

3RD EDITION OF INTERNATIONAL

NUTRITION RESEARCH

CONFERENCE

SEPT **12-13**



VIRTUAL EVENT

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**BOOK OF
ABSTRACTS**

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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 NUTRITION 2022

With an earnest objective to congregate Nutrition professionals, researchers, Nutrition industry experts and scientists Magnus Group proudly enunciates and welcomes you to its **3rd Edition of International Nutrition Research Conference (Nutrition 2022)**, which was organized Virtually during **September 12-13, 2022**. This year the global summit will move forward with the theme *From Evolution to Revolution: A Holistic Perspective on Nutrition's Frontier Novelties*.

The conference provides the food and beverage industry, researchers, healthcare professionals, food technologists, nutrition experts, scientists, and scholars the opportunity to use our global platform to help consumers navigate their changing needs by showcasing their research findings, latest trends, breakthroughs, and innovations in the field of nutrition

The two-day colloquium is designed to foster collaboration and innovation, with Nutrition and technology poster presentations, interactive panel discussions, and visionary keynotes sessions.

We are confident that our conference will provide you with an incredible chance to explore new horizons in your field and we hope to see you at our upcoming Nutrition 2023 conference during June 19-20, 2023.



KEYNOTE FORUM

DAY 01

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Luliana Vintila

University “Dunarea de Jos” Galati, Romania

Critical issues of FOP nutrition labelling developing and implementing systems

In the current global food market, consistent and equivalent food standards and fair food labelling are necessary to be harmonised for correct assessing the food nutritional profile in the benefit of the final consumer, for transparent and tailored food formulation and fair international trading. Well-comprehensive and easy- to- use graphical nutrition labelling tools need to be implemented in order to serve the final consumer in the daily food selection towards healthier choices suitable for its particular age, gender, health status, preferences, eating habits, etc. (Vintila, 2021).

Audience Take Away:

- Global harmonization of nutrition labeling.
- Optimal solutions for the consumer choices.
- Good ideas to be used by the consumer protection organizations.
- Improvement of the food production worldwide.

Biography:

Vintila Iuliana is actually Associate Professor, PhD in Food Science and Engineering. She is author of 22 books and book chapters in international and national publishing houses (Elsevier, Wiley, Lambert), first author and co-author for 14 articles in ISI journals and relevant ISI proceedings, 26 BDI scientific papers indexed in recognised international databases, 43 articles presented in national and international conferences and 23 articles revues. Also, she is member of prestigious international organisation such European Federation of Food Science and Technology (2009), Co-Chair WG Nutrition in Global Harmonization Initiative (since 2013), International Society of Food Engineering (2010), Balkan Environmental Association (2008), Global Environmental Standard (GES) Community of Interest (2011), European Academy for Education and Social Research (2012).She act as international projects expert for European Science Foundation, Eurostar Programme, EC « Expert area in the Participant Portal » and « Connecting Europe Facility », EU TAIEX, COST, EACEA, Erasmus Mundus(2010).She is Guest Associate Editor and Research Topic Editor for “Frontiers in food science and technology”, Regional Editor “Advance Journal of Food Science and Technology”, Academic Editor European Journal of Nutrition&Food Safety, Editorial Board Member SciEdTech, Editorial Board Member African Journal of Water Conservation and Sustainability, Editorial Board Member International Scholar Journals, etc.



Sena Ardıçlı

Department of Genetics, Faculty of Veterinary Medicine, Bursa Uludag University, Bursa, Turkey

Are we really what we eat? Molecular genetic aspects

Recently, it is very well known that good nutrition is essential for a healthy life. In this context, new nutritional supplements and extracts from different sources are introduced to the market. Scientific studies supported by *in vitro* and *in vivo* experimental designs are carried out on these products. But one important question is whether molecular genetic dynamics are altered by nutritional properties or vice versa. Understanding the relationship between nutrition and genetics can be achieved through two basic interactions. On one hand, nutrients may affect DNA stability and repair, important biological processes, such as apoptosis, and the expression levels of many genes. On the other hand, individual genotypes may alter metabolic pathways and the bioactivity of regulatory molecules through genetic variation components, such as single nucleotide polymorphisms and mutations. Genotype differences can also directly change the reflection of the effects of nutrients and metabolic mediators on the phenotype. Newly-identified epigenetic modifications and non-coding RNAs have made these interactions even more complicated. Controversial results in studies with nutritional supplements also draw attention. One of the main reasons for these results is that many extracts or supplements have multiple ingredients and it is difficult to determine from which molecule the effect observed in the experiments originates. Moreover, molecular changes in nutrients due to reactions in the digestive system make it difficult to verify *in vitro* results in *in vivo* models. This presentation focuses on how genotypic background influences nutritional traits, as well as how nutrition can alter genetic dynamics. In this context, current research results on the relationship between nutrition and genetics, the effects of relevant genetic markers, evaluation of nutrigenomic data, limitations in experimental designs, and controversial results will be discussed from molecular genetics and evolutionary perspectives.

Audience Take Away:

- Can nutrition affect genetic properties?
- New insights into the role of feed supplements regarding molecular aspects.
- Evaluations of different diet properties from the epigenetics perspective.
- Recent findings from *in vivo* studies for feed additives that affect genetic properties.
- The limitations of *in vivo* studies on the effects of feed supplements on genetic alterations.
- The association of the genetic structure and nutritional dynamics.

Biography:

Dr. Sena Ardıçlı is an associate professor at the Bursa Uludag University, Faculty of Veterinary Medicine, Department of Genetics in Turkey. He received his first PhD degree in 2015 at the same institution. Dr. Ardıçlı started his second PhD at the Graduate School of Natural and Applied Sciences, Department of Biology in 2018. His areas of expertise are molecular biology and genetics, population genetics, genomic selection, meat science, and animal biotechnology. Dr. Ardıçlı has more than 120 publications related to his subject and has received many awards in different symposiums and congresses.



T. B. S. Rajput

Adjunct professor, Indian Agricultural Research Institute, New Delhi

Sustained growth in horticulture in India substantially improved nutritional requirement of its population

Indian green revolution in early seventies of the last century made India not only a self sufficient nation in food grains but also enabled it to export to other countries. But soon after realization started that in the interest of maximizing food grain production we have over stressed our natural resources of soil and water. Also horticulture sector was progressively ignored resulting in increased nutritional supply to a mainly vegetarian society. This opened up a new thought process of sustainability of use of natural resources. Increase in efficiency of utilization of natural resources became the favourite topic for researchers, policy makers and other stake holders in early eighties. Diversification of agriculture particularly encouragement to increasing horticultural production to meet the nutritional requirements of the largely vegetarian population in the country came to the focus of the policy makers. Government of India through its different initiatives supported by appropriate need based dynamic policies for promoting horticulture in general and micro irrigation in particular resulted in quantum jump in horticulture production, surpassing the food grain production in the country, during the last year. Government of India followed a multi-pronged strategy for promotion of micro irrigation in the country. It included policy guidelines, offsetting its high initial cost partly by Government funding, developing research base and encouraging industry for production of quality micro irrigation equipments locally. The real cause of success was the dynamism in Government policies to match the need of the time for promoting water saving strategies and simultaneously enhancing production of fruits and vegetables through National Horticulture Mission, Horticulture Board and Mission for Integrated Development of Horticulture. The article presents a detailed firsthand account of the progress of micro irrigation in the country from its inception to the point of India becoming the country with the largest micro irrigated area in the world. Consequent to increased horticulture production supplemented significantly the nutritional requirement of the population.

Audience Take Away:

- Nutritional security requires first hand understanding of the food habits of population.
- A vegetarian society need to improve horticulture production beside food grains.
- Micro irrigation gives a way forward for enhancing horticulture production without increasing exploitation of critical input natural resource i.e. Water.
- Government policies are a must to support scientific developments for large scale adoption.

Biography:

Dr. T B S Rajput is an Emeritus Scientist at Water Technology Centre, Indian Agricultural Research Institute, New Delhi, India. He has over forty years of experience of research and post graduate teaching in the field of Soil and Water Conservation Engineering. He is a former Project Director and a scientist of national repute. He has published ten books and more than 200 research articles. He has developed seven computer softwares on different aspects of agricultural water management. Besides research, he has supervised more than twenty post graduate researches. He was adjudged as the Best teacher by Indian Agricultural Research Institute and was awarded the best teacher by Indian Council of Agricultural Research. He has received many honours and awards for research including the prestigious Rafi Ahmed Kidwai Award, the highest award an Agricultural Scientist can get in India. He is widely travelled and is a Fellow of National Academy of Agricultural Sciences and six other National Scientific Societies in India.



Luke Engelking^{1,2,3} *, Yanchao Xu¹, Min Ding¹, Shili Li¹, Jing Liu¹, Emily Richmond¹

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²Molecular Genetics

³Center for Human Nutrition, University of Texas Southwestern Medical Center, Dallas, Texas ,Luke Engelking, M.D., Ph.D

SREBPs in the control of intestinal homeostasis and tumorigenesis

Lipids are key regulators of the growth and differentiation of intestinal epithelial cells, including intestinal stem cells (ISC). High-fat diets and obesity are serious risk factors for gastrointestinal cancers in humans. Sterol regulatory element-binding proteins (SREBPs) are transcription factors that control lipid synthesis and uptake in the intestine. Our recent studies have shown that SREBPs and their major products, sterols (from SREBP-2) and unsaturated fatty acids (from SREBP-1) have a critical role in sustaining growth of the intestinal epithelia:

(1) The loss of Scap, which controls intracellular cleavage events required for SREBP activation, reduces lipid synthesis and causes a lethal intestinal injury in mice characterized by a loss of intestinal crypts, which house ISCs.

(2) When SREBP-2 is inactivated in intestinal epithelium, hyperplasia of intestinal crypts and hypertrophy of the intestine results. In SREBP-2 knockouts, sterol synthesis falls while unsaturated fatty acid synthesis does not, owing to an increase in SREBP-1.

(3) Despite this overgrowth phenotype, ablation of SREBP-2 in intestinal epithelia of mice blocks the formation of adenomas caused by mutant APC. These findings indicate that SREBPs govern intestinal epithelial homeostasis in complex ways. SREBPs maintain homeostasis of intestinal epithelia by producing specific, yet-to-be identified lipid metabolites that sustain the proliferation of ISCs. These pathways control intestinal organ size and malignant potential, which bears on human diseases of under- or over-proliferation of the intestine, such as short gut syndrome and colorectal cancer, the 3rd most common cause of cancer death in the U.S.

Audience Take Away:

- Learn about the molecular regulation and physiological roles of SREBPs, a transcription factors that are master regulators of lipid biosynthesis and utilization.
- Understand the physiological and pathological roles of lipids in intestinal health and disease.
- Learn about the interplay of dietary cholesterol on cellular lipids metabolism in the intestine.

Biography

Dr. Engelking completed undergraduate studies in biochemistry at Texas A&M University (1996-2000), joint MD/PhD training (2000-2007) at UT Southwestern in Dallas, where he studied cholesterol metabolism under Nobel Laureates Goldstein and Brown. He then completed clinical training at Massachusetts General Hospital (2007-2010), an affiliate of Harvard Medical School, and then returned to UT Southwestern for clinical and research fellowship in gastroenterology (2010-2014). He is a teaching gastroenterologist and serves as the director of the Hereditary GI Cancer Clinic. His laboratory focuses on lipid metabolism in the GI tract and in GI cancers.

