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Plant Biology
Virtual 2020

November 11, 2020

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PLANT BIOLOGY VIRTUAL 2020
BOOK OF ABSTRACTS

PLANT BIOLOGY

VIRTUAL 2020 -3RD EDITION

NOVEMBER 11, 2020

Theme:

A drive to thrive plant sciences

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Thank You All...

Keynote Speakers

David Henman

Rivalea Australia,
Australia

Valasia Iakovoglou

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UNESCO chair Con-E-Ect, International
Hellenic University, Greece

Danijela Poljuha

Institute of Agriculture and
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About MAGNUS GROUP

Magnus Group (MG) is initiated to meet a need and to pursue collective goals of the scientific community specifically focusing in the field of Sciences, Engineering and technology to endorse exchanging of the ideas & knowledge which facilitate the collaboration between the scientists, academicians and researchers of same field or interdisciplinary research. Magnus group is proficient in organizing conferences, meetings, seminars and workshops with the ingenious and peerless speakers throughout the world providing you and your organization with broad range of networking opportunities to globalize your research and create your own identity. Our conference and workshops can be well titled as 'ocean of knowledge' where you can sail your boat and pick the pearls, leading the way for innovative research and strategies empowering the strength by overwhelming the complications associated with in the respective fields.

Participation from 90 different countries and 1090 different Universities have contributed to the success of our conferences. Our first International Conference was organized on Oncology and Radiology (ICOR) in Dubai, UAE. Our conferences usually run for 2-3 days completely covering Keynote & Oral sessions along with workshops and poster presentations. Our organization runs promptly with dedicated and proficient employees' managing different conferences throughout the world, without compromising service and quality.

About Plant Biology Virtual 2020

Plant Biology Virtual 2020 is an online event offers you an interactive experience to listen and talk with experts in all facets of the Plant Biology and Plant Biotechnology industry. This webinar intends to bring all the Plant Biology and Plant Biotechnology specialists together through virtual programming and share the novel research and advancements in the field of botany with one and other. It discusses varied topics of plant science, plant biology, plant biotechnology with keynote sessions, Oral and E-Poster presentations.

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KEYNOTE FORUM

PLANT BIOLOGY

VIRTUAL 2020 -3RD EDITION

Nov 11, 2020

David Henman
Rivalea Australia, Australia

Technology and the future of pig nutrition

Technology has accelerated the development of pig nutrition as we have moved from formulating with 10 nutrients to now up to 200 nutrients. Precision has replaced the art of nutrition as diagnostic tools such as NIR are now common place in most feed mills. In-depth diagnostic testing has led to a knowledge of the role of the increasing number of nutrients and research has elucidated their role in pig nutrition. The development of enzymes has revolutionised the understanding of digestibility of fibre and how to utilise it effectively. This has also highlighted the interactions between nutrients and how that can influence the performance of the pig. The explosion of the 'omics has allowed and a greater understanding of the subtleties of the interactions between the environment, the feed and the pig. Our concept of the environment has been expanded to include the biome of the gastrointestinal tract. This interaction is the new frontier in pig and animal science and will be the way in which we deliver pig nutrition and health without antibiotics into the future. The combination of the new technology with the understanding of metabolism is the key to the development of pig nutrition and transcribing that to other species.

Audience Take Away:

- Evaluation of the new technologies developed in the pig Industry can refine the theory of nutrition in man and other animals
- The use of the pig to look at human food concepts allows a more definitive adoption of technologies due to the larger scale of experimentation
- How utilization of human diagnostic technologies can be used in pig nutrition which may widen the scope of those technologies back to human nutrition

Biography:

Mr David Henman graduated from Sydney University in 1987 and began his career with PIC as a Trainee Manager providing data for the development of the Auspig simulation model. Moving to Colborn Dawes Australia in 1989 and then joining Bunge, now Rivalea Australia (the largest integrated pig producer in Australia) in 1991 and since 1995 involved in developing research objectives for internal research as well as principle investigator for research work conducted on behalf of other commercial companies and the pig industry research bodies and completing a Master of Science in Vet Science in 2004.

Valasia Iakovoglou

Director of the Ecotourism Sector of UNESCO chair Con-E-Ect, International Hellenic University (IHU), Drama, Greece

Climate change and multi-disciplinary research-based solutions for long-term sustainable ecosystems

Restoring, conserving and maintaining long-term sustainable ecosystems requires a multi-tasking hard effort. Independently of the "type" of ecosystem, this effort is even harder under the challenges of climate change. In order to better study and sustain ecosystems, a multi-disciplinary research-based approach is needed. Scientists from different research fields need to collaborate in order to achieve the best outcome for maintaining their long-term structure and function. To better understand the multi-tasking need for research, examples of past and on-going studies will be presented. Specifically, research on seed sampling, seedling production, irrigation treatments and transplanting success, nature-based solutions and the proper practice of Ecotourism will be presented. All these examples provide insights on how to better understand the structure and function of ecosystems in order to achieve their long-term sustainability through the involvement of multi-disciplinary research fields. Last but not least, emphasis will be given on the importance of "dissemination" to properly educate/inform people worldwide on ways to successfully sustain ecosystems under the multi-challenges they face, with emphasis on climate change.

Audience Take away:

- Being informed on plant performance after transplanting
- Nature -based solutions for achieving long-term sustainable ecosystems under climate change alterations
- Use Ecotourism as a "tool" to educate visitors on eco-friendly manners to respect ecosystems
- Dissemination: a powerful tool to educate/inform people on the structure and function of ecosystems under the challenges of climate change

Biography:

Dr. Valasia Iakovoglou is a graduate of Iowa State University, USA. She has more than 20-yrs of national/international research and teaching experience as an Ecophysiologist/Silviculture expert in seedling production and Restoration/Conservation of Ecosystems with emphasis on Biodiversity under the challenges of Climate Change. She has received numerous scholarships, awards and recognitions. She is an editor of nine international journals and a reviewer in more than fifteen with one of them being the Intergovernmental Panel on Climate Change (IPCC). She has numerous publications with more than ten books/book chapters and 50 peer-reviewed papers. She is active in many scientific societies such as the Mediterranean Experts of Climate and environmental Change (MedECC) and associations such as the "Association of Inter-Balkan Woman's Cooperation Societies (AIWCS)" of UNESCO Center, where she serves as Board Member. Currently she is the Director of the Ecotourism Sector of the UNESCO chair Con-E-Ect and a visiting professor at the MSc program "Man and Water" at the International Hellenic University (IHU).

