CITIES - A SYSTEMIC APPROACH FROM THE POINT OF VIEW OF LANDSCAPE PLANNING DISCIPLINES
ORAŞE ECOLOGICE ŞI AUTOSUSTENABILE – O ABORDARE SISTEMICĂ DIN PUNCT DE VEDERE AL DISCIPLINELOR PEISAGISTICE

Eco-urbanism involves a series of concepts and principles of planning, implementation and use of the elements of the system called city, generically called green technologies. These include: intelligent

management of all utilities networks of urban settlements (water and sewerage network, district heating, gas, electricity, transport networks, telecommunications, etc.), wastewater management and recycling systems. and solid waste, passive energy building technology, clean energy technologies (solar, wind, hydropower or biogas technologies, etc.), rehabilitation and revitalization of depreciated or abandoned urban spaces, food and consumable objects production in a sustainable way. The present paper illustrates the importance of the fact that the city planning and the landscape planning involves knowledge applied from several areas listed above or not mentioned yet, which implies an overview of landscape architects on all these areas and the connections between them, both in territorial and urban planning, as well at the scale of the detailed landscape design.

Paşcu Roxana, Zlati Cristina, Bernardis Roberto (University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

METHODS FOR INCREASING URBAN SUSTAINABILITY BY PLANNING GREEN AREAS IN INDUSTRIAL DISTRICTS

METODE DE CREŞTERE A SUSTENABILITĂȚII URBANE PRIN AMENAJAREA DE SPAȚII VERZI ÎN ZONE INDUSTRIALE

The idea of the present work started from the concept of urban sustainability, which aims at the correct use of all spaces by increasing the areas planted rationally and thus aligning them with the objectives of sustainable development established by Law no. 24 of 2007 and republished on November 10, 2009 (law on the regulation and administration of urban spaces). Starting from the desire to create a relaxing space for the employees of the BMT Aerospace factory which specializes in the development and production of precision gears for the aerospace industry, this work proposes the arrangement of a special green area in the immediate vicinity of the production hall, visible as much from the offices as well as from the work benches. The paper aims to propose the creation of a relaxing space that can easily fall into the category of "industrial green spaces" or "industrial landscape architecture". When removed from the industrial context of the factory, the proposed landscaping falls in the category of park gardens. The plant massifs, the lawn, the water, the wood, the natural stones, were the essential elements for creating the relaxation space, all the more necessary in the short working breaks. As a result, the landscaping presented in this work radically transformed the "green area" inside the factory into a modern, pleasant, comforting space for those to whom it was intended.

Sandu Tatiana, Trofin Alina Elena, Bernardis Roberto, Grecu Codrina (University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

ECOLOGICAL SOLUTIONS REGARDING THE MONITORIZATION OF THE URBAN ATMOSPHERE POLUTION INVOLVING BIOINDICATING TREES ON THE MAIN STREET ALINEAMENTS IN IAŞI SOLUȚII ECOLOGICE PRIVIND MONITORIZAREA POLUĂRII ATMOSFERICE URBANE CU AJUTORUL ARBORILOR BIOINDICATORI PE ALINIAMENTELE STRADALE PRINCIPALE DIN MUNICIPIUL IAŞI

Recent data underline that the evolution of the urban environment in Iaşi was mostly based on developing the street system infrastructure in detriment of the urban green areas, what led inevitabilly to the intensification of traffic and holding back the interest for developing in a sustenable mode a network ofi urban green areas. In many European countries a program of monitorization involving bioindicating trees is already implemented, based on the response of these "sentinel trees" to harsher life conditions of the intense traffic and poluted streets compared to the rest of the green areas. The present study aims the importance of dendrological street plantations through their positive impact on the fight against direct polution toward the pedestrian traffic. The observations were conducted in alineaments plantations from three main boulevards in Iaşi, underlining the insuficiency of woody vegetation, the precarious health state of most of the mature specimens.

Amişculesei Petronica, Chelariu Elena Liliana, Apostol Maria, Draghia Lucia (University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

STUDIES CONCERNING THE BEHAVIOR OF THE GLADIOLUS BYZANTINUS SPECIES IN THE CULTURE CONDITIONS IN IASI, ROMANIA

STUDII PRIVIND COMPORTAREA SPECIEI *GLADIOLUS BYZANTINUS* ÎN CONDIȚIILE DE CULTURĂ DIN IAŞI, ROMANIA

The present work aims to determine some particularities regarding propagation and ornamental value of Gladiolus byzantinus plants. The study was conducted in ecological conditions from Iasi (NE Romania), in the period 2017 – 2019. The capacity of generative and vegetative propagation was monitored and observations were made on the morphological and ornamental characters of the plants from the experimental crops. The results demonstrate that the species Gladiolus byzantinus responds favorably to both types of propagation, also presenting a very good adaptation to the culture conditions experienced.