SPEAKERS

DAY 01

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Vitamin D supplementation and loss visceral adiposity in individuals underwent bariatric surgery

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² Micronutrients research Center, Institute of Nutrition, Federal University of Rio de Janeiro, Brazil

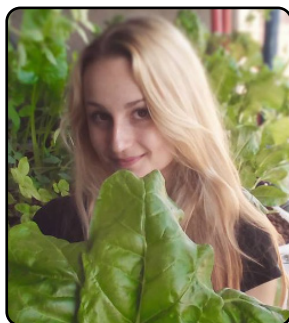
The prevalence of obesity is growing exponentially worldwide, and current projections predict that more than 1 billion individuals will have obesity by 2030. The distribution of body fat is an important aspect to assess risks in the development of obesity-related metabolic dysfunction. The body mass index (*BMI*) is the most used tool in clinical practice; however, it is characterized by low precision and low sensitivity and there is a large inter-individual variability. Thus, additional body composition assessment parameters should be used to assess the increase in the accumulation of visceral adipose tissue (VAT) in obesity, once VAT inflammation is associated with development of obesity-related metabolic disorders, such as systemic insulin resistance, type 2 diabetes mellitus, and metabolic associated fatty liver disease, and evidence suggests that it may play a critical role in this scenario. In people with obesity, the presence of nutritional deficiencies is common. Vitamin D (VD) has a strongly established relationship with fat distribution and appears to play a peculiar role in the regulation of numerous metabolic processes. Bariatric surgery may be the most efficacious intervention for losing the excess of body weight and prevention/remission of the associated metabolic disorders. The speech aims to evaluate the relationship between serum concentrations of 25-hydroxyvitamin D (25(OH)D) and the reduction of body fat, especially the compartments in which fat is located, considering the nutritional status of VD in individuals with obesity undergoing the Roux-en-Y gastric bypass (RYGB), after 12 months of follow-up using two different vitamin D3 (VD3) supplementation protocols.

Audience Take Away:

- Obesity is related to nutritional deficiencies; one is vitamin D deficiency (VDD).
- VD has a relationship with fat mass and an important role in metabolic processes.
- Fat mass distribution is relevant to assess the development of metabolic dysfunction.

Biography

Prof. Dr^a Adryana Cordeiro is a Clinical Nutritionist, PhD and MSc in Science of Medical Clinic Program/Faculty of Medicine/University Federal of Rio de Janeiro (UFRJ)/Brazil. Professor of Universidad Iberoamericana Puerto Rico and Mexico. Researcher of Micronutrients Research Center (NPqM)/ University Federal of Rio de Janeiro/Brazil. Researcher of Post-doc/Institute of Nutrition Josué de Castro/ University Federal of Rio de Janeiro/Brazil. Researcher of Post-doc/ Biomedicine Department/ Biochemistry Unit/ Faculty of Medicine/ University of Porto – Portugal and Director of Institute Adryana Cordeiro.



The potential of household fruit and vegetable production to improve diets and promote health in the UK

Boglarka Zilla Gulyas^{1*}, Dr Jill L. Edmondson²

¹The University of Sheffield/PhD Researcher, Sheffield, UK

²The University of Sheffield/Senior Lecturer, Sheffield, UK

Consuming plenty of fruits and vegetables (FV) is recognised as one of the most effective ways to protect against malnutrition and lower the risk of developing type 2 diabetes, cardiovascular disease and various cancers, the main causes of death worldwide. Average FV intakes in the UK are way below recommendations, limited by financial and physical and access for many people. Household food production could improve access to FV, however, quantitative data on the FV intake of people in food-grower households and the level of produce self-sufficiency that can be achieved by household production have thus far been lacking. We studied FV production and consumption in 85 food-grower households in the UK, who kept a year-long record of their produce harvests, purchases, and losses. Median per capita FV intake in participant households was over 500 g per day, the equivalent of 6.3 '5-a-day' portions, nearly twice the national average. Participants also cultivated and consumed a large variety of FV (37.5 ±1.3 (S.E.) and 69.6 ±2.0 (S.E.) types, respectively). Median year-round self-sufficiency in fruits was 20.2%, in vegetables, 51.1%. Overall, own FV production typically accounted for about a half of participants' daily FV requirements. These findings suggest that household FV production is associated with above-average FV intake and that it can provide access to substantial amounts of a wide variety of fresh produce. While more research is needed to understand causal relationships, promoting household food production and facilitating access to growing space could promote FV consumption and dietary diversity and improve public health.

Audience Take Away:

- We propose household food production as a potential tool for improving access to fruits and vegetables that could promote fruit and vegetable consumption and improve public health by helping prevent malnutrition and noncommunicable disease.
- We invite other researchers to study the mechanisms by which household fruit and vegetable production can increase fruit and vegetable consumption and the socio-economic factors that need to be taken into consideration when devising effective public health interventions.
- We recommend policy makers consider implementing strategies to promote the practice of household fruit and vegetable production as a means of improving access to health-promoting foods.

Biography:

Boglarka Zilla Gulyas studied Plant Sciences at The University of Sheffield, UK, graduating as an MBIolSci in 2018. After being involved with public engagement projects aimed at promoting sustainable local food production, she joined the research group of Dr. Jill Edmondson as a PhD student researching the benefits of urban horticulture for food security and health and wellbeing. She is due to receive her PhD degree in 2023. Zilla also manages the 'Measure Your Harvest' national citizen science project. She has published a systematic review in the journal Sustainability, and her recent research findings are currently being prepared for publication.



Household food security status is associated with central obesity in early adolescent girls

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Household food security status is associated with central obesity in early adolescent girls. Worldwide epidemic of overnutrition among adolescents is rising steeply. In Sri Lankan context, the highest prevalence of overnutrition was reported in 11-13 year adolescents in city of Colombo with co-existence of high rate of undernutrition. Studies conducted to find out the association between household food security status and overnutrition are lacking. Therefore, this study was conducted to find out the association between household food security status and nutritional status among 11-13 years. A cross sectional study was carried out at 12 randomly selected national and provincial schools in city of Colombo. A proportionate sample of 634 subjects was recruited using multistage stratified cluster sampling technique. Past 12 month household food security status was measured using USDA 18 item household food security/hunger survey module and household food security score was assessed. Height, weight and waist circumference were measured. Body mass index (BMI) and waist-to-height ratio were calculated. Z scores of Height-for-age and BMI-for-age were determined using WHO AnthroPlus software. Daily energy intake was assessed using a three day diet diary and level of physical activity was measured using PAQ-C questionnaire. Birth weight was extracted from child health development record (CHDR). Pubertal stage was determined using the Tanner stage. The association between household food security score and height-for-age Z score, BMI-for-age Z score and waist-to-height ratio were analyzed using partial correlation, after adjusting for confounders of level of physical activity, daily energy intake, birth weight, pubertal stage and age. Boys showed a weak negative ($p = 0.029$; $r = -0.156$) association between household food security score and height-for-age Z score and association was disappeared after adjusting for confounders ($p > 0.05$). Girls did not show any association even after adjusting for confounders ($p > 0.05$). Household food security score was weakly and inversely associated with BMI-for-age Z score in boys ($p = 0.007$; $r = -0.193$), but not in girls ($p > 0.05$). However, this association in boys was insignificant after adjusting for confounders ($p > 0.05$). There was no association found between household food security score and BMI-for-age Z score in girls after controlling for confounders ($p > 0.05$). Boys showed a negative weak ($r = -0.152$; $p < 0.05$) association between household food security score and waist-to-height ratio and association was insignificant ($p > 0.05$) after adjusting for confounders. Household food security score was not associated with waist to height ratio in girls ($p > 0.05$) and an inverse weak association was appeared ($p < 0.05$; $r = -0.373$), after controlling for confounders. Hence, household food security status is not associated with stunting, wasting, overweight and obesity in both boys and girls. Household food secure female adolescents tend to be more central obese while household food security status is not associated with central obesity in boys.

Audience Take Away:

- The findings of this research will be useful in researchers and nutrition professionals to expand their knowledge on development of overnutrition and undernutrition in adolescents and this knowledge is useful in planning future researches and disseminating knowledge among nutrition professionals, students and community.
- Further, they will learn central obesity is a consequence of household food security and try to take necessary actions to target female adolescent girls in nutrition interventions to reduce burden of malnutrition.
- The researchers will be able to conduct more researches on this aspect and formulate new researches considering the findings of this research, nutritionists will be able to formulate nutrition interventions targeting household food secure female adolescents to reduce risk of central obesity, lecturers will be able to use this findings in teaching and policy makers can formulate policies in food security while minimizing the future risk of female adolescents becoming centrally obese.

- Further, findings of this research will be useful in increasing the efficiency of reducing adolescent obesity by targeting food secure female adolescents in addition to considering other obesity development factors.

Biography:

Ms. A.D.D.C. Athauda studied Food Science and nutrition degree at Wayamba University of Sri Lanka and graduated in 2007. She has published and presented her undergraduate research findings at 19th International Congress of Nutrition, Thailand in 2009. She then joined as a nutritionist in Ministry of Health in 2014. She is following a MPhil in food and nutrition at Postgraduate Institute of Agriculture, University of Peradeniya, Sri Lanka. She has published her postgraduate research findings at Nutrition Society of Sri Lanka in 2021.



Understanding chloroplast biogenesis/plastid development in tomato shoot apical meristem (sam) through transcriptomics/ng

Vijay Kumar Dalal

Department of Botany, Dayalbagh Educational Institute, Agra, Uttar Pradesh, India.

Chloroplast biogenesis was studied in the shoot apical meristem (SAM) of tomato by sequencing mRNA from samples isolated through laser microdissection. Intrinsic Chl fluorescence was used as a guide to isolate cells in different developmental stages of chloroplast, through Laser Microdissection. RNA sequencing was performed with CEL seq, a method that was developed for single cell RNA-seq and can work better on degraded RNA. Data was analyzed by various bioinformatics tools such as Gene Ontology and promoter analysis and protein networks (STRING DB). HT-qPCR experiment (on 190 genes) was performed as a separate experiment on laser microdissected samples. Several known genes exhibited expression pattern as expected. Beside this many important genes were determined based on analysis of DEGs through bioinformatics tools that could be candidates for chloroplast development.

Biography:

Dr Vijay K Dalal is working as Assistant Professor (Botany; Guest) at Dayalbagh Educational Institute (DEI), Agra, India since 2019. At DEI he is working for development of horticulture practices in hydroponics system as well in soil inside polyhouse. He completed my PhD (Biotechnology), working at Jawaharlal Nehru University (JNU), New Delhi, India while being registered at Maharshi Dayanand University, Rohtak, Haryana, India in 2012. At JNU, he studied the effect of water stress in the drought-sensitive rice cultivar. During his three years postdoc at Hebrew Univ, Rehovot Campus, Israel, he studied chloroplast biogenesis in tomato shoot apical meristem through RNA-seq-NGS of tissues obtained through Laser Microdissection. For one year, as Research Associate at Hyderabad University, he studied the effect of osmolyte proline in protecting various enzymes. His work has been published in prestigious peer-reviewed International journals such as "Plant Cell and Environment" and "Scientific Reports" and books such as in Springer, Netherlands and Wiley. He is a reviewer in many prestigious International Peer Reviewed Journals e.g. Food and Function, 3Biotech, Journal of Plant Biochemistry and Biophysics, and Photosynthetica.