Danijela Poljuha
Institute of Agriculture and Tourism, Karla Huguesa 8, HR-52440 Poreč, Croatia

Ahead of their time: Women pioneers in plant biology

Alien species invasion is recognised as one of the most severe and challenging global environmental threats. Introduced species may become invasive and displace native species, modify habitats, change community structure, affect ecosystem processes or wider ecosystem functioning. Further invasive species often impede the provision of ecosystem services and cause substantial economic losses. Tree of Heaven, *Ailanthus altissima* (Mill.) Swingle, native to Southeast Asia is today considered one of the most widespread invasive plant species in Europe and North America and is a subject of modern invasion ecology research. A. altissima happens to be the research subject of the first PhD thesis in plant biology made by a woman in Croatia in the beginning of the 20th century, when the tree was cultivated as an ornament. Vjera Petaj, a passionate botanist and one of the first female students at the Royal University of Francis Joseph I in Zagreb (Croatia) used microscopy techniques for the investigation of morphology, anatomy, microchemistry, and biology of its extrafloral nectaries. All her results were later confirmed by modern microscopy techniques and contributed to the knowledge of their morphology and role in species physiology. A half century later, a similar topic of extrafloral nectaries on Vicia faba L., and similar techniques of electron microscopy, were the focus of interest for another Croatian female scientist, Mercedes Wrischer. She was one of the pioneers of plant electron microscopy, whose electron micrographs of cell organelles were displayed in European biology textbooks.

This presentation will offer an insight into social elements, particularly the status of women in the Croatian and European academic community in the early 20th century. The beginnings of the once highly appreciated, so-called Zagreb School of Electron Microscopy will also be presented. The results of those early microscopy works will be shown and linked with current research on the topic. The presentation will also focus on the ecology of A. altissima and its negative impact on the environment and human health. Conversely, potential ecosystem services, that this invasive plant species can provide, will also be discussed.

Audience Take away:

- This presentation will be a tribute to gender equality in STEM. By highlighting women pioneers in plant biology and STEM the hope is to provide inspirational role models for women scientists. The two stories will shed light on the difficulties women faced in tackling scientific problems, but also in overcoming social and professional obstacles just because of their gender. The aim of the talk is thus also to raise awareness and encourage further discussion on the ongoing gender based obstacles in STEM and science in general
- The presentation will provide insight into the still not entirely clarified role and function of extrafloral nectaries in plant physiology
- On the example of A. altissima, the audience will get an overview of the highly destructive global impacts of alien invasive plant species and also an insight into the possibilities to balance their invasive (negative) properties with possible uses in boosting ecosystem services

Biography:

Dr. Poljuha graduated from molecular biology at the Faculty of Science, University of Zagreb (Croatia), where she also holds a PhD degree in natural sciences in the field of biology. She has worked as a researcher at the Faculty of Science, University of Zagreb, The Institute of Agriculture and Tourism Poreč, and The Materials Research Center METRIS Pula. She has participated in 25 national and international projects and has published over 50 scientific papers. She is the founder of two laboratories and a Biotechnical Department. Her research interests are focused on plant genetics and the application of molecular markers in the conservation of plant genetic resources. She is also involved with the popularization of science.

Huang Wei Ling
Medical Acupuncture and Pain Management Clinic, Brazil

How to treat rheumatoid arthritis using foods as the main tools?

Statement of the Problem: Rheumatoid arthritis (RA) is a chronic autoimmune inflammatory disease, which affects approximately 1% of the world's adult population. It is characterized by the inflammation of synovial tissue from multiple articulations, leading to tissue destruction, pain, deformities and reduced quality of life. RA etiology is complex and largely unknown, although studies support the influence of genetic and environmental factors on its pathogenesis. According to traditional Chinese medicine (TCM) theory, RA is categorized under the "Bi" or impediment disease, which means a group of diseases caused by the invasion of wind, cold, dampness, or heat pathogen on the meridians involving muscles, sinews, bones, and joints, manifested by local pain, soreness, heaviness, or hotness, and even articular swelling, stiffness, and deformities, also referring to arthralgia. According to Chinese nutritional therapy, all patients with pain in the joints should avoid the consumption of dairy products.

Purpose: To demonstrate that patient with rheumatoid arthritis need to avoid the ingestion of dairy products.

Methods: Through an extensive literature review by PubMed and NCBI on rheumatoid arthritis in Western medicine and traditional Chinese medicine and the report of a clinical case demonstrating the importance of dietary counselling avoiding the ingestion of dairy products in the treatment of rheumatoid arthritis patients. This patient is a 26-year-old male, with diagnosis of rheumatoid arthritis since 5 years ago, and was using immunosuppressive medications and corticosteroids to control the pains in all joints. He began to treat his pains with a Chinese medicine doctor who advise him to avoid all dairy products, cold water, raw food and sweets. The second group of foods that was orientated to avoid was fried foods, chocolate, honey, melted cheese, coconut, alcoholic beverages and the third group of foods to avoid was coffee, soda and matte tea. The patient also was submitted to auricular acupuncture with apex ear bloodletting and radiesthesia procedure. All his seven chakra´s were in the lowest level of energy (rated 1 out of 8) and he was medicated with high diluted medications for a period of one year or more.

Results: The patient improved from his symptoms after the oriental medicine tools and avoiding all dairy products and after less one month of treatment he was able to withdrawn his high concentrated medications (corticosteroids and immune suppressant medications) and never need to use them anymore.

Conclusion: Rheumatoid arthritis patients should be advised to avoid the consumption of dairy products because all the patients' symptoms were normally attributed to the disease but, thought this case report, the author is demonstrating the necessity of take out all dairy products from the patients' diet to improve all the symptoms related to pain in rheumatoid arthritis.