Draghia Lucia, Chelariu Elena Liliana, Apostol Maria, Manache Elena Diana (University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

VEGETATIVE MULTIPLICATION PARTICULARITIES OF ORNAMENTAL SPECIES *BOUGAINVILLEA GLABRA*

PARTICULARITĂȚI ALE ÎNMULȚIRII VEGETATIVE A SPECIEI ORNAMENTALE *BOUGAINVILLEA GLABRA*

In the current paper are presented a series of aspects regarding particularities of vegetative multiplication by cuttings at Bougainvillea glabra plants. Research was carried out in conditions of glasshouse belonging to Floriculture discipline from UASVM Iaşi during 2018-2019. Experiments were organized in 8 variants which resulted by combination of three factors: cuttings type (simple, with heel), rooting substrate (water, perlite) and treatments with bio-stimulators (1 or 4 treatments with Cropmax). At the end of the study was observed that for vegetative multiplication of species Bougainvillea glabra is recommended utilization of cuttings with heel, treated with bio-stimulator and rooted into perlite.

Neagu Cristina Florina, Chelariu Elena Liliana, Apostol Maria, Bernardis Roberto, Draghia Lucia (University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

INFLUENCE OF SOME BIO-STIMULATORS ON OBTAINING OF CUTTINGS AT *LAVANDULA ANGUSTIFOLIA*

INFLUENȚA UNOR BIOSTIMULARORI ASUPRA PRODUCERII RĂSADURILOR LA *LAVANDULA ANGUSTIFOLIA*

In the current paper are presented the results regarding influence of treatments with gibberellins GA3 and Razormin on germination of seeds at species Lavandula angustifolia. Research took place in glasshouse conditions during 2017-2018. Were made observations regarding dynamics of rising and were determined germination velocity and germination rate. The obtained results prove the fact that Lavandula angustifolia seeds have a favourable response to treatment with bio-stimulators.

Apostol Maria, Draghia Lucia, Chelariu Elena Liliana, Amişculesei Petronica (University of Agricultural Sciences and Veterinary Medicine of Iasi, Romania)

DETERMINATION OF PHYSIOLOGICAL RESPONSES ON *DIANTHUS* SPECIES EXPOSED TO DIFFERENT LEAD CONCENTRATIONS

DETERMINAREA RĂSPUNSURILOR FIZIOLOGICE ASUPRA SPECIILOR DE *DIANTHUS* EXPUSE LA DIFERITE CONCENTRAȚII DE PLUMB

Experiment was conducted to investigate the growth and oxidativ changes in activities of peroxidase (POD) and catalase (CAT) in Dianthus deltoides and Dianthus nardiformis seedlings exposed to lead toxicity. The experience was organized in six variants, the watering process of the substrate was performed using distilled water for the control plant and Pb $(NO_3)_2$ solutions for the other variants. The oxidative stress in plants caused by lead administration is determined by spectrophotometric analysis of the activity of the catalase and peroxidase in the leaves. The results showed that increased POD and CAT activity may be associated with the tolerance capacity of Dianthus species.

4th SECTION

ENGINEERING AND ENVIRONMENTAL PROTECTION

CLIMATOLOGY AND AGRO METEOROLOGY, ECOLOGY, WATER AND SOIL POLLUTION, WIND ENGINEERING AND AIR POLLUTION, SOURCES OF RADIATION AND NUCLEAR SAFETY, PLANNING AND MANAGEMENT OF WATER RESOURCES, REGULARIZATION OF RIVERS AND DAMS, HYDROLOGY AND HYDROGEOLOGY, ENVIRONMENTAL QUALITY MONITORING AND DIAGNOSIS, STORAGE AND WASTE RECYCLING, TECHNOLOGIES AND EQUIPMENT FOR DECONTAMINATION, BALANCE STUDIES AND ENVIRONMENTAL IMPACT, ENVIRONMENTAL HEALTH

Vegetable Growing Laboratory, Second floor

Chairmen:
Prof. univ. dr. Mihail **LUCA**
Prof. univ. dr. Daniela **POPA**
Prof. univ. dr. Vasile **STOLERU**

Secretariat:
Şef lucr. dr. Raluca Maria **HLIHOR**
Dr.biol. Gabriela **MIHALACHE**

Timp de prezentare: **5-7 minute**

ORAL PRESENTATIONS

Andriescu Petronela, Luca Mihail ("Gheorghe Asachi" Technical University of Iaşi, Romania)

ESTABLISHING THE IMPACT ON THE GROUNDWATER BODY TO ACHIEVE A RECREATIONAL LAKE WITH A PROTECTIVE PIER
STABILIREA IMPACTULUI ASUPRA CORPULUI DE APĂ SUBTERAN ÎN VEDEREA REALIZĂRII UNUI LAC DE AGREMENT CU DIG DE PROTECȚIE

The paper aims to analyze the main potential ways to affect the quality of the groundwater from which the water supply of the wells is caused by the dam of the recreational lake. The perimeter taken into study is a former orchard of partially cultivated fruit trees, located in the town of Bacău Şerbăneşti district, on which a recreational lake with a protective dike is to be created. The mechanism by which the quality of the phreatic water supplying the wells can be affected is given by the recreation lake, which takes some of the underground water. To determine the impact on the body of groundwater in the studied perimeter, the numerical calculation that modeled the field reality was used and the Visual MODFLOW program was used. The software simulates the parameters of the aquifer layer in permanent and non-permanent motion with an irregular hydraulic gradient, the aquifer layers being uniform or uneven.