Improvement in functionality of buffalo milk protein concentrate 60

Ganga Sahay Meena*, Jyoti Handge

Dairy Technology Division, ICAR-National Dairy Research Institute, Karnal, Haryana, India

Milk protein concentrate (MPC) is a dairy based, protein powder. It contains casein and whey proteins in the similar ratio as present in milk. Buffalo milk naturally contain higher amount of casein and calcium compared to bovine milk and the same production of MPC from buffalo milk quite challenging. The solubility of MPC powders decreases with increase in their protein content. Hence, present investigation was undertaken to produce the MPC60 from buffalo milk with improved functionality through the incorporation of sodium bicarbonate (NaHCO_3) based on zeta potential and heat stability of homogenized and non-homogenized UF retentate. The Selected UF retentate was spray dried to obtain buffalo milk based MPC 60 (BMPC60) powder. Further, manufactured BMPC60 was subjected to its detailed characterization in terms of physico-chemical, reconstitution, functional properties, rheological behaviour and microstructure. The solubility of control sample was 67.13% while that of selected BMPC60 was 87.13%. Hence, the applied approach significantly improved the solubility. Further, loose, bulk and particle densities of BMPC60 varied in the range of 0.15-0.35 g/mL. Its porosity and dispersibility were 58% and 82 %. Water activity value was 0.28 while its d_{50} was 92 μm . Heat coagulation time, apparent viscosity, water binding and oil binding capacities, foaming capacity and foam stability values were 90 min, 130 mPa.s, 4.96 & 4.66 g /g protein, 54 and 20%, respectively. Scanning electron microscopy of BMPC60 revealed presence of variable size, spherical powder particles with smooth surface. The current investigation has established the production of BMP60 with improved functional properties. This powder can be used as a potential ingredient for the formulation of an array of food products.

Audience Take Away:

- MPC60 is a protein rich powder which contain both casein and whey proteins in the similar ratio as present in milk. Audience will be benefited with its production process and use in daily routine for health benefits.
- Consumption of high protein will maintain their well-being.
- high protein powder has poor solubility and this research deals with its improvement.
- This will provide optimized solution of process parameters.
- This also check the key challenges encountered during MPC production from buffalo milk as it naturally contains more calcium and casein. Hence, both have detrimental effect of functionality of MPC.

Biography:

(Dr. Meena studied Dairy Technology and graduated as B.Tech. DT from MPUAT, Rajasthan in 2006, M. Tech. in Dairy Food Engineering from IIT Kharagpur in 2008 and Ph.D. from ICAR-National Dairy Research Institute (NDRI), Karnal, India in 2018. He has served dairy industry for 1.5 years. He is actively involved in research & teaching from 2010 onwards at NDRI, Karnal. Currently, he is working as an Associate Professor at ICAR-NDRI, Karnal, Haryana, India. She has published more than 50 research articles in SCI(E) journals and developed several technologies. His research area includes membrane processing and value addition in dairy by-products.



Microbial analysis of selected ready-to-eat foods prepared and sold in restaurants within kaura-namoda metropolis, Nigeria

Mohammed, S.F., Tanko, O.O. , Gimba, K.I

Department of Food Science & Technology, Federal Polytechnic, Kaura-Namoda, Zamfara state, Nigeria

The aim of this study is to investigate the microbial load and safety of RTE foods sold within the restaurants of Kaura-Namoda Metropolis, Zamfara state, Nigeria. In this study results showed the total viable counts of samples of RTE foods that were sampled immediately after preparation including cooked white Rice (1.7×10^4 cfu/g), Masa (1.3×10^3 cfu/g) and Tuwo Shinkafa (1.5×10^6 cfu/g), respectively. And samples of RTE foods sold after few hours of preparation including cooked white Rice (1.3×10^5 cfu/g), Masa (2.0×10^6 cfu/g) and Tuwo Shinkafa (2.0×10^4 cfu/g), respectively. And the Coliform counts of samples of RTE foods sampled immediately after preparation including cooked white Rice (1.0×10^1 cfu/g), Masa (1.0×10^1 cfu/g) and Tuwo Shinkafa (5.3×10^3 cfu/g), respectively. While the Yeast/Mould counts results of samples of RTE foods that were sampled immediately after preparation including cooked white Rice (1.0×10^2 cfu/g), Masa (1.0×10^2 cfu/g) and Tuwo Shinkafa (1.0×10^2 cfu/g), respectively. And samples of RTE foods sold after few hours of preparation including cooked white Rice have (1.3×10^5 cfu/g), Masa (2.0×10^6 cfu/g) and Tuwo Shinkafa (2.0×10^4 cfu/g), respectively. In this study, it was observed that microbial cells were detected from samples of RTE food is within the satisfactory (10^3 cfu/g), marginal (10^3 to 10^5 cfu/g) and unsatisfactory ($\geq 10^5$ cfu/g) microbial limits for RTE foods. This study suggests that foods prepared and sold in most restaurants within the Kaura-Namoda town are considered microbiologically safe for human consumption owing to the fact that all the foods are constantly hot-held and sold before selling to consumers. Also, the microbial isolates detected including *Bacillus cereus*, *Staphylococcus aureus*, Coliforms, Yeast and mould indicated high level of contaminations of raw foodstuff by the surrounding environment at the storage and distribution points and the recontamination of RTE foods by the food handlers at the point of sale to consumers.

Audience Take Away:

- RTE foods sold in the restaurants should be kept and sold at a safe temperature of 75°C throughout the period of distribution to customers.
- Restaurants operators should ensure that RTE foods are safe for the ultimate consumers by employing temperature that is safe to keep RTE Foods safe from pathogens and non-pathogens.
- RTE foods that can build up microbial loads, such as Cooked White Rice (CWR) should be cooked and sold in small batches so that microbial build-up can be prevented. This is to avoid the threat of food poisoning.
- Restaurant operators should train and re-train their staffs on the need for Good hygiene practice (GHP) and Personal Hygiene Practice (PHP) among their food handlers so that food safety can be ensured for the ultimate consumers.
- Government and higher institution of learning should continue to monitor food safety compliance level through effective and demand-driven research for the benefit of the society at large.

Biography:

Sirajo Mohammed Funtua is presently an Assistant Chief Instructor with the department of Food Science and Technology, Federal Polytechnic, Kaura-Namoda, Zamfara State, Nigeria. He obtained an MSc in Food Safety and Quality Management in the year 2013 from the University of Greenwich, Medway Campus, Central Avenue, Chatham, United Kingdom. He is a dedicated academician and researcher with special interest in Food Product Development, Food Quality Control, Food Safety & Quality Management. He has been serving the Nigeria Institute of Food Science and Technology at the chapter and national levels for several years as the Chairman NW II between 2014 and 2016, National Publicity Secretary between 2016 and 2018. He is the former Head of department, Department of Food Science and Technology, Federal Polytechnic, Kaura-Namoda. He has published over fifteen (15) research findings in the national and international Journals of high repute; and he is a reviewer for some international journals.



The effects of flaxseed supplementation on metabolic syndrome parameters, insulin ulcerative colitis patients

Nava Morshedzadeh

Department of Nutrition, Faculty of Public Health, Kerman University of Medical Sciences, Kerman, Iran

The present study aimed to evaluate the efficacy of flaxseed supplementation in the management of metabolic syndrome (MetS)-related parameters among the patients with mild-to-moderate ulcerative colitis (UC). A randomized controlled clinical trial was conducted on 70 patients with UC. Participants were randomized in the intervention group, which received 30 g/day ground flaxseed powder or control group. Anthropometric and biochemical variables were assessed at the beginning and end of 12 weeks of intervention. Of the 70 patients enrolled in this study, 64 subjects were included in the final analysis. From baseline to 12 weeks' intervention, flaxseed supplementation resulted in a significant reduction in the serum concentration of insulin ($p < .001$), HOMA-IR ($p < .001$), triglyceride ($p = .001$), total cholesterol ($p < .001$), and significant increase in the serum levels of HDL ($p = .008$). However, we not observed any significant differences between two groups regarding the body weight, BMI, waist circumferences, systolic, and diastolic blood pressure ($p > .05$). Overall, 12 weeks of flaxseed supplementation resulted in greater improvement in the some MetS-related parameters.

Biography:

Dr. Nava Morshedzadeh is currently a member of the Faculty of Health, Kerman University of Medical Sciences as an assistant professor. Dr. Morshedzadeh completed his doctorate degree and doctoral thesis in 2018. Dr. Morshedzadeh's publications reflect his experience in systematic reviews as well as randomized controlled trials, which he has published in 20 articles and books on nutrition in gastrointestinal diseases.



Development and validation of two robust simple chromatographic methods for estimation of tomatoes specific pesticides' residues for safety monitoring prior to food processing line and evaluation of local samples

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Plant infestation by pests is one of the worst effects of bacteria and fungi on human food. Plants as a primary food resource are critical for human muscle building and mental health. Many farmers worldwide misuse the pesticides' mixtures to keep crops, fruits, and vegetables uninjured, fight grown bacteria and fungi or produce abundant high-quality issues the pesticides' mixtures to keep crops, fruits, and vegetables uninjured, fighting grown bacteria and fungi or to produce abundant high-quality agricultural products. Detecting and analyzing pesticide residual traces could be a crucial issue. Much instrumental weather coupled with Mass or not could be used for the process of estimation. Not only is the estimation of residual insecticides critical in labs of official institutions in the authority of citizen health but also in labs on exporting-importing boundaries between countries.

Fresh or processed tomatoes are the most common constituent in our dining tables. Combination of pesticides; acetamiprid, flutolanil and etofenprox are usually used for tomato fruits for protecting them against pest infection. Two specific simple sensitive chromatographic methods are developed for simultaneous estimation of the concerning pesticides' residues using simple economic steps of field sample preparation. The first method is HP- TLC method. Hexane: methanol: acetone: glacial acetic acid (8:2:0.5:0.1, by volume) is proposed as a developing system. The second one is RP- HPLC. Acetonitrile: water (75:25, v/v) is proposed as a mobile phase. The recommended methods are completely validated regarding ICH guidelines. Their means percentages and standard deviations of accuracy range 100.32 ± 0.89 to 99.27 ± 0.9 . The methods' repeatability and intermediate precision relative standard deviation percentages range 0.395–0.894. They are successfully applied for estimating the pesticides in pure and commercial forms and field samples.

Audience Take Away:

- Chemists, food controlling monitors and health and medical caregivers are the audience who can get benefits from the presentation. The presentation will give information about how to use instrumental analysis for estimation of chemical molecules used to destroy bacteria and fungi on food as a poisonous substance to man.
- The audience could use the proposed techniques in research or in quality control labs. By this research, the researchers could use it to expand their research using different techniques otherwise the old ones. The suggested methods may provide a practical solution to a problem that could simplify the microbiology field. It also makes an analyst do the job more efficiently. It will improve the accuracy of a method of analysis and provide added information to assist in an analysis problem.