Audience Take Away:

- The audience will learn from my presentation that all kinds of pain in the joints, need to the reduction or avoidance of dairy products
- They will have conditions to advice the patients to avoid the ingestion dairy products and other kinds of foods (depending of energies imbalances of each patient) when treating patients with rheumatoid arthritis

Biography:

Huang Wei Ling, born in Taiwan, raised and graduated in medicine in Brazil, specialist in infectious and parasitic diseases, General Practitioner and Parenteral and Enteral Medical Nutrition Therapist. Once in charge of the Hospital Infection Control Service of the City of Franca's General Hospital, she was responsible for the control of all prescribed antimicrobial medication and received an award for the best paper presented at the Brazilian Hospital Infection Control Congress (1998). Since 1997, she works with the approach and treatment of all chronic diseases in a holistic way, with treatment guided through teachings of traditional Chinese medicine and Hippocrates.

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SPECIAL TALK

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Nov 11, 2020

Tetsumori Yamashima
Kanazawa University, Japan

ω-6 PUFA-derived 'Hydroxynonenal' causes diverse cell death for lifestyle-related diseases

Although excessive consumption of deep-fried foods is regarded as one of the most important epidemiological factors of lifestyle diseases such as Alzheimer's disease, type 2 diabetes, and obesity, the exact mechanism still remains unknown. This is to discuss whether the heated cooking oil-derived peroxidation product may cause cell degeneration/death for the occurrence of lifestyle diseases. Deep-fried foods cooked by ω-6 polyunsaturated fatty acid (PUFA)-rich vegetable oils such as rapeseed (canola), soybean, and sunflower oils, already contain or intrinsically generate 'hydroxynonenal' by peroxidation. As demonstrated previously, hydroxynonenal promotes carbonylation of Hsp70.1, with the resultant impaired ability of cells to recycle damaged proteins and stabilize the lysosomal membrane. Until now, implication of autophagy/lysosomal failure due to daily consumption of ω-6 PUFA-rich vegetable oil in the progression of cell degeneration/death was not reported. Since the 'calpain-cathepsin hypothesis' was formulated as a cause of ischemic neuronal death in 1998, its relevance to Alzheimer neuronal death has been suggested with particular attention to hydroxynonenal. However, its relevance to cell death of the hypothalamus, liver, and pancreas, especially being related to the appetite/energy control, is unknown. The hypothalamus senses information from both adipocyte-derived leptin and circulating free fatty acids. Levels of circulating fatty acid and its oxidized form especially hydroxynonenal are increased in obese and/or aged subjects. As overactivation of fatty acid receptor GPR40 in response to excessive or oxidized fatty acids in these subjects may lead to the disruption of Ca2+ homeostasis, it should be evaluated whether GPR40 overactivation contributes to diverse cell death. Here, I describe the molecular implication of ω-6 PUFA-rich vegetable oil-derived hydroxynonenal in the lysosomal destabilization/rupture for diverse cell death. By covalently modifying Hsp70.1, both the dietary PUFA- (exogenous) and the membrane phospholipid- (intrinsic) peroxidation product 'hydroxynonenal', combined together, may play crucial roles in the occurrence of Alzheimer's disease and related lifestyle diseases.

Biography:

Tetsumori Yamashima MD, PhD is a consultant neurosurgeon specialized in neuroscience. In 1975, he graduated from Kanazawa University Faculty of Medicine. In 1979, he completed his research diploma in the Kanazawa University Graduate School Medical Research Course (Doctor of Medicine). He then studied abroad in Germany and Sweden, including neuropathology and brain science. He became Chief of Medical Staff at Kanazawa University Hospital, Associate Professor of Kanazawa University Medical Faculty, and Director of Restorative Neurosurgery at Kanazawa University Graduate School of Medical Science. At present, he is CEO of the Arimatsu Medical and Dental Clinic in Kanazawa city, works at this clinic (Tuesday to Saturday), and at Minami-gaoka Hospital (consultant neurosurgeon: Monday mornings). At Kanazawa University Hospital (part-time lecturer: Monday afternoons), he heads a special "higher brain dysfunction" outpatient clinic. He is acknowledged for using the RBANS (Repeatable Battery for the Assessment of Neuropsychological Status), MRI and PET scans for early detection of Alzheimer's disease, even a few years before dementia appears, allowing preventive treatment to be carried out. In 1998, he proposed the "calpain-cathepsin hypothesis" as a mechanism of neuronal cell death. He also discovered that the causative agent responsible for Alzheimer's disease is not amyloid β, but hydroxynonenal derived from "cooking oil". He is the author of 200 published scientific papers in English, and 75 papers and 15 books in Japanese.

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SPEAKERS

PLANT BIOLOGY

VIRTUAL 2020 -3RD EDITION

NOV 11, 2020

Huang Wei Ling
Medical Acupuncture and Pain Management Clinic, Brazil

Is there any correlation between the ingestion of some kinds of foods and headache?

Statement of the Problem: According to Western medicine headache is not a symptom but a disease in its own right. There are four types of primary headache: migraine, tension headache, trigeminal autonomic cephalalgia, and other primary headache disorders. In traditional Chinese medicine (TCM) theory classifies migraine as an external invasion or an internal disruption. Depending on the area where the headache is occurring, the doctor will be able to identify which energy meridian is affected. Frontal headache means involvement of the Stomach meridian. Temporal headache (Gallbladder); parietal (Liver); occiput (Bladder). Weight pain means moisture retention.

Purpose: The aim of this study is to demonstrate that there is a correlation between eating certain types of food and headache.

Methods: Through an extensive literature review by PubMed and NCBI on headache in Western medicine and traditional Chinese medicine and the report of a clinical case demonstrating the importance of dietary counselling in the adequately treatment of headache symptoms. Foods that imbalance the Liver and Gallbladder are: fried foods, chocolate, honey, alcoholic beverages, coconut, eggs. Foods that imbalance the bladder are: coffee, soda and matte tea. And foods that impair the balance of Spleen and pancreas meridian could cause the sensation of weight pain are: dairy products, cold water, sweets, raw food.