Andriescu Petronela, Luca Mihail, Marcoie Nicolae, Boboc Valentin, Bălan Cătălin ("Gheorghe Asachi" Technical University of Iaşi, Romania)

QUANTIFYING THE IMPACT OF THE PRODUCTION OF THE CONSTRUCTION OF AN APPRECIATION LAKE ON THE UNDERGROUND WATER BODY USING THE MODFLOW VISUAL SOFTWARE (STUDY CASE)
CUANTIFICAREA IMPACTULUI PRODUS DE REALIZAREA UNUI LAC DE AGREMENT ASUPRA CORPULUI DE APĂ SUBTERAN FOLOSIND SOFTUL VISUAL MODFLOW (STUDIU DE CAZ)

The purpose of the work is to establish and quantify the impact produced by creating a recreational lake on the groundwater from which the wells drilled for drinking water are fed. The perimeter of the study is a former orchard of fruit trees currently partially cleared, located in the city of Bacău. The mechanism by which the water quality of the water supply from the wells can be affected is given by the creation of the recreational lake, which takes over part of the groundwater. In order to determine the impact on the aquifer from the studied perimeter, the numerical calculation that models the field reality with the Visual MODFLOW program was used. The software simulates the parameters of the aquifer layer in permanent and non-permanent motion with irregular hydraulic gradient, the aquifer layers being uniform or non-uniform.

Luca Mihail, Sion Paul Vivian, Avram Mihaela (“Gheorghe Asachi” Technical University of Iaşi, Romania)

RESEARCHES ON ENVIRONMENT DEGRADATION IN THE NATURAL SITES ON MOLDOVA RIVER LOWER COURSE

CERCETĂRI PRIVIND DEGRADAREA MEDIULUI ÎN ZONA SITURILOR NATURALE DE PE CURSUL INFERIOR AL RÂULUI MOLDOVA

The European Ecological Network Natura 2000 in Romania is present on the lower course of the Moldavian River through the "ROSC10364 Community Site of Rila Moldova between Tupilați and Roman". Research over 15 years has shown that part of the natural reserve is affected by degradation phenomena. In the researched river sector (the minor and major riverbed, the riparian area) are located ballasts, bridges, water catchments, constructions, agricultural holdings, trees and bushes areas, etc. All these have influenced the arrangement of the river bed and the riparian area, which led to the degradation of the river and riparian habitat. Natural and anthropic risk factors have contributed to the degradation of the environment in the researched river area. The most important influences were the floods of the last 15 years, the exploitation of the ballast, the shore circulation areas, the absence of maintenance works in the river bed, etc

Sion Paul Vivian, Luca Mihail, Avram Mihaela, Toma Daniel (“Gheorghe Asachi” Technical University of Iaşi, Romania)

ENVIRONMENTAL PROTECTION IN RIVER REGULATORY WORKS USING BIODEGRADABLE MATERIALS

PROTECȚIA MEDIULUI ÎN LUCRĂRILE DE REGULARIZARE A RÂURILOR PRIN UTILIZAREA MATERIALELOR BIODEGRADABILE

The paper presents biodegradable methods and materials used to carry out river bed works. River regularization works must help to keep the environment as natural as possible. Biodegradable materials respond to bioengineering methods and concepts for ecological regulation or renaturalisation of river beds. Studies and research have shown the possibility of using biodegradable materials for the execution of shore defense works at the riverbed. The researched biodegradable materials are made of woven sheep wool fabrics and strips. They are used as a support and filter bed at the shoreline contact with the rock in the site. The material has the advantage of natural degradation in about 4-6 years after it has performed its support function. Woollen fabrics are used to make the biological cells used for river bank layout or sloping slopes.

Sion Paul Vivian, Luca Mihail, Avram Mihaela, Toma Daniel (“Gheorghe Asachi” Technical University of Iaşi, Romania)

ACTUAL CONCEPTS IN ECOLOGICAL RESTORATION OF THE RIVER BED

CONCEPTE ACTUALE PENTRU RESTAURAREA ECOLOGICĂ A ALBIILOR RÂURILOR

The current state of some river sections requires ecological restoration work. The works of regulating riverbeds influence in some cases the aquatic and riparian environment. At European level, ecological works are being carried in the last period of time, which rebuild the natural environment. The ecological restoration of riverbeds is a complex process that causes the restoration of an ecosystem that has been partially or totally degraded in the aquatic or riparian environment. Research conducted on the lower course of the Moldova River indicated the need to design and carry out ecological restoration works. Research has shown multiple changes in the aquatic and riparian environment under the influence of natural factors, but in particular anthropic factors. A number of changes have had a direct impact on vegetation and river fauna. The deforestation of riparian vegetation and the radical settlement works isolated in some situations the Moldova River from the meadow.