- The presentation will give innovative ideas in food analysis for inspectors and quality control monitors, and for those who work and investigate nutritional therapy.
- It covers novelty the overlapping area of the food control and the bio-analytical chemistry.

Biography :

Asso. Prof. Amira studied pharmaceutical sciences and graduated with an MS at the Cairo University, Egypt. She then joined the research group of Prof. Raimar Loebenberg (Director of the Drug Development and Innovation Center, School of Pharmacy, University of Alberta, Edmonton, Canada, after she got a scholarship as an award from her country for her excellence. She obtained a postdoctoral clinical training program at Harvard Medical School. She has published many research articles in highly reputable and impacted journals.



Role of vitamin D in depression in older adults

Gilciane Ceolin^{*1,2,3}, **Vitor Breda**², **Eleonora d'Orsi**⁴, **Debora Kurlle Rieger Venske**^{1,3}, **Elisa Brietzke**^{2,5}, **Julia Dubois Moreira**^{1,3}

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This presentation will focus in discuss the possible role of vitamin D in depression, bringing data summarized from studies with older adults. The Life expectancy is increasing, as the prevalence of both depression and deficiency levels of vitamin D. Further, the aged people are known to present risk to both, depression, and low serum levels of vitamin D. It is important to discuss the possible ways of prevention since establishment of depression involve multiple mechanisms and it is a disabling condition. The vitamin D is one of possible ways to prevent depression. Some preclinical, clinical, and observational studies have been showing promising results. The presentation would start briefly defining depression, following by characterization of Vitamin D, its metabolism, and actions in central nervous system; the dietary aspects and recommendations; the different cut-off points to evaluate the serum concentrations and diagnose; the factors that have been related with the low level of vitamin D. It is also important to show evidence of possible effects of vitamin D in depression. In the sequence, it will be presented the findings from studies around the world about this topic, including recent data published by my research group regarding vitamin D and depression in elderly. Also, is planned to bring some research data from the presenter thesis about the theme, in that was dedicated 4 years of PhD researching about the possible determinants of vitamin D and the association with depression in a cohort of older adults from the EpiFloripa Aging Study from Brazil.

Audience Take Away:

- The audience will be able to review the fundamentals of synthesis and metabolism of vitamin D.
- The audience will be able to critically learn to evaluate the serum concentrations of vitamin D in different age stages and the necessity to periodically check vitamin D blood status .
- The audience will be updated from the recent studies about the prevalence of deficiency of vitamin D around the world and also about depression in older adults, observing the important role of vitamin D for adequate central nervous system function and prevention of depression.
- The audience could be inspired to develop more research about the theme from the available data based in literature.
- The audience will be updated about the main lack in research that could be develop in new studies.

Biography :

Gilciane Ceolin is a PhD candidate in Nutrition from Universidade Federal de Santa Catarina, Brazil. She was graduated in Nutrition in 2013 (Universidade de Passo Fundo – Southern Brazil). She joined the Residency in Elderly Health Care in the same institution in 2014. After that, she completed the Master's in Nutrition (Postgraduate Program in Nutrition – Universidade Federal de Santa Catarina – Brazil) and joined the EpiFloripa Aging Study's research group. In 2018, she started her PhD in Nutrition in the same Institution. In 2022, she did a visiting research study at Centre for Neuroscience Studies, Queen's University, Canada, joining the Neuromood Lab Research Group.



Glucosinolates from *lepidium peruvianum* as potential anti-amnesic drugs

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Lepidium peruvianum (maca) (Brassicaceae) is a naturally occurring plant mainly in the high Andes of Peru. In recent years, it has been intensively researched in terms of its influence on various diseases and towards health improvement. Alzheimer's disease is an incurable disease that most often affects adults over the age of 60. As since 2003 the US Food and Drug Administration (FDA) did not approve any new drug for Alzheimer's disease (AD) until 2021, there is still a need for new drugs to slow down the progress of the disease. The study focuses on glucosinolates that are present in different cultivars of *L. peruvianum* tubers and evaluates their inhibitory properties against two cholinesterases: acetylcholinesterase (AChE) and butyrylcholinesterase (BuChE). By comparing the HPLC-ESI-QTOF-MS/MS fingerprints of different extracts, the phenotypes that were the most rich in glucosinolates were selected. Qualitative analysis of the sulphur-containing metabolites in 50% ethanolic extracts confirmed the presence of ten major components that belonged to the groups of: aliphatic, indolyl, and aromatic glucosinolates, with glucotropaeolin being the leading one, detected at levels between 0–1.57% depending on phenotype, size, processing, and collection site. The PCA analysis showed important variations in glucosinolate content between the samples and different ratios of the detected compounds. The color and size of maca tubers have been shown to have a significant effect on the glucosinolate content. The applied *in vitro* activity tests confirmed inhibitory properties of extracts and single glucosinolates against AChE and BuChE. The molecular activity of glucosinolates has been explained in relation to both enzymes: AChE and BuChE showing that these metabolites most likely work by blocking the catalytic sites of the enzymes. Based on the obtained results and described mechanism of action, it could be concluded that glucosinolates exhibit inhibitory properties against two cholinesterases present in the synaptic cleft, which indicates that selected phenotypes of *L. peruvianum* cultivated under well-defined environmental and ecological conditions may present a valuable plant material to be considered for the development of therapeutic products with memory-stimulating properties.

Audience Take Away:

- *Lepidium peruvianum* is a rich source of glucosinolates.
- Glucosinolates from *Lepidium peruvianum* exhibit inhibitory activity against acetylcholinesterase and butyrylcholinesterase.
- The healing potential of the presented plant depends on the color and size of the tuber.

Biography:

PhD student Tarabasz Dominik studied pharmacy at the Medical University of Lublin. In the Department of Pharmacognosy with a Garden of Medicinal Plants, he conducts research in the field of plant material extraction, compound isolation, identification and bioactivity studies. Since 2022, he has been participating in a research project financed by the National Science Center under the supervision of Prof. Kukuła-Koch.

POSTERS

DAY 01

3RD EDITION OF INTERNATIONAL
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12-13 SEPT



Cow's temperament - A trait closely related to dairy productivity

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The main goal of the current study was to establish a possible link between dual-purpose cows' reactivity and milk-related traits. In addition, the study intended to examine changes in herd structure based on cow temperament over successive years as a result of breeding programs aimed to increase milk yield and temperament score. Between 2016 and 2021, 7620 data were collected from 1524 lactations for milk, fat, and protein yields, as well as milking speed based on cow temperament. The temperament of cows was classified as calm, moderate, and nervous. The most of the cows exhibited moderate reactivity (87.14%) compared to calm (5.24%) and nervous (7.61%). The factorial ANOVA protocol showed that cow's reactivity significantly influenced ($p \leq 0.01$) milk, fat and protein yields, having more substantial effects ($p \leq 0.001$) on the milking speed for nervous ones. The calm cows produced more milk (5766.86 ± 130.98 kg), fat (239.12 ± 5.24 kg) and protein (201.56 ± 4.3 kg) compared to moderate (+708, +41, +32 kg, $p \leq 0.01$) and nervous cows (+309, +22, +15 kg, $p \leq 0.01$). Significantly higher milking speed was recorded for nervous cows (3.2 kg/min.) compared to calm (1.82 kg/min., $p \leq 0.001$) and moderate cows (2.36 kg/min., $p \leq 0.001$). Over successive years a significant increased ($p \leq 0.001$) trend in calm (from 3.34 to 8.92%) and nervous cows (from 5.45 to 8.93%) was observed to the detriment of those with a moderate temperament (from 91.21 to 82.15%). The current findings highlight the controversial relationship between temperament and milk production. Also, this study suggests that breeding programs for temperament could increase milk yield and milking speed.

Biography:

Neamt Radu Ionel, born in Timișoara city on August 28, 1976. After finishing high school attended the courses of the National College "Elena Ghiba Birta" – Arad city, specialization Chemistry - Biology, courses graduated in 1995. Between 1996 and 2001 he was a student at the University of Agricultural Sciences and Veterinary Medicine of Banat in Timisoara city, Department of Animal Husbandry, thus obtaining the title of Zootechnical Engineer. In the academic years 2005-2007 he attended the postgraduate master's courses of the Faculty of Animal Husbandry and Biotechnology from Timișoara city, specialization "Nutrition and feed base". The paper "Efficiency of dairy farms through genetic improvement of animals and the food base" was taken at the diploma exam in the June 2007 session. After finishing my university studies, since July 2001 he is an employee of the Research and Development Station for Bovine, Arad city, within the Research department. Between July 2001 and August 2004, he is employed as assistant in the research sector. Between August 2004 and February 2009, worked in the research sector as a research assistant. In February 2009, he won the position of Scientific Researcher, the specialization "Animal Nutrition". In May 2015, he won the position of Scientific Researcher III, in the specialization "Animal Breeding Technologies". Following the competition organized in July 2017, he won the position of Senior Researcher II in the specialization "Animal Breeding Technologies".



Correlations of fatty acids profiles in erythrocyte phospholipids and estimated desaturases activities with cardiometabolic risk indicators in non-diabetic women

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The profile of fatty acids in erythrocyte membranes and estimated activities of desaturases can be altered in metabolic syndrome and obesity.

The aim of study: To correlate anthropometric and biochemical parameters of metabolic risk with fatty acids composition in erythrocyte phospholipids and estimated activities of desaturases, in obese and non-obese non-diabetic women, with or without metabolic syndrome.

Methods: In 40 non-diabetic and otherwise healthy women (aged 24-68 years, BMI=25.5 ± 6.0 kg/m²), the fatty acid composition in erythrocyte phospholipids was measured by gas-liquid chromatography. The activities of desaturases: delta-9 (D9D), delta-6 (D6D) and delta-5 desaturase (D5D) were estimated from product-precursor fatty acid ratios (D9D: 16:1n-7/16:0, D6D: 20:3n-6/18:2n-6; and D5D: 20:4n-6/20:3n-6). Correlations were made with anthropometric (BMI, FM, %FM, visceral fat level, waist/hip/upper arm/mid-thigh circumferences and WHR) and biochemical indicators of cardiometabolic risk (triglycerides, HDL-C, glucose, CRP).

Results: The level of dihomo- γ -linolenic acid (DGLA, 20:3n-6) in erythrocytes was in positive correlations with the levels of CRP, triglycerides and all measures of adiposity and centripetal fat distribution (BMI, FM, %FM, visceral fat level, all circumferences and WHR). The level of stearic acid (18:0) was in negative correlations with all measures of adiposity, but not with measures of centripetal fat distribution (waist circumference and WHR) nor with biochemical indicators. The level of palmitoleic acid (16:1n-7) was in positive correlations with CRP, glucose and negative correlations with HDL-C. The estimated activities of D9D and D6D were in positive correlations with CRP, glucose, triglycerides, all measures of adiposity and centripetal fat distribution, and in negative correlations with HDL-C. In contrast, the activity of D5D was in negative correlations with all measures of adiposity and centripetal fat distribution, except %FM. The corrections for age did not influence the results, but additional corrections for the level of adiposity (BMI or FM) annulled the significance for all of the mentioned correlations, except for D9D and 16:1n-7 with glucose and CRP (which remained).