Results: The patient had a significant improvement of her headaches symptoms changing completely her dietary habits and rarely had headaches like in the beginning of her treatment.

Conclusion: The conclusion of this study is that the ingestion of some kind of foods is correlating with the headaches symptoms. To prevent the headache symptoms, it is important to understand which energy meridian is affected by the patient and which kind of food should be inducing or maintaining the patients' symptoms.

Audience Take Away:

- They will learn that there are correlations between the ingestion of some kinds of foods and headaches symptoms
- They will have conditions to advice the patients to avoid the ingestion of some kind of foods to prevent the occurrence of headache

Biography:

Huang Wei Ling, born in Taiwan, raised and graduated in medicine in Brazil, specialist in infectious and parasitic diseases, General Practitioner and Parenteral and Enteral Medical Nutrition Therapist. Once in charge of the Hospital Infection Control Service of the City of Franca's General Hospital, she was responsible for the control of all prescribed antimicrobial medication and received an award for the best paper presented at the Brazilian Hospital Infection Control Congress (1998). Since 1997, she works with the approach and treatment of all chronic diseases in a holistic way, with treatment guided through teachings of traditional Chinese medicine and Hippocrates.

Cemil Koyunoğlu
Yalova University, Turkey

Which is more accurate SARS-CoV + MERS-CoV = SARS-CoV2 or SARS-CoV + MERS-CoV = MERS-CoV2?

The functions of existing proteins are explained based on the proteins of previously known coronaviruses. While the role of most non-structural proteins in viral replication has been defined, the role of some is still not fully explained. Four structural proteins have an essential role in combining virion and being a target for coronavirus infection pathogenesis and drug development.

Biography:

Cemil Koyunoğlu was born in Malatya in 1980. And his family moved from Malatya to Antalya when he finished his 1st preliminary school. He finished his followed classes in Antalya and he graduated Chemical Engineering in Malatya, Inonu University. He was one of the main people who established Inonu-Pal accredited fuel-oil laboratory with his willingness after his bachelor's degree graduation. Then, he graduated with his Master's. degree position at the same department during his proficiency testing connection between SGS Netherland and Inonu-Pal. After the fuel-oil laboratory was first accepted as an accredited laboratory. He was accepted as a research assistant in Yalova University Energy System Engineering Department.

Seba Harphoush
AL-Baath University, Syria

Nutritional evaluation of Syrian children recognizing the devastating effects the conflict and recent COVID-19 pandemic

The Middle East is one region in desperate need for public health nutritionists and public health nutrition strategies to address the ever escalating burden of diet-related diseases. The Middle Eastern region has been witnessing a triple burden of disease, characterized by the simultaneous presence of under-nutrition, micronutrient deficiencies, and overweight and obesity as a consequence of both emergency situations and nutrition transition that are placing different communities in the region at various nutrition-related health risks. Reports indicate that food fortification in the region is sporadic and ineffective, and the use of dietary supplements is low. Although Syria achieved substantial improvements in population health before the beginning of the conflict contributing to reduced infant and childhood mortalities, the overall nutrition situation before the crisis was considered to be poor with an estimated 23% stunting prevalence, 9.3% wasting and 10.3% underweight. Now, it has been almost a decade and the country is suffering from the devastating impacts of this conflict in all aspects. The crisis has reversed development gains for Syria that had been poised to achieve the Millennium Development Goals. The health sector is one of the most affected sectors by the economic collapse and infrastructure destruction of the country, and the most influential on the people lives, especially some vulnerable groups such as children. Currently, Syria is classified as one of the complex emergency situations present with severe child and maternal undernutrition and widespread micronutrient deficiencies. Since September 2017, cases of severe malnutrition and mortality among children have been reported in some areas, in addition to increased child labour.

Recently, COVID-19 pandemic is attacking the global health system at its most vulnerable points—conflict zones. The Syrian health system, already fractured by years of conflict, is being further destroyed by sanctions. Moreover, There is an overall lack of sufficient public awareness, a significant lack of resources, and a continued deterioration of nutritional status and health conditions across Syria,, making the country acutely at risk of an uncontainable COVID-19 outbreak . Based on the filled information, a study showed relatively good commitment to the preventive procedures by healthcare workers to control COVID-19 and prevents its spread in the community; another study showed a good COVID-19 knowledge is associated with higher education level. It is expected that the epidemic will certainly affect and be affected by people health and nutritional practices.

Nutritional status is influenced by multiple and inter-related factors including access to food, health care, water and sanitation, care and feeding practices and gender. Our goal is to give an insight about the public health awareness and nutrition status in Syria today.

Audience Take Away:

- Present an insight about the public health awareness and nutrition status in Syria today
- Studies and scientific initiatives are necessary to assess current dietary intakes/patterns, support nutrition education, and to reduce food insecurity, especially among vulnerable population groups
- Argent actions should be considered in targeting micronutrient fortification programs and supplementation recommendations as approaches to help alleviate the burden of micronutrient deficiencies and inadequacies in Syria

- There is an urgent need for research on the mechanisms by which conflict affects child health and development and the relationship between physical health, mental health, and social conditions
- Particular priority should be given to studies on child development, the long term effects of exposure to conflict, and protective factors against the harmful effects of armed conflict on children

Biography:

Dr. Seba Harphoush studied Health sciences and specialized in Human Nutrition at Al-Baath University, Syria Arab Republic, where she was assigned as an assistance teacher. She then joined the research group of Pro. Guowei Le at Nutrition and Functional Food department at Jiangnan University, China. She received her MS in 2019 at the same institution. Currently, she is doing her PhD in Nutrition and Food Hygiene under the supervision of Prof. Li Zhong at Nanjing Medical University, China. She published several research articles in SCI(E) journals.

Monika Seth
Banasthali Vidyapith, India

Anthropometric measurements and health status of obese Omani women: A cross-sectional study (Age 30-49 Years)

Obesity has become a major health issue globally due to its increasing prevalence in certain parts of the world. In addition, because of its growing contribution to the burden of global morbidity, obesity has become one of the primary health concerns in many developed and developing countries. The WHO has warned of an escalating obesity epidemic that could put the population at risk of contracting non communicable diseases in many countries. Over the past 2 decades, Oman has been shown to bear a heavy burden of NCDs and numerous studies have documented the distribution of several risk factors coupled with lifestyle behaviors associated with many obesity related diseases giving rise to many more new health challenges in the nation. This presentation provides an overview of the anthropometric measurements and the health status of obese Omani women.