Ursachi Aureliu, Luca Mihail (“Gheorghe Asachi” Technical University of Iaşi, Romania)

RESEARCH ON THE CONSTRUCTION OF STRUCTURES MICROFERM TYPE ACVAPONICS

CERCETĂRI PRIVIND REALIZAREA STRUCTURILOR ACVAPONICE TIP MICROFERMĂ

The paper presents the studies and researches regarding the realization of the aquaponic structures by exploiting the climatic conditions existing in the area of Moldova. The research focused on designing a hydrotechnical system comprising the following structural components: water capture, water supply line of the hydrotechnical system, wastewater discharge line, air circuit line, mechanical and biological filtration system, disinfection plant, fish basins, DWC culture bed basins, electrical installation, shading plant, measuring and control facilities, etc. The hydrotechnical system was located in a greenhouse building structure with an area of 100 m2. The fish pools were equipped with juvenile Tilapia de Nile and juvenile Tilapia de Mozambique. In the deep water culture (DWC) technology, a set of vegetables adapted to this feeding system were used. The planting scheme in the beds with beds of aquaponic culture was of the type "companion plants".

Postolachi Olga, Rastimesina Inna, Josan Valentina, Gutul Tatiana (Institute of Microbiology and Biotechnology, Chişinău, Republic of Moldova)

ISOLATION OF MICROBIAL CONSORTIA IN THE PRESENCE OF HERBICIDE TRIFLURALIN AND IRON NANOPARTI

IZOLAREA CONSORȚIILOR MICROBIENE ÎN PREZENȚA ERBICIDULUI TRIFLURALINA ŞI NANOPARTICULELOR DE FIER ÎN CONDIȚIILE UNUI MEDIU ACID

The aim of this study was to isolate microbial consortia in the presence of herbicide trifluralin and to estimate the effect of iron nanoparticles (NPs) (magnetite (Fe_3O_4) and zero-valent iron Fe(0)) on its formation in acidic conditions. The consistent increase in the concentration of trifluralin, as the sole source of carbon and energy for microorganisms in the enrichment culture, leads to a restructuring of the species composition of the microbial community, which is reflected in a decrease in the number of bacterial and fungal species and their ratio in the consortium. Addition of iron NPs to the culture medium clearly diminished the cytotoxic action of trifluralin on the microbial communities. In acidic conditions, Fe(0) NPs added to the enrichment medium, contribute to restore the bacterial concentration, that makes them effective in creation of a microbial consortium able to resist, and perhaps to degrade, high concentrations of trifluralin.

Josan Valentina, Rastimesina Inna, Josan Valentina, Gutul Tatiana (Institute of Microbiology and Biotechnology, Chişinău, Republic of Moldova)

SELECTION OF SUITABLE SUPPORT MATERIALS FOR ADSORPTIVE IMMOBILIZATION OF RHODOCOCCI CELLS

SELECȚIA SUPORTURILOR PENTRU IMOBILIZAREA PRIN ADSORBȚIE A CELULELOR DE RODOCOCI

Whole cell immobilization technique has such advantages as long-term stability of cells, high biocatalytic activity, and possibility of biocatalyst's regenerating. The aim of this study was to evaluate adsorption properties of natural support materials for immobilization of Rhodococcus rhodochrous cells. The immobilization was performed using five natural matrixes with high adsorptive capacity: bentonite clay, kieselgur, granulated diatomite, charcoal from grape seeds and charcoal from walnut shell. The cell adsorption depended on the nature of carriers, and in spite of highly porous structure, charcoals demonstrated low rate of cells immobilization (15-33%). A high level of bacterial immobilization was obtained on kieselgur and crushed granulated diatomite (97% and 94%), which allowed to characterize them as excellent adsorbent materials for preparation immobilized Rhodococcus rhodochrous cells.

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ENVIRONMENTAL IMPACT ASSESSMENT GENERATED BY DIFFERENT MANAGEMENT PRACTICES: A CASE STUDY APPLIED IN THE CITY OF BOLOGNA, ITALY

EVALUAREA IMPACTULUI ASUPRA MEDIULUI GENERAT DE DIFERITE PRACTICI DE MANAGEMENT: STUDIU DE CAZ APLICAT ÎN ORAŞUL BOLOGNA, ITALIA

Nowadays, the highest amount of wastes are caused by wastes from electrical and electronic equipment (WEEE). The main causes are given by the increasing demand in consumption and in reducing the life of electrical and electronic equipment (EEE). Our paper focuses on a case study which aims towards a qualitative and quantitative analysis of the WEEE flow implemented by DISMECO, a company from Italy, the Emilia Romagna region, the city of Bologna. Our scenario was evaluated in terms of environmental and human health impacts using the CML2001 and ReCiPe methods, available in GaBi software tool, through life cycle assessment (LCA). Following the LCA application, the impacts generated by the management system of DISMECO highlighted a negative influence on Global Warming Potential and Marine Ecotoxicity Potential. On the other side, regarding the emissions generated by our scenario, an important impact could be observed for freshwater. This work is supported by a grant of the Romanian National Authority for Scientific Research, CNCS - UEFISCDI, project number PN-III-P4-ID-PCE-2016-0683, Contract no. 65/2017.