Conclusion: In non-diabetic women, the level of adiposity mediates the associations of desaturases activities and fatty acids composition in erythrocyte phospholipids with biochemical indicators of cardiometabolic risk, except for associations of D9D and 16:1n-7 with glucose and CRP.

Audience Take Away:

- In non-diabetic, otherwise healthy women, the profile of fatty acids in erythrocyte membranes and estimated activities of desaturases are related to measures of adiposity and centripetal fat distribution, as well as with biochemical indicators of metabolic syndrome and chronic inflammation (levels of glucose, triglycerides, HDL-C and CRP).
- In particular, the level of dihomo- γ -linolenic acid (DGLA, 20:3n-6), palmitoleic acid (16:1n-7), as well as the estimated activities D9D and D6D show the positive association with those parameters, while the activities of D5D desaturases show the opposite pattern. The level of adiposity is the most significant predictor of desaturases activities and fatty acids composition in erythrocyte phospholipids and their association with biochemical indicators of cardiometabolic risk, except with glucose and CRP.

Biography:

Dr. Ivana sarac studied Medicine at Faculty of Medicine, University of Belgrade, Serbia, and graduated as GP in 1998. She then entered the MSci postgraduate studies in Nutrition at the same institution, and received her MSci degree in 2004. In 2006 she finished her medical specialization in Hygiene with medical ecology at Faculty of Medicine, University of Nis, Serbia. She conducted her PhD studies in Diabetes and Metabolic Medicine at University of Surrey, UK, and obtained her PhD degree in 2014. In 2016, she joined the Center of Excellence in Nutrition and Metabolism Research, Group for Nutrition and Metabolism, at the Institute for Medical Research, National Institute of Republic of Serbia, University of Belgrade, where she at present works as Research Associate.

KEYNOTE FORUM

DAY 02

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12-13 SEPT



Dipak P Ramji

Cardiff School of Biosciences, Cardiff University, Cardiff, United Kingdom

Natural products as preventative and therapeutic agents in atherosclerosis and cardiovascular disease

Atherosclerosis, an inflammatory disorder of medium and large arteries and the underlying cause of myocardial infarction and cerebrovascular accidents, is responsible for more global deaths than any other disease. Although reduction in mortality from atherosclerosis and its complications has been achieved recently by lifestyle changes and pharmaceutical intervention, this is expected to reverse in the future because of global increase in risk factors such as hypercholesterolemia, obesity, and diabetes. Current pharmaceutical therapies against atherosclerosis are associated with substantial residual risk for cardiovascular disease together with other issues such as side effects. In addition, pharmaceutical agents against many promising targets have proved disappointing at the clinical level. It is therefore essential that the molecular basis of atherosclerosis is fully understood, and new therapeutic/preventative agents or targets are identified and validated.

The major focus of recent research in my laboratory is to understand the molecular mechanisms underlying the protective anti-atherogenic actions of natural products using a combination of in vitro and in vivo model systems together with biochemical, molecular biology and immunological approaches. Our research has provided novel insights into the mechanisms underlying the protective actions of several nutraceuticals. This presentation will discuss the molecular basis of atherosclerosis and opportunities for drug discovery, current therapies against the disease and their limitations, emerging therapies targeting lipid metabolism and the inflammatory response, new challenges, and the potential of natural products as preventative and therapeutic agents with focus on probiotic bacteria.

Audience Take Away:

- The audience will learn about how natural products can prevent and treat cardiovascular disease.
- The research-led knowledge base will positively impact their jobs.
- The research could be used other faculty to expand their research or teaching.
- The research could impact therapeutic options available in cardiovascular disease.
- The research could lead to development of new agents to prevent and treat heart disease.

Biography:

Dipak Ramji is Professor of Cardiovascular Science and Deputy Head at the School of Biosciences in Cardiff University. He is also Fellow of the Learned Society of Wales. He received his BSc (Hons) degree (Biochemistry) and his PhD (Molecular Biology) from the University of Leeds. This was followed by post-doctoral research at EMBL (Heidelberg) and IRBM (Rome) with fellowships from the Royal Society and the EU. His current research is focused on understanding how natural products regulate cellular processes in heart disease with the goal of attaining deeper mechanistic insight and identifying preventative/therapeutic agents. He has published over 150 research articles (h index 41 and i10 index 76 with over 8100 citations), including 880 page book in 2022 on Methods in Atherosclerosis. He is an Editorial Board member of 16 international journals; regular organising committee member, speaker, and track/session chair at international conferences on heart disease; involved in grant evaluation for over 20 organisations; and supervised over 25 PhD students.



Yasin Ozdemir*¹, Zehra Erigdec²

¹Food Technologies Department, Ataturk Horticultural Central Research Institute, Yalova, Turkey

²Akyuz Milk Products Food Industry and Trade, Kutahya, Turkey

Artisan cheeses, bayramic cheese and their probiotics

Although cheese was developed for the simple purpose of prolonging the shelf life of milk, different types of cheese have emerged over time, shaped by geographical, climate, cultural and economic factors. Artisan cheese is a good example of these, both because of its nutritious properties and because of the tradition it carries. Artisan cheese is expressed as cheese produced in small quantities by hand or with simple tools, using the traditional methods specific to the regions of skilled cheese producers. Although the artisan cheese making process includes quite detailed differences, modern cheese chemistry information is used in many ways in its production. The global demand for Artisan cheeses creates new economic opportunities. Most artisan cheeses have a unique story. In this story, it often affects the presence and varieties of probiotics. At the center of the story of Bayramic Cheese is the Kaz Mountains. The milk used in the production of Bayramic Cheese is affected by the vegetation and climate in the Kaz Mountains region. This naturally affects the chemical and microbiological content of cheese. Bayramiç Cheese is a cheese produced with traditional methods in Bayramiç town center of Çanakkale province, its villages, boutique dairy and industrial dairy farms. Although it can be consumed fresh, it is often offered for consumption after ripening. Oral history studies show that the product has been produced in Bayramiç for more than 100 years.

Artisan cheeses were reported as an interesting source for probiotic bacteria which have antimicrobial activity on pathogenic bacteria and potential health benefits on final cheese quality. Especially *Enterococcus* species isolated from artisan cheeses showed good probiotic properties and they can contribute the consumer health status. *E. faecium*, *E. faecalis*, and *E. plantarum* were dominant probiotic bacteria. *L. acidophilus*, *L. paracasei*, *L. curvatus*, *E. hirae*, *E. avium* and *E. durans* were also reported in lesser quantity in artisan cheeses. It has been reported that probiotic bacteria can also be used as starter cultures to increase the shelf life of artisan cheeses and to increase their functional properties, provided that they do not move away from the traditional production methods of artisan cheeses. Consumers looking for locally flavored or region-specific distinctive products are eager to purchase handmade cheeses with their own unique taste and character. Most artisan cheeses are stored for ripening after production. At this stage, probiotic bacteria can also increase in the environment. Emphasizing the probiotic properties of artisan cheeses will increase their marketing power. The aim of this study is to talk about artisan cheese samples produced around the world and Bayramic cheese as an artisan cheese sample and to give information about the probiotic bacteria contained in these cheeses.

Audience Take Away:

- The audience will learn about the concept of artisan cheese, Bayramic cheese and their nutritional and probiotic value. They can use these informations for selection of cheese and advising them to consumers.
- The concept of artisan cheese and their probiotic values are not yet widely known. Knowing these and introducing them to those who seek help in nutrition will increase competitiveness.
- Other faculty could use to expand their research or teaching. Especially artisan or traditional cheese and probiotic consumption habit studies.
- This research contains useful and easily applicable information in terms of reaching to probiotics and special cheeses and increasing the income of these farmer/producers. On the other hand, dietitians will be able to recommend these products to their clients.
- Knowing the properties of artisan cheeses and introducing their probiotic content will be beneficial for the survival of small producers, sustainable agriculture, rural development and consumers' access to natural cheese products.

Biography :

Dr. Ozdemir studied Food Engineering at the Ege University, Turkey and graduated as MS in 2004. He then joined the research group of Prof. Kurultay at the Trakya University. She received her PhD degree in 2011 at the Namık Kemal University. During PhD studies he started to work in Ataturk Horticultural

Central Research Institute. He has 3 process patent and 2 national award in scientific study area. He published more than 10 research articles in SCI(E) journals and more than 80 article in international journals.



Om Prakash Yadav

Chemistry Department CCS Haryana Agricultural University, India

Indian gooseberry-A nutrients rich and health promoting medicinal plant an overview

Indian gooseberry (*Emblica officinalis*) commonly known as Amla, is an important medicinal plant in the Ayurveda - an Indian traditional system of medicine. Gooseberries are nutritious, low-calorie fruits that are rich in vitamins, minerals, and antioxidants. These are best enjoyed fresh and can be eaten on their own or may be included in diet as a snack or flavorful addition to meals. However, cooked gooseberries may not have the same health benefits, as some of the nutrients may be degraded. Many of the gooseberry nutrients have been linked to significant health benefits including lowering of cholesterol, blood sugar, and blood pressure levels, as well as a reduced risk of diabetes, cancer, heart disease, and age-related illnesses of the brain. This paper presents an overview of the various nutrients present in gooseberries, and their respective specific health benefits. At the end, different types of berries that are beneficial to human health or those which are poisonous, have been highlighted and discussed.

Biography

Dr. Om Prakash Yadav did Ph.D in Chemistry in 1973 from Panjab University, Chandigarh (India), He worked as Professor of Chemistry (1975-2003) at CCS Haryana Agricultural University in India and then as a Professor of Physical Chemistry (2008-2014) at Haramaya University, Ethiopia. Prof. Yadav was awarded Indian National Science Academy (INSA) Fellowship in 1996. He worked as Visiting Professor in 2000 at Chalmers University of Technology, Gothenburg (Sweden). Prof. Yadav has guided 8 Ph.Ds and published about 100 research papers. He is member of several academic/scientific organizations and is also working at the Editorial Boards of a number of International Scientific Journals.



Gorchakov V.N*, Nikolaychuk K.M

Novosibirsk State University, Research Institute of Clinical and Experimental Lymphology, Novosibirsk, Russia

Nutriciological possibilities of improving effectiveness of lymphatic node as endoecological factor of well-being in aging

Introduction: Lymphatic system is the subject of lymphology and immunology research. The integration of sciences offers new approaches to solution the problem of ensuring endoecological safety of the organism and increasing non-specific resistance, especially in relation to senile age. Lymphonutriciology will provide new opportunities in increasing the protective function of the lymphatic system.

Methods: The experiment was carried out on 160 white rats of Wistar with conditionally isolated groups: «young» (age 3-5 months) and «old» (age 1.5-2 years). Half of the animals took the original phytocomposition from medicinal plants of Siberia in a daily dose of 0.1-0.2 g/kg for a month. Phytocomposition as a food supplement is important for nutrition and health. The subject of the study were lymph nodes of different localization. Histological, thermogravimetric, X-ray fluorescence analysis with synchrotron radiation, statistical methods were used.