Objective: The main purpose of this research was to study the association between anthropometric measurements and the health status of the obese Omani women.

Method: The study was carried out during the period Sep 2019 to Jan 2020 and included a sample of total 398 obese Omani women aged 30-49 years from Muscat and Batina Governorates in Oman. Assessment of anthropometric measurements was done by calculating the BMI and WHR of the subjects and the health status was assessed by self-reporting of certain diseases using questionnaire cum interview method.

Result: The anthropometric assessments revealed that 47% were found to be grade I obese, 32% were grade II obese and 21% were morbidly obese with grade III obesity as per the BMI. The health status of the subjects indicated that 81% of the subjects reported to have some obesity-related morbidity like hypertension, cholesterol, diabetes etc. or the other and only 19% of the subjects were free from any disease. On classifying the WHR it was found that 70% were in high category, 28% in moderate category and only 2% in low category.

Conclusion: The obesity indicators i.e BMI and WHR clearly showed a very high prevalence of obesity in the study sample. The anthropometric measurements are commonly associated with diseases like high cholesterol, hypertension and type 2 diabetes.

Aishath Naila[1]*, Aishath Mohamed[2], Ahmad Z. Sulaiman[3]

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[2]Maldives Food and Drug Authority, Ministry of Health, Sosan Magu, Male', Maldives

[3]Faculty of Bio-Engineering and Technology, Universiti Malaysia Kelantan (UMK), Campus Jeli, Malaysia

Nutritional analysis of imported honey into the Maldives

Honey is produced from the nectar of flowers or exudates of the plant parts which are collected by bees (*Apis mellifera*). These honey bees transform, deposit, dehydrate and store honey in honeycombs. All honey consumed in the Maldives are imported, and according to the Maldives Customs service more than 100 varieties of honey are imported to the country. However, no studies to date have assessed the safety and quality of honey imported into the Maldives. The aim of this study was to assess nutritional value of honey imported into the Maldives and compare the labelling information to that of the analysed values. The results showed that the labelling and the analysed information does agree somewhat. The agreed information include that the honey did not contain any fat content; saturated and transfat. The honey also did not contain fibre. The honey contained 81% of carbohydrate, 0.33% protein, 0.005% acidity, 0.13% ash, 18.66% moisture, and total sugar content of 70.19%. According to the honey product labels, honey contained sodium, vitamin C and iron which can be inferred that the 0.13% of ash are these minerals.

Hipolyana Simone de Oliveira Alves
State Technical School of Palmares, Brazil

Seed treatment in a controlled environment

The world population grows more every day, and the need for food from the same population grows. The technology works to increase the amount of food, maintaining quality and sanity. Among the current techniques of planting is the treatment of seeds with micronutrients, which aims to decrease the base fertilization and supply the initial need of the seedling, which absorbs the reserves of seeds, but that needs complementary fertilizer as soon as its Primary root touches the substrate in which it was sown. Still on this theme, we approached the treatment of pear and apple seeds with micronutrients and their response when planted in an adverse climate, that is, response of seeds of exotic fruit – of temperate climate – in regions of warm climate. We will also discuss the use of micronutrient treatment in pumpkin seeds and sprouting (cassava seeds), which have positive responses in hot and humid climate environments. The central idea of this research is to enable sowing on different substrates, with seeds treated with specific nutrients, in order to guarantee the independence of the seedling in relation to its initial nutrition. Therefore, we will teach enriching discussions about the responses of the most varied types of seeds in relation to the use of micronutrients, especially those that can contribute to the reduction of global hunger. Our work was conducted in two phases, being the first related to the treatment of seeds with potassium, nitrogen, zinc and copper, made in the Chemistry and Biology Laboratory of the technical teaching institution of Palmares, located in the South Forest Pernambucana, Brazil. The second stage was the planting of these treated seeds, which remained for six months stored in a refrigerator environment. They were planted under local environmental conditions and their data were collected. The experiment is still underway, and the current treatment is done in citrus seeds. The intent is that until the date we have more data to share.

Audience Take Away:

- Unlike it seems, micronutrient seed treatment is not something that is out of the grower's reach. Some of these nutrients can easily be bought from farm houses and the treatment is simple, just as storage only requires the refrigerator environment, an object that everyone has in their homes
- This practice is easily repeated in laboratories and can be performed with different raw materials
- This practice will contribute to uniformity of planting, reduction of chemical fertilization and recovery of seeds with low vigor. This research can be used to help expand the study of seed treatment by simplifying direct application

Biography:

MSc. Hipolyana Simone de Oliveira Alves, studied Agronomy at the Federal University of Alagoas, Brazil (2008) and graduated Master in 2018 and Specialist in Rural Extension in 2016, at the same University. Today she teaches in the Agricultural Technician course at Palmares State Technical School, where she works as a Researcher. For UNITOLEDO in partnership with FGV is MBA in People Management and for Uninassau undergraduate in Pedagogy. She is an Agricultural Consultant at the Qualified Producers Cooperative and collaborates as a Reviewer at the Journal of Applied Life Science International.

B N Hazarika
Central Agricultural University, India

Genetic diversity of horticultural crops in Arunachal Pradesh and their role in nutritional security

The state of Arunachal Pradesh has been blessed by nature with one of the richest flora and fauna on the earth and regarded as one of the 'Biodiversity Hot Spot' areas in the world. Its unique phyto-geographical positions, topography and high degree of precipitation are some of the important factors which are mainly responsible for its enormous biological diversity. As a result, an array of horticultural crops are grown across the region ranging from tropical to alpine. A large number of diversity in fruits belonging to the genera Artocarpus, Annona, Averrhoa, Garcinia, Musa, Passiflora, Phyllanthus, etc. are reported from the region. Besides diverse genotypes of cucurbits, solanaceous vegetables, ginger, turmeric, bamboo, leafy vegetables etc. are having unique quality because of their locational advantage.