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AN APPROACH TOWARDS MODELING THE HUMAN HEALTH RISKS POSED BY PESTICIDES RESIDUES IN LETTUCE

O ABORDARE PRIVIND MODELAREA RISCURILOR ASUPRA SĂNĂTĂȚII UMANE GENERATE DE PREZENȚA REZIDUURILOR DE PESTICIDE ÎN SALATĂ

Pesticides persistence in the environment and their bioaccumulation capacity in living organisms, generate risks, both to the environment and to human health. In this study, we focused on acute and chronic human health risks considering the exposure to pesticides residues in green salad by its consumption. All data

were provided by the Romanian monitoring programme of pesticides in fruits and vegetables, for 2016. The risk evaluation was done for different age groups, adults and children, and for different types of diets, according to the recommendations of the World Health Organization. Although we could observe that the MRLs of pesticides in green salad samples were exceeded by chlorothalonil, deltamethrin and tebuconazole, acute risks were posed by cyprodinil, iprodione, propyzamide and fenhexamid, which exceeded 100% of the ARfD, for children exposure. In all scenarios, the %ADI was lower than 100%, meaning that, on long term, there are no chronic risks for the consumption of green salad with the specified residues of pesticides.This work is supported by two grants of the Romanian National Authority for Scientific Research, CNCS - UEFISCDI, project number PN-III-P2-2.1-PED-2016-1662 and project number PN-III-P4-ID-PCE-2016-0683, Contract no. 65/2017.

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THE ELECTRIC SIGNAL MEASUREMENTS IN TOMATO PLANTS GENERATED BY THE MOST IMPORTANT NUTRITIONAL ELEMENTS

MĂSURAREA SEMNALULUI ELECTRIC ÎN PLANTELE DE TOMATE GENERAT DE CELE MAI IMPORTANTE ELEMENTE NUTRITIVE

The plants have developed very sophisticated systems to detect environmental changes and, consequently, set up mechanisms to act on this information. It is well known that plants can coordinate activities throughout the body, from the synthesis sites to the peripheries, by using chemical, hormonal and electrical signals.Therefore, the electrical stimulation of the plants has been investigated for a long time under laboratory conditions at short intervals. We propose a new approach to the research on plantsby recording the electrical current generated by the flow of ions through the xylem of tomatoes grown in protected areas. We observed that the value of the electricity generated by the plant is directly proportional to the metabolic mechanisms. The electrical signals were recordedover a long period of time in order to be used as a biosensor for monitoring the specific nutritional consumption. Our investigation is based on the analysis of the signals generated by a range of nutrients such as $MgSO_4$, KNO_3, $Ca(NO_3)_2$, KH_2PO_4 and KCl. This work was supported by the CNCS-UEFISCDI, PN III PCCDI 41/2018 project.

Giuseppe Palumbo, Ruggero Angelico, Valentina Torino, Mario Ianiro, Antonio De Cristofaro (Department of Agriculture, Environmental and Food University of Molise Campobasso, Italy)

ADSORPTION EFFICIENCY OF CADMIUMBY THE RICE HUSK

EFICIENȚA ADSORBȚIEI DE CADMIU ÎN TEGUMENTUL DE OREZ

During the 20th century, the world lived a technological and industrial explosion that together with the economical and demographicgrowth caused an increased pollution, particularly of water, one of the most precious goods. The problem of water contamination by organic and inorganic compounds is becoming the main cause of concern. On the other hand, the traditional methods of water decontamination are very expensive and therefore the availability of alternative methods of water purification based on materials from renewable sources is highly demanded. Therefore, numerous approaches have been studied for the development of low-cost adsorbents of pollutants such as heavy metal, ions and dyes. Low-cost adsorbent materials are frequently obtained by agricultural and food wastes, sea products (mussels, oysters etc.), industrial and soil byproducts. In this work we have investigated the adsorbent properties on cadmium of rice husk considered a byproduct during dehusking at rice mills. Different solutions at known concentrations have been made and after 240 minutes under continuous agitation the samples were analysed by ICP-OES. At the end, after our laboratory tests we can confirm that rice husk has good adsorbent properties. Results show that cadmium adsorbed by 1g of rice husk after 4 hours of treatment is even greater than 10 times the threshold value of the Environmental Quality Standard (EQS). We have planned to set up filters based on rice husk to sample heavy metals like cadmium, placed also closed to our biomonitoring beehives in order to test the efficiency of the method and to compare data to that obtained using honey bee as bioindicator.

POSTER PRESENTATIONS

Chairmen:
Prof. univ. dr. Mihail **LUCA**
Prof. univ. dr. Daniela **POPA**
Prof. univ. dr. Vasile **STOLERU**

Secretariat:
Şef lucr. dr. Raluca Maria **HLIHOR**
Stud. master Cătălina **PEREŞ**

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DEVELOPMENT OF *BRASSICA NAPUS* UNDER THE STRESS OF CADMIUM: AN ECOLOGICAL RISK APPROACH
DEZVOLTAREA PLANTEI *BRASSICA NAPUS* SUB INFLUENȚA STRESULUI GENERAT DE CADMIU: O ABORDARE A RISCULUI ECOLOGIC

The behavior of chemical pollutants in environment, particularly in soil, has gained a special attention from researchers. This interest is justified by the consequences and risks that chemicals pose on human health and living organisms. In this study, four concentrations ranging between 5- 50 mg Cd(II)/kg were used to test the tolerance of Brassica napus under the stress of cadmium ions. The results are further applied to estimate the potential ecological risk generated by the presence of Cd(II) in soil. It was found that, at concentrations under 20 mg Cd(II)/kg the aerial part of plant is not significantly affected by the toxicity of heavy metal, but at higher concentrations (50 mg Cd(II)/kg), the effects appear. Among different plant components, the roots are the most affected by cadmium ions. With increasing metal concentration, we also observed that the synthesis of pigments in plant decrease (chlorophyll A, chlorophyll B and carotenoids were almost equally affected). This work is supported by a grant of the Romanian National Authority for Scientific Research, CNCS - UEFISCDI, project number PN-III-P4-ID-PCE-2016-0683, Contract no. 65/2017.