Results: Aging is a negative process for the lymphatic system, leading to a decrease in drainage-detoxication and immune functions of lymph nodes in the lymphatic region. This is due to the change and destabilization of microelement exchange, hydration parameters and morphometric indicators of structural-functional zones lymph nodes. Ensuring lymph node operability is a condition of endoecological comfort in aging. This can be achieved using lymphotropic phytotechnology to building an original plant food additive. In this situation, the lymphatic system is a tool for providing drainage and detoxification of the endoecological space. Phytotherapy has a structural-modifying effect on the structure of the lymph node, restoring the size of compartments. We established a direct relationship between compartments and immune response intensity across humoral and cellular types. Medicinal plants are donors of trace elements and fill the deficiency of trace elements during aging. There is a direct relationship between trace elements and enzymes involved in lymphoid cell proliferation. The lymphoproliferative effect (neolymphogenesis) as a result of phytotherapy was first noted. There is the formation of temporary compensatory lymphoid structures – lymphoid follicles outside and inside the lymph node. The noted effects of phytotherapy correct the senile changes in lymphoid tissue when achieving the “dynamic age norm of health” in providing protection at the organ level (endoecology of the lymphatic region).

Conclusion: Lymphonutriciology is a new direction in nutrition to develop a lymphotropic food supplement. Food phytocomposition is the essence of lymphotropic phytotechnology. Lymphotropic phytotechnology is positioned as an opportunity to improve the quality of life and preserve health through the optimization of the structure and functions of the lymph node in the lymphatic region during aging.

Biography:

Dr. Vladimir Gorchakov graduated from the Novosibirsk Medical Institute (1978). Recently, he has been working as a teacher at Novosibirsk State University. His doctoral dissertation was made based on materials from the 30 Soviet Antarctic expedition (1984-1985), where for the first time he investigated the influence of polyphenolic (plant) complexes on the adaptive processes of the organism. He received a doctorate in medical sciences (1991). The author created the direction of lymphonutriciology, which provides for the development of bioactive plant-mineral additives with a lymphotropic effect. Author of the book “Undesirable Effects of Bioactive Additives.



Vasudeva Singh

Department of Grain Science and Technology, Council of Scientific and Industrial Research-Central Food Technological Research Institute, Mysore, Karnataka, India.

Effect of physical processing of commercial de-oiled rice bran, hydrothermal and biotechnological treatments on nutraceutical content and antioxidant activity of rice bran; physico-chemical and nutritional properties of germ from different types of rice bran

Rice bran is a rich source of nutrients and nutraceuticals, which has bio-functional properties. Deoiled rice bran, a major byproduct of rice bran oil industry, is not yet efficiently utilized for human consumption due to its poor edible quality. Various physical processing methods like sieving, pin milling and air classification were applied to upgrade the quality of bran and also to investigate its effect on particle size distribution, content of ash, protein, total dietary fiber, insoluble fiber, soluble fiber and oryzanol as well as total antioxidant activity in bran fractions. The effect of processing such as steaming, germination and parboiling on nutraceuticals and in vitro bioactive properties of rice bran from three different rice varieties namely Jyothi (pigmented), IR64 and Sona masuri (non-pigmented) were investigated. Within the varieties envisaged, pigmented Jyothi variety contained higher levels of vitamin E, soluble, bound and total polyphenol, flavanoids, free radical scavenging activity and total antioxidant activity. Size separation, pneumatic air classification and saline separation procedures employed to separate germ from different types of rice bran (raw, steamed and parboiled) were collected from rice mills and were analyzed individually for physico-chemical and nutritional properties. The protein, fat, and oryzanol content of steamed and parboiled germ showed an average increase of 5.28, 2.15, and 0.08%, respectively compared to raw rice germ. The free fatty acid content was < 6.2% for pure germ. The thiamine content was highest in raw germ (1.61mg/100g) and least for parboiled germ (0.26mg/100g). Phosphorus content of parboiled germ was least (32.47%) compared to raw germ (72.1%). Rice germ could be utilized for food formulations, like geriatric food, mother food, and specialty foods.

Biography:

After retiring from CSIR-CFTRI as Chief Scientist during 2013, worked as an Emeritus Medical Scientist (ICMR) at University of Mysore and served as a Professor, under DBT sponsored Food Science Project, Gauhati University, Gauhati, Assam till April, 2021. Published 80 research papers, inventor of several processes, one Patent was commercialized to 30 industries. Handled several National & International projects. Guided 70 -80 B.Tech, M.Tech, M.Sc Food Technology, Food Science students for their Dissertation and Investigation problems and produced 8 Ph.D candidates, including an INSA Fellow; African UNU Fellows. Faculty member and Course Co-ordinator of M.Sc Food Technology, HRD courses of CFTRI. Recipient of several awards, delivered several invited lectures, innumerable oral lectures, and presented 70-80 posters at National & International level. Serving Food Safety Standards Authority of India, New Delhi, at different capacities. Also served as a member of Research Advisory Committee, ICAR-Central Institute of Post Harvest Engg and Technology, Ludhiana, Punjab. LifeTime Achievement Awardee from the ACCTI, Dehradun, India.

SPEAKERS

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The roles of selected natural by-products in lowering glycemic index of foods

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Presently, the incidence of non-communicable diseases is increasingly growing with the number of diabetic people expected to increase from 171 million in 2000 to 366 million in 2030. This is the key cause of morbidity and mortality all around the globe because it can lead to complications in health and affect the quality of life. High consumption of refined carbohydrates and fats coupled with low intake of dietary fibres (DFs), particularly from fruit and vegetables, has increased the risk of colorectal cancer, CVD, diabetes and other diseases. An increase in the quantities and varieties of fiber-containing foods may prevent or treat many of the non-communicable diseases (including obesity, CVD and diabetes mellitus). An ideal recommended intake of DF levels is 20-35g / day. However, the average intake for DF among particularly Malaysian populations is alarmingly low, which is only 16g / day. The inclusion of vegetable DF in processed food items is one of the practical attempts to increase the levels of DF. By reducing the rate of glucose absorption in the small intestine, the DF increases the glycemic response. The DF enhances glycemic response by raising the rate of absorption of glucose in the small intestine, thereby lowering the GI value. Low GI diet will make us feel full for a longer duration while minimizing overeating at the same time. Low GI diet is beneficial to reduce the risks and complications of different health conditions such as diabetes. Our research reveals that incorporation of agro-residual resources from banana (overripe banana), oyster mushroom and cornlettes in a few baked-based products such as cookies, pasta, cakes, muffins and flatbread already successful and scientifically proven in improving DF content while lowering GI values. In short, various types of agricultural by-products can be exploited with the aim of minimizing waste and at the same time being able to promote their prowess as functional and health foods when formulated in various processed food products.

Audience Take Away:

- Able to incorporate selected agricultural by-products in the processed food to produce more healthy and diabetic-friendly food products.
- Able to develop value-added food products with approach at the cost of recycling agricultural wastes.
- Eating properly and regularly sufficient levels of dietary fibres from fruits and vegetables are vital; what we consume and drink now, affects our health in the future.

Biography :

Wan Rosli Wan Ishak is a professor of Nutrition Program at the School of Health Sciences (SHS), Universiti Sains Malaysia (USM), Health Campus, Kota Bharu, Kelantan, Malaysia. Currently, he is a Dean of SHS of USM. His research theme emphasizes more on the utilization of natural agricultural by-products into popularly consume processed foods. Various low glycemic index (GI) based on these agricultural by-products has been developed. Wan Rosli has been appointed as Junior Faculty Member from SEAMEO-TROPMED RCCN, Indonesia in the Training of Leadership for Nutritionists in Jakarta Indonesia. He was selected among Top 10 Innovators for SYMBIOSIS project funded by Malaysian Technology Development of Malaysia (MTDC) to facilitate the commercialization of functional and health cookies from oyster mushroom (Nutri-Mush® Cookies). He has published more than 120 articles in various indexed journals.



Interspecies transfer of metabolites for improvement of plant phytochemical content and biological effects

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The high demand for healthy food in recent years led to an increasing need for highly bioactive plant materials. One simple method to improve the nutritional properties of plants could be the treatment of plants of known bioactive potential (acceptor) with extracts of different plant species (donors) that contain additional high bioactive compounds, so-called interspecies source-sink phytochemical transfer. The aim of the present study was to evaluate the effect of interspecies transfer of metabolites on plant phenolic and vitamin C profile to improve their gastrointestinal bioavailability, hypoglycemic potential, and antioxidant capacity as well as cytotoxicity. Additionally, it was tested whether there is an effect of phytochemical transfer on the expression of marker genes in phenolic biosynthetic pathways. Chinese cabbage (*Brassica rapa* ssp. *pekinensis*) sprouts were chosen as a model of plant acceptor, while the inflorescences of St. John's-wort (*Hypericum perforatum*) and chamomile (*Matricaria chamomilla*), leaves of rose (*Rosa* sp.) and shoots of black bryony (*Tamus communis*) were used as plant donors. Even though the chamomile extract increased the highest number of individually identified compounds in Chinese cabbage sprouts, that was not crucial for the improvement of their bioactivity. Rather, black bryony application induced more biopotential parameters in the sprouts such as significantly improved bioavailability of vitamin C, kaempferol and total phenolics both before and during gastrointestinal digestion of sprouts, increased hypoglycemic activity of sprouts, and their antioxidant capacity during digestion. For an increased cytotoxicity against MCF cells, St. John's-wort, rose and chamomille extracts could be applied to Chinese cabbage sprouts. The results suggest that interspecies phytochemical transfer could enhance the phytochemical profile and the bioactive properties of the acceptor plant.

Audience Take Away:

- The audience will get an idea of the potential that interspecies transfer of metabolites has in improvement of sprouts nutritional and healthy value. They will be able to try out this concept in their own laboratories and/or homes with different plant donor-acceptor combinations. We will discuss the results through the lens of potential benefits of an interspecies source-sink strategy for the food industry.
- The aim of our study was to evaluate the effect of interspecies source-sink phytochemical transfer on plants phenolic and vitamin C profile to improve their gastrointestinal bioaccessibility, hypoglycemic potential, and antioxidant capacity as well as antiproliferative effect. We also tested whether an effect of phytochemical transfer is evident in the expression of marker genes in phenolic biosynthetic pathways. The hypothesis was that interspecific phytochemical transfer would improve the phytochemical profile and the bioactive properties of the acceptor plant, in this study Chinese cabbage sprouts. Therefore, the audience will get information on the stable/susceptible variables in plant acceptor upon interspecies source-sink transfer of compounds. The results could be induced in other researches and the concept further developed. The idea of plant nutritional value improvement using interspecies transfer of metabolites could be implemented in teaching. The study provides a practical solution for boosting the nutritional value and specific biological activities of plants. It presents a first assessment on nutritional significance of interspecies phytochemical transfer. Some of the new information that the results offer are: Black bryony (*Tamus communis*) improves availability of Chinese cabbage vitamin C, kaempferol and total phenolics, and its antioxidant and hypoglycemic activity. St. John's-wort (*Hypericum perforatum*), rose (*Rosa* sp.) and chamomille (*Matricaria chamomilla*) increase Chinese cabbage cytotoxicity against MCF7, human breast cancer cells. Phenolics and vitamin C donor to acceptor plant transfer is affected by donor matrix.