Though agriculture is the major source of livelihood for the major section of people still it has been remaining complex, diverse and risk-prone and resulting into the low level of productivity and income since decades. Under this situation, probably horticulture sector has desirable attributes to accelerate the agricultural growth process in the state. Horticultural sector plays very important role towards sustainable rural livelihoods in all farming system in general and in rainfed and hilly farming system in particular like Arunachal Pradesh.

Further most of these crops are rich in vitamins, minerals and such other bioactive molecules. These crops have the potentiality to alleviate the poverty, food and can give nutritional security and also play a major role in meeting the need of nutritional and ethno medicinal uses of the rural tribal people of region since time immemorial. Nutrition security implies physical, economic and social access to balanced diet for every citizen. Malnutrition has a complex aetiology and its prevention requires awareness and access at affordable price to all the above-unreached and undernourished. In this direction minor or underutilized fruit and vegetables plays a vital role. Many of these fruits are eaten locally to meet their nutritional requirement; many of them are used for their ethno- medicinal properties besides colour, flavour and other health benefits. However, there is yet to explore the full potentialities of some minor fruits, leafy vegetables of the state used by tribal people and also many of such valuable resources remain unexploited due to lack of awareness of their potential. The details of diversity of horticultural crops and their present situation and role towards livelihood and nutritional security will be discussed.

Audience Take Away:

- Audience will be able to know the diversity of horticultural crops and wisdom of tribal people of the region
- This deliberation will help audience by giving the information on unique plants which are yet to explore

Biography:

Prof. B N Hazarika, PhD presently working as Dean, College of Horticulture and Forestry, CAU, Pasighat, Arunachal Pradesh. Prof. B N Hazarika guided a number of PG & Ph D students, handled several externally funded research projects and organized 90 trainings. He has published 80 research papers, published 20 books, 25 conference papers and book chapter, 11 practical manual, 25 Bulletins, edited 13 souvenir and 245 popular articles. He contributed significantly in collection, morphological and molecular characterization of diverse genotype of various fruit crops, standardized good agricultural practices for some major fruit crops; introduced new fruit crops in the region;

Bahadir Torun
Biology Department, Aydin Adnan Menderes University, Aydin, Turkey

Possible application of CRISPR-Cas to plant disease treatment

Agricultural systems all around the world are threatened by pathogenic diseases. Antimicrobial chemicals are widely used for the treatment of these diseases. Although biological control agents started to used, chemicals are still preferred. A possible solution to this problem is to develop more effective and more specific ways of biological prevention and treatment agents. CRISPR-Cas mediated genome editing is one of the most specific methods in use. This system can be used in two different ways. One is to edit the plant genome as a preventive strategy, the other is to modify the system for pathogen genome as a treatment agent. As a preventive strategy pathogen receptors of the plant can be altered thus preventing pathogen to bind its receptors. As a treatment strategy CRISPR-Cas can be modified to knock-out pathogens genome.

Audience Take Away:

- A better understanding of one of the possible applications of CRISPR-Cas
- Finding new and effective biological control ways can reduce chemical use
- Although this is already under research, a different point of view can lead to new ideas

Biography:

Dr. Bahadır Törün studied Biology at Ege University, Turkey, and graduated in 2010. He then completed his master's degree in 2013 at Anadolu University, Eskişehir. He received his Ph.D. degree in 2018 at Aydın Adnan Menderes University. He studied at the University of Science and Technology in Poland for six months. After two years of experience in the private sector, he returned to research, He has published 17 research articles in SCI(E) and other indexed journals.

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POSTERS

PLANT BIOLOGY

VIRTUAL 2020 -3RD EDITION

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Evaluation of the seed coat darkening in dry bean genotypes from the first postharvest days

In Mexico, as a center of origin of beans, a wide variety of dry bean genotypes (*Phaseolus vulgaris L.*) are cultivated. Depending on the areas, consumers may prefer light or dark colored grains. Most of the beans are grown under rainfed conditions during the spring-summer season and are marketed throughout the year. Light colored seeds tend to darken and this trait affects its market value. The objective of this work was to evaluate the seed coat propensity to darken in light-colored dry bean varieties during the first posharvest days. Five Bayo type, and one Canarian varieties were studied. Azufradoro, a yellow colored variety was included as slow darkening reference. The varieties were grown under rainfed conditions. Once ripe, four plants of each variety were cut. The grains of two plants were mixed to form a repetition. Two repetitions and one control of each genotype were analyzed. The controls were kept refrigerated, while the experimental samples were left exposed to natural light in the laboratory for 77 days. The color of the seed coat was measured using a Konika Minolta CM5 reflectance spectrophotometer. The first measurement was done after the removal of the grains from the pods and the subsequent ones were done every seven days. Likewise, polyphenol oxidase (PPO) activity in the genotypes was measured. The propensity to darken was different between genotypes. The color change of the seed coat was mainly detected as a decrease in the value L* (lightness) and an increase in red tones a*. There were also differences in PPO activity. Consistently, samples exposed to natural light showed greater PPO activity than their controls. Bayomex, was the variety that showed the greatest darkening of the seed coat and also the one in which the highest PPO activity was detected. Azufradoro showed little darkening and PPO activity was not detectable. Bayo Inifap and Bayo Azteca were the varieties with lesser grain darkening. a* detected after 14 days postharvest was correlated (r=0.75*) with the one observed after 77 days. The results show that it is possible to identify the propensity to darken in the early days after harvest without performing accelerated aging tests.

Audience Take Away:

- Through the use of reflectance spectrometry it is possible to detect changes in color in the early stages of darkening
- The results of this work show that is possible to identify slow darkening genotypes in a simple way

Biography:

Dr. Carmen Jacinto-Hernández studied human nutrition at the Universidad Veracruzana, México. She joined the Oilseeds Program. In 1984 she had a training on oilseeeds at the Grain Research Laboratories, Agriculture Canada. Later on studied to get her masters (1988) and PhD (2000) at the Instituto Politécnico Nacional in México city. She began working about dry beans quality. After she had postdoctoral fellowship in 2005, supervised by Drs. Teresa Millán y Juan Gil at the Genetics Laboratory, University of Córdoba, Spain. She participates in the Bean Breeding Program of the Valle de México Experimental Station.