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ENVIRONMENTAL BIOREMEDIATION BY PLANTS AND MICROORGANISMS
BIOREMEDIEREA MEDIULUI UTILIZÂND PLANTE ŞI MICROORGANISME

Analysis and exploitation of the interactions among plants and microorganisms, able to develop increased tolerance to the toxicity of environmental contaminants in a synergic partnerships is developed in this study. The research is performed within the national grant Exploring and exploiting the abilities of microorganisms and plants and their interactions for bioremediation of the environment (BIOREMIP), which integrates the research group's experience and knowledge with internationally advanced research trends to develop an integrated research strategy and appropriate bioremediation solutions by extending the benefits of the soil-microbial-plant triad currently studied to soil-microbe-plant-contaminant interactions. A consistent workplan has been elaborated to share information, results and knowledge. The methods and instruments of investigation are in relation to the newest approaches in the field. The research updates and improves the related scientific and technical knowledge for exploiting microbial and plant potential and interactions in a sustainable way, remove persistent pollutants based on biotechnology tools, addressing both environmental problems and application for agricultural lands restoration.This work is supported by a grant of the Romanian National Authority for Scientific Research, CNCS - UEFISCDI, project number PN-III-P4-ID-PCE-2016-0683, Contract no. 65/2017. The whole research team of the project is highly acknowledged: Mariana Diaconu, Laura Bulgariu, Cezar Catrinescu, Irina Volf, Camelia Smaranda, Petronela Cozma, Diana-Elena Comăniță, Raluca-Maria Hlihor, Cristina Ghinea, Laura Carmen Apostol, Mihaela Roşca, Sebastian Ionuț Vasilică.

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CUMULATIVE RISK ASSESSMENT OF THE INTAKE OF FRUITS AND VEGETABLES CONTAMINATED WITH MULTIPLE PESTICIDES

EVALUAREA RISCULUI CUMULATIV GENERAT DE CONSUMUL DE FRUCTE ŞI LEGUME CONTAMINATE CU PESTICIDE MULTIPLE

Many type of pesticides such as organophosphorus, organochlorines, carbamate and pyrethroid are used for crops protection. Fruits and vegetables may contain one or more pesticides residues that have adverse effects on human health. To evaluate the risk on human health a number of internationally validated tools and models are used, one of them being PRIMo (Pesticide Residue Intake Model). In this work we applied this model to estimate the risk as a result of short-term (acute risk) and long-term (chronic risk) exposure to pesticide contaminated fruits and vegetables. In order to identify the potential risk to human health, this model was used to compare the estimated exposure with the toxicological reference values. The results have shown that, in short-term exposure to the concomitant consumption of apples, strawberries, lettuce and potatoes, the risk is high for both children and adults (%aRfD$_{children}$ = 1787.3, %aRfD$_{adults}$ = 394.6).
This work is supported by a grant of the Romanian National Authority for Scientific Research, CNCS - UEFISCDI, project number PN-III-P4-ID-PCE-2016-0683, Contract no. 65/2017.

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EVALUATION OF 13X ZEOLITE PERFORMANCES FOR DYNAMIC ADSORPTION OF CADMIUM IONS IN FIXED BED COLUMN

EVALUAREA PERFORMANȚELOR ZEOLITULUI 13X PENTRU ADSORBȚIA DINAMICĂ A IONILOR DE CADMIU ÎNTR-O COLOANĂ CU STRAT FIX

The use of cadmium in various industrial processes and its naturally occurring presence in the environment has led to environmental pollution, especially in water. Cadmium ions can be removed from contaminated waters by adsorption processes using materials such as silica, sand, activated alumina, clays and natural zeolites, which are considered as low cost adsorbents. Thus, the purpose of this study was to determine the performances of zeolite 13X for cadmium removal in a fixed bed column, for flow rates between 5 and 20 mL/min and initial cadmium concentrations of 25-100 mg Cd(II)/L. For each experiment, approximately 135g of zeolite 13X were introduced in column and samples were taken periodically over 26 hours, being analyzed using an inductively coupled plasma spectrometer. The results showed that the highest removal efficiencies of cadmium ions were obtained at the flow rate of 5 mL/min and 25 mgCd(II)/L initial concentration (efficiency ≥ 99%).This work has been elaborated based on the collaboration between "Gheorghe Asachi" Technical University of Iaşi, Faculty of Chemical Engineering and Environmental Protection, Romania and University of Minho, Center of Biological Engineering, Braga, Portugal. This work was partially supported by a grant of the Romanian National Authority for Scientific Research, CNCS – UEFISCDI, project number PN-III-P4-ID-PCE-2016-0683, Contract no. 65/2017. The Portuguese team input was performed under the scope of the strategic funding of UID/BIO/04469/2013 unit and COMPETE 2020 (POCI-01-0145-FEDER-006684) and BioTecNorte operation (NORTE-01-0145-FEDER-000004) funded by the European Regional Development Fund under the scope of Norte2020 Programa Operacional Regional do Norte.