Biography:

Dr. Sola obtained her PhD degree in Plant Biochemistry in 2013. Currently, she works in Laboratory for Phytochemistry, Faculty of Science, University of Zagreb at the position of Assistant Professor. Her main scientific interest is plant specialized metabolism plasticity. She spent 22 months on the scientific training in Germany. She was a collaborator at 10 projects, and currently is a leader of 1 domestic and 1 international project. She teaches Plant anatomy, Plant bioactive substances, Plants in phytotherapy, Molecular biology of plants, and has introduced a new course “Basics of phytochemistry”. She has published 25 scientific articles in SCI(E) journals.



Anti-obesity benefits of vegetables containing glucosinolates: Role of hydrogen sulfide

Lara Testai

Department of Pharmacy, University of Pisa

Obesity is a global health problem, currently regarded as a major source of co-morbidities, with dramatic complications impacting on life expectancy. Several studies have demonstrated a strong correlation between obesity and increased risk of developing cardiovascular (CV) diseases, especially heart failure, hypertension, coronary heart disease and type II diabetes. Moreover, in the current COVID19 pandemic, obesity is emerged as one of the chronic diseases associated with more serious complications during the contagion. Excess weight is now an epidemic in the pandemic, and despite numerous pharmaceutical and nutraceutical approaches, it remains an unresolved condition that paves the way for serious complications.

(1); therefore the identification of an effective and safe therapeutic approach is a real medical necessity. Furthermore, the therapeutic approach should be aimed not only at reducing body weight, but mainly aimed at limiting systemic inflammation and slowing down the cardio-metabolic and vascular alterations at the basis of the most important complications associated with obesity. In this regards, vegetables of the Brassicaceae family are well-recognized for their favorable effects on metabolic and cardiovascular disorders. The juice of *Brassica rapa* L. (var. *Perviridis*), a variety of Japanese turnip, showed to reduce cholesterol levels in middle-aged men through improvement of cholesterol metabolism.

(2). Other studies reported the lipid-lowering effects of broccoli.

(3), and positive effects on lipid profile and body fat in rats fed a high-fat diet of *Brassica juncea* leaf extracts.

(4). Recently, we observed health beneficial effects on metabolism and cardiovascular system with a seed extract of *Eruca sativa* Mill., commonly named rocket salad, containing high amount of glucosinolates, such as glucoerucin.

(5). The bioactive components of Brassicaceae are glucosinolates and their isothiocyanate derivatives. Indeed, glucosinolates can be converted, through myrosinase enzyme, in isothiocyanates, described as moieties able to release hydrogen sulfide (H₂S), a neurotransmitter endowed with pivotal role in cardiovascular and metabolic homeostasis.

(6;7). We hypothesize that at least in part these natural compounds are able to act on metabolic disorder through the release of H₂S.

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Biography:

Associate Professor (from 2018-today) of Pharmacognosy, Pharmacotherapy and Nutraceuticals and nutrigenomics at Department of Pharmacy, University of Pisa (Italy). Her research activity is dedicated to cardiovascular pharmacology and in particular the research of natural approaches to obtain a protection of cardiovascular system against ageing and age-related morbidities, including metabolic disorders and cardiac fibrosis. Research activity is documented by 117 peer reviewed papers (h-index: 35).



Production and characterization of indigenous buttermilk (a nectar for humans) powder

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Current milk production of India is ~ 209 MT (23% of global production) and half of it is consumed at producer's door. Traditionally, milk is boiled, cooled, fermented and churned to recover the milk fat by farmers which generate sour buttermilk as a by-product in huge quantity. Beside domestic consumption, most of this buttermilk is discarded as a waste to the environment causing loss of milk nutrients and environmental pollution. Owing to numerous health and therapeutic benefits, sour buttermilk has been even referred as nectar on earth for human being in Ayurveda. So far methods of processing and preservation of sour buttermilk is not available. Its higher acidity, poor heat stability and low total solids content acts as a major detrimental factors in its processing. Therefore, this investigation has been aimed on production and characterization of sour buttermilk powder. Sour buttermilk samples were procured from farmers and pooled followed by its concentration at ambient temperature using pressure driven reverse osmosis (RO) membrane process. RO concentration significantly ($p < 0.05$) increased the total solids (TS) levels compared to sour buttermilk. Thereafter, its RO concentrate was converted in to sour buttermilk powder (SBMP) employing spray drying. The manufactured powder was characterized in detail for its physico-chemical, reconstitution, and functional, rheological properties. It has been characterized using FTIR and SEM as well. SBMP is instantly soluble with 3 seconds wetting index and 29 mL/ 100 mL insolubility. In nutshell, a method has been developed for the production and preservation of sour buttermilk powder which is a rich source of milk nutrients can be used as an ingredient in an array of applications.

Audience Take Away:

- The audience will gain knowledge about goodness of sour buttermilk and also know its processing aspects.
- This research may be helpful in wellness of audience by motivating them towards buttermilk consumption.
- This is the developed method can be used in both research and teaching.
- Does this provide a practical solution to a problem that could simplify or make a designer's job more efficient?
- Developed technological package possesses a sustainable answer to a long time problem.
- This will result in waste to value addition, hence will benefit the milk producer, processor and environment as well.

Biography :

Dr. Ganga Sahay Meena, obtained B. Tech in Dairy Technology from the MPUAT in 2006 and M. Tech in Dairy and Food Engineering from Indian Institute of Technology (IIT) in 2008. He then joined the BANAS dairy (a part of AMUL) and served as Senior Production executive for 1.5 year. Thereafter, he joined Agricultural Research Services at National Dairy Research Institute (NDRI) Karnal, deemed university in 2010 as Scientist. He received his PhD degree in 2016 at the same institution. He is having 12 years of research and teaching experience. He has published more than 50 research articles in reputed journals.



Extraction and characterization of polyphenols from nopal and its by products for food application

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The mandate of current study was to compare the different extraction solvents for their extraction yield of prickly pear peel and fruit. Purposely, water, ethanol, and methanol were used by adopting conventional solvent extraction for comparison. The variables targeted for the extraction process in different modules were time (30, 60, 90 minutes), sample to solvent ratio (1:6), at fixed temperature (55°C) with purposed solvent concentration, water 100%, ethanol and methanol to water ratio were (70%:30%). The outcomes suggested that all the variables found to be momentarily ($P \leq 0.05$) effecting the extraction rates. All the extracts were evaluated for their antioxidant activity through TPC, TF, FRAP, DPPH, β -carotene and ABTS assay estimation. Among the solvents, methanol performed more efficient followed by ethanol and water. Meanwhile, both prickly pear peel and fruit imparted good antioxidant activity, although, fruit elucidated better antioxidant as compare to peel. However, in the time intervals 90min executed better extraction trailed by 90 and 30min. In product development phase, four kinds of functional fudge were prepared from the prickly peel and fruit powder. The prepared functional fudge was probed for their physicochemical assay, storage behavior, and sensory properties. The outcomes elucidated momentous effect on color, pH, Water activity and acid value with treatment intervals. Moreover, storage interval and treatments significantly affected the sensory attributes of functional fudge.

Keywords: Antioxidant, Prickly pear, Conventional solvent extraction (CSE), Functional Fudge.

Audience Take Away:

- Food processing industry, pharmaceutical industry and herbal industry.
- It will attract the attention of business community owing to its cost effectiveness and safety.
- Provide viable solution for the utilization of Agro- industrial waste into useful products.

Biography:

Dr. Ali Imran is currently working as assistant Professor in the Institute of Home and Food Science from more than 8yrs. He has expertise in formulation of plant based nutraceutical based dietary intervention against oxidative stress mediated maladies both in animal and human models. He has more than 60 high impacted publication in reputed food science and nutrition journals. He also won many Competitive research grants relevant to his expertise. Currently, he is working on the role of plant based nutraceuticals in brain health on animal models. He also wrote more than 10 book chapters on health endorsing perspective of polyphenols.



Women in the climacteric period may have nutrition

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The climacteric period includes premenopausal, menopausal and postmenopausal periods and is a period of life in which the woman's reproductive ability to reproductive age has ended. Night sweats, hot flashes and sleep problems, psychological problems (anxiety, depression, restlessness, decrease in sexual interest, etc.), atrophic changes (vaginal atrophy, stress incontinence and painful sexual intercourse) and nutritional problems are the most common problems during this period. It is also seen in osteoporosis and cardiovascular diseases. Current evidence suggests that low-fat, plant-based diets are associated with beneficial effects on body composition, but more studies are needed to confirm these results in postmenopausal women. Along with other healthy habits, the Mediterranean diet may help primary prevention of bone, metabolic and cardiovascular diseases in the postmenopausal period. It consists of the use of healthy foods with anti-inflammatory and antioxidant properties and is associated with a small but significant reduction in blood pressure, reduction in fat mass and improvement in cholesterol levels. These effects continue to be evaluated over a longer period of time with the assessment of difficult outcomes such as bone fractures, diabetes and coronary ischemia.

Audience Take Away Notes:

The climacteric period and what needs to be done during this period are not well known by women. Yes, it is a natural period, but it brings many changes with it. During this period, women will learn that they need to pay more attention to their bodies. Nutrition is one of them. Many chronic diseases can be prevented with nutritional management.



The effect of various processes on the physical properties, bioactivity and sensory properties of honey

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Honey is defined as the natural sweet substance produced by the honey bee (*Apis mellifera*L.) from the nectar of plants, the secretions of living parts or the secretions of sucking insects living in the living parts of plants. The predominant compounds found in honey are carbohydrates, mainly composed of fructose and glucose. In addition, honey is extremely rich in enzymes, amino acids, organic acids, vitamins and phenolic substances. Although the chemical composition of honey varies according to its geographical and botanical source, there are approximately more than 200 components in its structure. Therefore, honey consumption is very important for human nutrition. People have used honey for both nutritional and therapeutic purposes since ancient times. Recently, many researchers have reached conclusions about the broad-spectrum antibacterial, anticancer, antiviral, etc. activity of honey against various bacterial species. It has been proven by studies in the literature that various processes applied to honey (eg, different temperature applications at different times) cause changes in the physical properties of honey as well as its bioactivity and sensory properties. The occurrence of these changes is very important for the functionality of honey. Because while some parameters affect the bioactivity and phenolic content of honey negatively, some of them can affect it positively. In this study, studies affecting the bioactivity, sensory and physical properties of honey were examined and a compilation was made. It is expected that the study will make an important contribution to the literature and the related sector in this regard.

Audience Take Away:

- Audiences will learn the Effect of Various Processes on the Physical Properties, Bioactivity and Sensory Properties of Honey and will be able to use it in their other works or lives.
- It is expected that this study will contribute to the audiences being more conscious about the processes applied to honey.
- It is thought that this research will contribute to the literature and indirectly be a research that other faculties can use to expand their research or teaching.
- The province of Bingol is an important province in the field of beekeeping in Turkey. However, unfortunately, the quality of honey can be affected by applying wrong processes to honey by producers and/or consumers in the province. It is thought that this research will contribute to the preservation of the naturalness of natural Bingol honey.

Biography :

Davut Karahan studied Food Engineering at the Cumhuriyet University, Turkey and graduated as MS in 2018. He completed his undergraduate education with ranking first in department. He is a PhD Candidate and currently works at the Honey Bee and Natural Products R&D and P&D Center-Food Engineering, Bingöl University. He has published several research articles and proceedings.