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Effect of the outbreak of horse-chestnut leaf miner (*Cameraria ohridella* Deschka & Dimić) on tree-ring width in common horse-chestnut (*Aesculus hippocastanum L*)

Common horse-chestnut is frequently infested by the insect pest horse-chestnut leaf miner [HCLM; Cameraria ohridella (Deschka & Dimić 1986), Gracillariidae, Lepidoptera]. The larvae, feeding on leaf parenchyma, cause browning and dehydration of leaves, which may be shed as early as in summer. The major aims of this study were: (1) to assess the effect of infestation by HCLM on ring-width dynamics in common horse-chestnut; (2) to determine the date of invasion of the pest; and (3) to compare the growth-climate response in the period before and after the invasion of HCLM. In 2017 in the village of Buk in north-western Poland, samples from 30 horse-chestnut trees for the dendrochronological analysis were taken with help of a Pressler increment borer. The ring-width chronology was developed using standard dendrochronological methods. Dendroclimatological analyses were made in 2 periods: before the determined date of HCLM invasion (till the year 1999) and after the invasion (in 2000 2016). The chronology, spanning 116 years (1901-2016), is based on ring-width curves of 22 trees. Mean tree-ring width was 3. 54 mm. In 2000, in spite of favourable weather conditions, a reduced growth rate was observed in 91% of the analysed trees. The period of strong reductions lasted till 2010. Before the invasion, radial growth rate was dependent on temperature and precipitation in May and June of the current year, whereas after the invasion, the growth-climate response was dependent on temperature and precipitation in the preceding year and the correlation was stronger. Surprisingly, in recent years (2011-2016), in spite of infestation by HCLM every year, the health condition of the analysed trees has improved and tree-ring width has increased.

Biography:

Dr. hab. Anna Cedro, prof. US studied Geography at Szczecin University, Poland. In 2003 she finished PhD on climate change impact on tree-ring width of Scots Pine, Douglass Fir and native species of Oaks in the Western Pomerania. In 2012 she finished Habilitation on dendrochronology of yew in Poland and western Ukraine. Her current research interests are focused on dendroclimatology of the wild service tree and dendroecology of trees growing in wet habitats. Anna Cedro is Professor of geography at the Szczecin University, Institute of Marine and Environmental Sciences (teaching Meteorology and Climatology) She is Director of Szczecin University Doctoral School. She has published more than 100 research articles.

Vladimír Forman[1], Ivana Šušaníková[1], Emil Švajdlenka[2,3], Milan Nagy[1], Pavel Mucaji[1]*

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Flower Infusions from *Cornus mas* and *Cornus kousa* Inhibit Aldose Reductase Enzyme

Different species of the genus Cornus L. (Cornaceae) are mostly shrubs or small trees, widely distributed in the northern hemisphere. Four of them, namely *Cornus mas, Cornus officinalis, Cornus controversa* and *Cornus kousa* have edible fruits (commonly known as cornelian cherry), that are consumed in different parts of Europe and Asia. The plant parts of *Cornus mas* L., has been used in ethnomedicine for treatment of cold, flu, urinary inflammation, gastrointestinal disorders, stomach ulcers, colitis (fruits), and diabetes (leaves, seeds). This diverse range of ethnomedicinal utilisation of *Cornus mas* plant parts was confirmed by several in vitro and in vivo preclinical studies in recent years.

Aldose reductase inhibitors are considered to be potential therapeutical agents for the chronic diabetic complications. Diabetes mellitus could be accompanied by elevated blood level of free fatty acids, which could cause lipotoxicity. Herbal extracts or their constituents are promising agents potentially alleviating these complications. Our study was focused on the influence of mentioned effects by flower infusions from *Cornus mas* L. and *Cornus kousa* F.Buerger ex Hance.

Both species are rich in phenolics, *Cornus kousa* flowers contain slightly higher amounts of phenolic acids (20.79 %) and flavonoids (56.15 %) than *Cornus mas* (20.20 %) and (47.45 %), respectively. Both extracts showed effective inhibition, expressed as IC50 of adose reductase in non-toxic low concentrations. IC50 = 3.06 mg/mL for *Cornus mas*, and 2.49 mg/mL for *Cornus kousa*, respectively. In contrast, these concentrations of both extracts caused almost no effects in the lipotoxicity cell model.

To our knowledge this study is the first report on *Cornus mas* and *Cornus kousa* flowers' aldose reductase inhibitory activity, and influence upon lipotoxicity.

Audience Take Away:

- The prevalence of type 2 diabetes is rising fastest among developing countries but rising incidence is in Europe also, Slovak Republic including
- Herbal extracts or their constituents are promising agents potentially alleviating these complications. Hence, there is a pressing need for the scientific characterisation of the numerous anti-diabetic medicinal plants described in traditional ethnomedical systems worldwide
- There is an opportunity for cooperation between faculties and research groups in different fields. activity guided separation of secondary metabolites from the plants, activity evaluation, development of method for a quantitative determination of secondary metabolites in extracts, standardization of extracts etc

Biography:

Dr. Mučaji studied Pharmacy at the Comenius University in Bratislava, Slovakia and graduated as MS in 1993. He received his PhD degree in Pharmacognosy in 1997 at the same institution. In 2004 he obtained the position of an Associate Professor at the Faculty of Pharmacy, Comenius University and in 2013 position of Professor. He has published more than 60 research articles in SCI(E) journals with around 700 citations. His field of interest is Pharmacognosy, separation and identification of natural compounds, extracts standardization and evaluation of biological activity of natural compounds.