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EVALUATION OF THE PHYTOTOXIC EFFECTS ON PLANTS EXPOSED TO PESTICIDES

EVALUAREA EFECTELOR FITOTOXICE LA PLANTELE EXPUSE PESTICIDELOR

This study was performed to assess the phytotoxic effect generated by the chemical stress on Sinapis alba plants, manifested on photosynthetic pigments (chlorophyll a, chlorophyll b and carotenoids). The mustard plants exposed to various concentrations of pesticide (γ-HCH) for a predetermined time period showed significant changes in total chlorophyll content, chlorophyll a/chlorophyll b ratio and carotenoids. The results show that, under the action of continuous stress, such as the exposure to of γ-HCH, pigments contents in mustard leaves decreases; the ratio of chlorophylls to carotenoid pigments Cl (a+b)/carotenoids is also affected. Therefore, the presence of lindane has a significant phytotoxic effect on mustard, by altering the pigments synthesis, determined by the inhibition of enzymes involved in this process and the destruction of chlorophyll. Other causes that may affect photosynthetic function include inhibition of Calvin cycle, reduction of CO_2 binding, reduction of aggregation of photosystem pigment proteins, alteration of chloroplasts development.This work is supported by a grant of the Romanian National Authority for Scientific Research, CNCS - UEFISCDI, project number PN-III-P4-ID-PCE-2016-0683, Contract no. 65/2017.

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EVALUATION OF THE ENVIRONMENTAL IMPACT OF PHYTOREMEDIATION APPLIED FOR THE ELIMINATION OF ORGANIC AND INORGANIC POLLUTANTS

EVALUAREA IMPACTULUI DE MEDIU AL FITOREMEDIERII APLICATĂ PENTRU ELIMINAREA UNOR POLUANȚI ORGANICI ŞI ANORGANICI

Contamination of soils with heavy metals and persistent organic pollutants (POPs) is a fairly serious environmental problem. Phytoremediation is included among the soil remediation technologies available for contaminated soil detoxification. In this context, the goal of this work is to apply Life Cycle Assessment (LCA) methodology for a comparative assessment of two scenarios: (S1) phytoremediation of soil contaminated with organic pollutants; (S2) phytoremediation of soil contaminated with inorganic pollutants. To evaluate the environmental impacts of phytoremediation process, two methods included in LCA methodology were applied: ReCiPe and Eco-Indicator 99, assisted by GaBi software. The results showed that the impact categories Climate Change human health (CChh), Human toxicity (HT), become significantly low due to reduction of heavy metals and POPs in soil. The results revealed that LCA could be a relevant basis for the selection of a soil phytoremediation technique according to the environmental criteria. *This work was supported by a grant of the Romanian National Authority for Scientific Research, CNCS –UEFISCDI, project number PN-III-P4-ID-PCE-2016-0683, Contract no. 65/2017.*

Roşu Crăița Maria, Ştedel Cătălina, Efrose Rodica Cătălina (Institute of Biological Research Iaşi, Romania)

BIODEGRADATION OF SYNTHETIC DYES BY SOME BACTERIAL STRAINS ISOLATED FROM SOIL

BIODEGRADAREA COLORANȚILOR SINTETICI DE CĂTRE TULPINI BACTERIENE IZOLATE DIN SOL

In present study, 19 bacterial strains were isolated from different type of soil (Danube – Delta Biosphere Reserve), molecularly identified (16S rDNA), and tested for their textile dye biodegradation potential and tolerance level to heavy metals and high salinity. The strains Pseudomonas sp., Bacillus sp. and Thalassospira sp. were found to degrade > 72.64% RO16 dye, but only Pseudomonas putida removed (56% decolorization) the RB4 dye. Also, was found a good tolerance to salinity (8% NaCl) in case of Pseudoarthrobacter sp., Enterobacter sp., Thalassospira sp., Bacillus sp., and Pseudomonas sp. strains. Most of the bacterial strains tolerated 70 ppm of cromium (Cr6); only two strains, Cupriavidus respiraculi and Pseudomonas putida showed maximum tolerance to 70 ppm cadmium (Cd2+); all strains of Pseudomonas sp. showed tolerance to 100 ppm lead (Pb2+). The selected strains could be used in bioremediation process of industrial dye waste waters.