Agnieszka Trela*, Renata Szymańska

Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Kraków, Poland

A comparative study on antioxidant potential of natural vitamin E homologues in liposomes

Food contains various nutraceutical compounds that have been shown to exert a wide range of biological activities. These dietary components include vitamins, phytochemicals, fatty acids, polyphenols, and others. Their bioactivity has been significantly associated with antioxidant properties, which provide protection against oxidative damage connected with many diseases. Among the nutraceutical compounds, vitamin E complex exhibits the highest antioxidant activity. This group include α, β, γ and δ-tocopherols, analogous tocotrienols and plastochromanol-8, also named as tocochromanols. Because of their antioxidant function, tocochromanols play a major role in protecting membrane lipids from oxidation. Therefore, they are abundantly found in plant-derived food products, but seed oils are considered to be the best source of these compounds for nutrition. Their content and composition varies between species. Additionally, as a result of their structural differences, vitamin E homologues possess different biological activity, including antioxidant action.In the present study, a comparative analysis of the antioxidant potential measured as the inhibition of lipid peroxidation by a variety of vitamin E homologues has been performed. As model systems, we have used liposomes prepared from a mixture of natural chloroplast lipids. To initiate lipid peroxidation outside and inside lipid membranes, we have used both hydrophobic (AMVN), and hydrophilic (AIPH) azo-initiator. The antioxidant potential during lipid peroxidation was measured as the inhibition of lipid peroxides formation and simultaneous tocochromanol content decay using the HPLC technique.

The obtained results showed that vitamin E homologues effectively inhibited the lipid peroxidation generated in liposome membranes. When lipid peroxidation was generated in the lipid phase, the highest efficiency of inhibition was observed for δ-Toc, δ-Tt and PC-8 whereas α-Toc and α-Tt showed the least inhibitory effect. During the progress of peroxidation, a decrease in the content of tocochromanols was also observed. In the case of oxidative stress generated outside the membrane, efficiency in inhibition of lipid peroxidation was similar for all the compounds examined, except of α-homologues which showed the lowest efficiency.Summarizing, vitamin E homologues have showed different antioxidant effect in the liposome membrane model. Their action differs between homologues and depends on the type of lipid peroxidation initiator used. Our results indicate that the total antioxidant potential of different plant-derived products (i.e. plant oils) highly depends on the qualitative composition of antioxidants, including one of the most active lipid-soluble members of vitamin E complex.

Acknowledgements

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Audience Take Away:

- Vitamin E homologues effectively inhibit the lipid peroxidation generated in liposome membranes
- Their action differs between homologues and depends on the type of lipid peroxidation initiator used
- The total antioxidant potential of different plant-derived products highly depends on the qualitative composition of antioxidants, including members of vitamin E complex

Biography:

Agnieszka Trela is a Ph.D. student in the field of Biophysics at Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Kraków, Poland. She received her master's degree in Medical Physics at the same university. Her graduate thesis was on the use of functional food and antioxidants in health prevention. Her current research focuses on the characteristics of novel antioxidants derived from natural sources.

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Biological features of *Maclura pomifera* (Rafin) Schneider in the *southern* European part of Russia

The work is devoted to the study of ecological and morphometric features of the *Maclura pomifera* (Rafin.) Schneider: Its yield, seed productivity, as well as the content and characteristics of oil seeds. It was found that the Maclura was introduced into the southern region of Russia in the 19th century. At first it grew on the southern coast of the Crimea near Yalta, and in the middle of the twentieth century the Maclura was transferred to the steppe zone. The plants have already successfully taken root, adapted and acclimatized. Mass plantings of the Maclura were carried out in the 60s of the twentieth century along the roads as the creation of hedges and windbreaks. Recently, they are used in traditional medicine, so the study of the biological properties of the Maclura is important.

The object of the research was the plantations of Maclura Orange, were located near the urban-type settlement Gvardeiskoe, as well as the root shoots of 1985-86 – near the village of Novy Sad, not far from Simferopol. The study was conducted in the central flat agro-climatic region, which belongs to the southern steppe natural zone. Soils – southern black soil. The climate here is temperate with warm dry and long summers, and mild, short winters.

So, Maclura plants were unpretentious to agrotechnical care, relatively drought-resistant, durable, and growing, trees create impassable thorny thickets. The Maclura vegetation started in March and finished in late November with the onset of frost. In late April, it blooms, and fruits already reach removable sizes 12-15 cm in mid-September. Maclura fruits are not edible for humans. Currently, they are not used on an industrial scale, but only in folk medicine. Fruits were begun to collect from mid-September. Maclura yield was 25-500 kg per tree. Fruit weights were 115-406 g. In the fruit there was 2,5%-3,5% by weight of seeds. As a result of this study, for the first time in the Crimea and in Russia, oil from Maclura seeds was obtained. Maclura seeds contained 30-33% of oil, which had a very rich chemical composition: valuable fatty acid included linoleic (77.6%), oleic (12.3%), palmitic (6.6%), stearic (2.3%), etc. The oil contains a small amount of 0.55% such β-linolenic acid, valuable and rarely found in plant objects, i.e. omega-3. The high ratio of polyunsaturated to saturated fatty acids (8.77) can be used to lower serum cholesterol levels, reduce atherosclerosis, and prevent heart disease. Finally, the significant percentage of oleic acid (12.31%) in the oil makes it desirable in the diet. The oil contains styrenes, polyphenols and the whole gamma of vitamin "E".

The study of Maclura p. in the southern European part of Russia is very important both in a scientific and practical sense, since the components of the processing of Maclura fruits and plants have enormous prospects for use in medicine, cosmetology and the food industry to create especially valuable dietary products.

Audience Take Away:

- Valuable substances contained in the fruits of Maclura can improve the quality of human life, they can be used in medicine, cosmetology and the writing industry
- This work can initiate breeding, agronomic research, the technology of creating new drugs to solve pharmacological, cosmetological problems, as well as issues of healthy nutrition

Biography:

Dr. Latsko studied Biology at the Petrozavodsk University, Karelian Republic Russian Federation and graduated as MS in 1979. She then joined the research group of Prof. Smykov at the Steep department of the Niktskiy Botanical Garden, Ukrainian Academy of Agrarian Sciences (UAAS). In 1993, she received a Ph.D. degree for studying the biological characteristics of new apple cultivars and hybrids at the same institution. For a long time she was engaged in peach breeding. She is a co-author of a number of peach and apple cultivars. Since 2012, she headed the department of steppe crop production. She has published more than 70 research articles in SCI (E) journals.

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