Achiței Vlăduț, Bodale Ilie, Gheorghițoaie Mădălin Vasile, Cazacu Ana, Teliban Gabriel Ciprian, Cojocaru Alexandru, Stoleru Vasile (University of Agricultural Sciences and Veterinary Medicine from Iaşi, Romania)

POSSIBILITY OF USING TOMATO PLANTS AS A BIOSENSOR IN THE FERTILIZATION SYSTEMS

POSIBILITATEA UTILIZĂRII PLANTELOR DE TOMATE CA BIOSENZOR ÎN SISTEMELE DE FERTILIZARE

The response of plants to external stimuli is manifested by different physiological and morphological changes. The results presented in this paper are related to the "neurophysiology of plants" and quantify the behavior of the plants to external stimuli, respectively the availability of water and nutrients, behavior expressed by quantitative modifications of the electric potential. The potential differences were continuously monitored, under controlled environmental conditions, in the greenhouse of the Institute of Agriculture and Environmental Research, within the USAMV Iaşi, with readings at 3 and 5 seconds, using two electrodes inserted into the stem of tomato plants, connected to a pico-ammeter. The systematic models of the variation of the electric potential, with values between 4.6 and 5.8 nA, can be used as tools for early evaluation of the conditions of water and nutritional stress, including the use of the system as a biosensor for fertilization and irrigation.

Gheorghițoaie Mădalin Vasile, Achiței Vlăduț, Bodale Ilie, Teliban Gabriel Ciprian, Stoleru Vasile. (University of Agricultural Sciences and Veterinary Medicine, Iaşi, Romania)

OPTIMIZATION OF TOMATO CULTIVATION TECHNOLOGY IN PROTECTED AREAS THROUGH THE USE OF CONTINUOUS ELECTRIC CURRENT

OPTIMIZAREA TEHNOLOGIEI DE CULTIVARE A TOMATELOR ÎN SPAȚII PROTEJATE PRIN UTILIZAREA CURENTULUI ELECTRIC CONTINUU

The need for food is one that is increasingly accentuated, an aspect that results from the statistics that envisage population growth, which leads to new innovations in the scientific field that can solve this disadvantage. The use of synthetic chemicals has a significant effect of increasing the yield of production, but it has been found that these substances endanger human health. Starting from this goal, the aim of the

research was to use a continuous electric current in the tomato hybrid Qualitet F1, a hybrid with semi-determined growth that adapts easily to the crops under different technological conditions. In the experiment, six variants of continuous current with an intensity of 0.15 A, 0.30 A and 0.45 A. were used, each variant having a number of 4 repetitions. Based on the measured values it was concluded that a low intensity electric current stimulates the vegetative growths, they develop at a faster rate, but the higher intensities lead to a better absorption of the nutritional elements corroborated with a higher growth of fruit mass.

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EVALUATION OF THE PHYSIOLOGICAL ACTIVITY USING THE ELECTRIC SIGNAL IN TOMATO PLANTS GENERATED BY NITROGENOUS NUTRITIONAL ELEMENTS

EVALUAREA ACTIVITĂȚII FIZIOLOGICE DIN PLANTELE DE TOMATE FOLOSIND SEMNALUL ELECTRIC GENERAT DE ELEMENTE NUTRITIVE PE BAZĂ DE AZOT

In the last time, several scientific papers indicated that the electrical signal is used by plants to controlled the inside activity, beside chemical and hormonal mechanisms. The magnitude of the electric signal of plant is very low and in this way we used a pico-ammeter equipment (B2981A) developed by Keysight, able to record small electric current, in 0.01fA - 20mA range. In this research, the electrical signals given by each types of nutritional consumption of the Brilliant F1 cultivate tomatoes were recorded. The tomatoes were growing in controlled environmental condition from greenhouse. The plants were divided into 3 batches and each of them were treatment by differentnitrogenous nutrients such as KNO_3, $Ca(NO_3)_2$ and control sample. The electrical signals were recorded over a long period of time (24 hours) in order to establish the circadian rhythm of tomato. The electric activity can be used as an important parameter for monitoring the nutritional consumption of plantsand the results correlated with physiological activity given the input date for biosensor system. *This work was supported by the CNCS-UEFISCDI, PN III PCCDI 41/2018 project.*

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STUDY REGARDING CHEMICAL CHARACTERISTICS OF EGGS GATHERED FROM HENS REARED IN SYSTEMS APPROVED BY EUROPEAN UNION

STUDIU CU PRIVIRE LA CARACTERISTICILE CHIMICE ALE OUĂLOR PROVENITE DE LA GĂINI CRESCUTE ÎN SISTEME AGREATE DE UNIUNEA EUROPEANĂ

Analysis of which results are presented in the current paper are part of an ample study in which we focused on the influence of rearing systems on quality of eggs destined to human consumption. Regarding water content in yolk, we mention the fact that the highest value was founded at the eggs gathered from hens reared on ground with access to external paddock (56.12±0.006%) while the lowest value was recorded at the eggs gathered from hens reared in battery, 55.02±0.006%. For dry matter content the obtained mean values were 43.88±0.005% for yolk of the eggs gathered from hens reared on ground with access to external paddock, 44.06±0.004% for the one gathered from hens reared in loft and 44.98±0.004% at the ones reared in battery. Protein content from albumen recorded a calculated mean value of 12.17±0.032% for hens reared in free-range system. For hens reared in loft, protein content in mélange was 12.12±0.036% with variation limits which oscillated between 11.93% and 12.22%. For the eggs gathered from hens reared in battery, protein level in mélange was 12.21±0.035. In the case of fat content the calculated mean value for eggs gathered from hens reared on ground with access to external paddock was 10.64±0.045%; 11.18±0.041% for the ones reared in loft and 11.22±0.049% for the eggs gathered from hens reared in battery.

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