Cultural analysis of the sustainable development goal indicators that impact under-five stunting in the arab states

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Introduction: Nutrition targets for eradicating malnutrition is one of the 17 Sustainable Development Goals (SDGs) established by the United Nations. Arab States are struggling to achieve SDGs, Islamic teachings are needed to guide implementation.

Aim: To analyze how SDG indicators can influence stunting from an Islamic perspective in the Arab region.

Methods: Indices representing nutrition-related SDG indicators were compiled from global SDG data for 22 countries of the Arab region. Of all SDG indicators 76 relevant indicators covering the 17 SDGs were compiled from the global database of UNDP and were assessed in relation to stunting using descriptive analysis and illustrations to assess associations. We also reviewed Quranic text pertaining to the most influential SDG indicators.

Findings: The detection rate of indicators derived from 76 SDG indicators under study associated with stunting was 47 (61.8%). The level of income was the delineating factor with the high income (HIC) performing better than the low income (LIC), while the middle income countries (MIC) lie on the border of LIC and are staggering to move towards the HIC. Associations were illustrated using trend lines. The most significant was the corruption index (SDG16: Peace, Justice and strong Institutions) which was reversely correlated with stunting; 22 Quranic texts were identified relevant to this indicator and were found to be integrated with the different SDGs.

Conclusions: The SDG indicators identified can be used to guide Arab countries to develop road maps, surveillance systems for reducing stunting. Quranic text can be used as an advocacy tool to reinforce progress in SDGs in the Arab region.



Potential carcinogenic and non-carcinogenic health risks of heavy metals ingestion from consumption of the crayfish, *procambarus clarkii* in el-rahawy drain and el-kanater in the river Nile, Egypt

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Heavy metals can constitute a critical risk to freshwater fauna via exposure, bioaccumulation, and biomagnification processes. The results confirmed that heavy metals in the water, sediments, and tissues of crayfish were considerably higher in El-Rahawy sites in comparison to El-Kanater sites ($P < 0.05$). Fe levels were the most abundant concentration compared to the remaining metals (Co, Zn, As, Cd, and Pb) in water, sediment, and crayfish tissues at all sites. Regarding HMs in crayfish tissues, the bioaccumulation sequence of HMs in all sites was in the decreasing sequence of exoskeleton > gills > hepatopancreas > muscles for Co, Pb, and Cd, gills > muscles > Hepatopancreas > Exoskeleton for Zn, and hepatopancreas > gills > exoskeleton > muscles for Fe and As. The HI values of the crayfish muscles, people who eat a normal amount of crayfish have no non-carcinogenic risk. On the other hand, the HI values calculated for habitual crayfish eaters of the muscles crayfish were higher than one which indicates that crayfish muscles have potential non-carcinogenic risk. On contract, As and Cd pose a carcinogenic risk for normal and habitual eaters consuming the muscular crayfish should be considered a hazard message based on data indices and human health viewpoint. Accordingly, the current study recommends a government environmental management in Egypt to conduct routine HM monitoring in the El-Rahawy drain in order to lessen potential health risks.

Audience Take Away:

- Through this research, audiences will understand how to calculate the carcinogenic and non-carcinogenic risks of heavy metals. Also, this study can be used by academics and researchers to compare polluted versus unpolluted areas. However, this study is also regarded as a scientific way to evaluate the effects of the environment on organisms when they are present in an environment that has been polluted with heavy elements and one that has not. By downloading the study, the audience will be able to put what they have learned into practice, and the study will assist the audience in using these equations. In the upcoming study, He will continuously assess the metal pollution in species that are acceptable for human consumption from different environments to determine whether or not they are polluted.

Biography :

Mahmoud Mahrous Mohammed Abbas is Associate professor of Marine Biology at Zoology Depart., Science Fac., Al-Azhar Uni., Cairo, Egypt. He is a member in the Marine biology Lab and in the Animal House at Science Faculty, Al-Azhar University since 2012. He received a B.Sc. of marine biology and chemistry from Al-Azhar University in 2009, and an M.Sc. of environmental pollution in 2015. He received his Ph.D. of fish Biotechnology from Al-Azhar University in 2020. His research interest includes metal pollution, aquaculture, environmental physiology, fish biotechnology, aquatic toxicology, marine environment and nanotechnology.



The effect of vegetarian diet on immunity – Are there the gaps in the previous research?

Ivana Sarac

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Optimal nutritional status is of high importance for the proper functioning of the immune system and can be achieved by adequate intake of macronutrients and micronutrients. In order for the immune response to be adequate in eliminating pathogens, but also in preventing and fighting allergies, autoimmune and chronic diseases, it is necessary for the diet to be balanced in intake of all necessary macronutrients and micronutrients. Vegetarianism is becoming an increasingly widespread type of diet around the world. In relation to the omnivorous diet, the vegetarian diet (especially vegan) is significantly different in terms of intake of certain foods, and therefore may be different in terms of intake of certain macro- and micronutrients, which can affect the immune system. Many studies have shown that in vegetarians, and especially vegans, some hidden nutritional deficiencies in minerals (Fe, Se, Zn, Ca, Cu), vitamins (B12, D, A, B2, B3 and B6), omega 3 fatty acids (as well as the less favorable ratio of omega 3 / omega 6 fatty acids) and, less frequently, high-value amino acids rich in sulphur, can be found. Indeed, it has been shown that there are many differences between a vegetarian and an omnivorous type of diet in immune status and immune response. Studies conducted in recent years show that the level of immune markers can be altered in vegetarians. For example, vegetarian diets have been connected with decreased levels of many inflammatory markers - cytokines / chemokines, acute phase proteins and prostaglandins, including: CRP (C reactive protein), IL (Interleukin) -1 β , IL-6, TNF (tumor necrosis factor) - α , decreased ratio of TNF- α to IL-10, decreased levels of SAA (serum amyloid A), ferritin, fibrin, prostaglandin PGE2, antibodies (IgG, IgM and IgE); decreased count of leukocytes, neutrophils, lymphocytes, monocytes, eosinophils, basophils, platelets, and some of their fractions (Natural killer cells - NK cells, T lymphocytes, B lymphocytes, CD4 +, CD8 +), as well as an altered activity (decreased proliferation of T lymphocytes after mitogen stimulation, decreased phagocytic activity of neutrophils and monocytes and production of reactive oxygen species, as well as decreased cytotoxic activity of NK cells), and reversal of proinflammatory immune response to antiinflammatory response.

Also, the altered ratio of omega 3 to omega 6 fatty acids has been shown, as well as the status of markers of antioxidant protection, which may affect endogenous production of proinflammatory and antiinflammatory eicosanoids, degree of inflammation and level of tissue damage during inflammation. For example, in vegetarians, some studies have shown the reduced levels of anti-inflammatory and antioxidant omega 3 fatty acids, as well as the reduced antioxidant protection (decreased levels of glutathione, uric acid and increased levels of homocysteine), connected with vitamin B12, selenium and sulphur-rich amino acids deficiency. However, studies on vegetarianism and the immune response are quite rare, very often contradictory in the results, and there is no definitive conclusion. In addition, many studies have been done on individuals with autoimmune diseases and already altered immune status (ulcerative colitis, atopic dermatitis, etc.) by translating from omnivorous to vegetarian diets, while other studies have been done comparing vegetarians and omnivorous subjects without dietary intervention, but often included special groups of subjects (e.g., pregnant women, the elderly, people with polycystic ovary syndrome, diabetes, etc.), which all contributed to the conflicting findings.

Examining what kind of diet is the most effective for a satisfactory immune response is especially important during the present COVID-19 pandemic, as well as long-standing pandemics of chronic diseases related to nutrition and altered immune status (e.g., obesity, diabetes, cardiovascular diseases, autoimmune diseases, cancer). Given the increase in vegetarianism and the great heterogeneity of the vegetarian diets in the world, and due to the conflicting results of the existing studies on the impact of vegetarian vs. omnivorous diet to immune status and response, more detailed research is needed, which will exclude the effects of all potential confounding factors, such as: gender, age, smoking status, physical activity, the presence of obesity and metabolic

syndrome, the presence of certain diseases and conditions that may affect immune status, as well as the use of therapy and supplementation which may affect immune status, the type of vegetarianism (veganism or lacto-ovo-vegetarianism) and length of vegetarianism, as almost all previous studies have not been well controlled for such factors. There is a particular lack of studies examining the specific characteristics of a vegetarian diet (e.g., intake of certain macro- and micronutrients, intake of certain foods), as well as the status of macro- and micronutrients in the body (e.g., omega-3/6 fatty acids, minerals and vitamins) and examined their association with the immune response and markers of antioxidant protection and oxidative stress.

Audience Take Away:

- Examining what kind of diet is the most effective for a satisfactory immune response is especially important during the present COVID-19 pandemic, and this presentation will bring more comprehensive insights on the influence of diet (particularly vegetarian/vegan diet) on immunity.
- Also, the gaps in the present knowledge will be discussed, and the audience will be guided to which types of studies will be useful to perform in order to overcome the contradictions in the precedent research on this topic.

Biography:

Dr Ivana Sarac studied Medicine at Faculty of Medicine, University of Belgrade, and graduated in 1998. Then she entered her MSci postgraduate studies in Nutrition at the same institution, and finished it in 2004. In 2006 she also finished her medical specialization in Hygiene with medical ecology at Faculty of Medicine, University of Niš. She conducted her PhD studies in Diabetes and Metabolic Medicine at University of Surrey, UK, and obtained PhD degree in 2014. In 2016, she joined the Center of Excellence in Nutrition and Metabolism Research, at the Institute for Medical Research, University of Belgrade, as Research Associate.



The effects of herbal supplement of ginkgo biloba on brain edema, neurologic outcome and oxidative stress following traumatic brain injury in male rats

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Background and Objectives: Traumatic brain injury (TBI) is one of the leading causes of morbidity and mortality throughout the world. It will probably become the third leading cause of death in the world by the year 2023. Despite extensive research, successful treatment for TBI has not been introduced yet. Neurotrophic factors and cognitive function of the brain are usually affected by herbal supplements. In previous studies, the role of ginkgo biloba in increasing of neurotrophic factor and improving of brain injury has been confirmed. In the current study, effects of Ginkgo biloba after diffuse traumatic brain injury was investigated.

Methods: In this experimental study, 30 male Wistar rats weighing 250-200 g randomly assigned to five groups sham, TBI, vehicle, ginkgo, TBI+ ginkgo. Moderate diffuse traumatic brain injury was induced by marmarou's method. Ginkgo biloba extract was administrated orally 1 and 24 hours after TBI. Brain edema (using brain water content) was assessed 24 h after TBI. Evaluating short- time neurological (using veterinary coma scale; VCS) was assessed -1, 4, 24 hours after TBI. Also, indexes of oxidative stress such as malondialdehyde (MDA) and total antioxidant capacity (TAC) was evaluated 24 hours after injury.

Results: Brain water content were less in ginkgo biloba treated groups comparison to vehicle and TBI groups. Ginkgo biloba increased V.C.S after traumatic brain injury in comparison to vehicle and TBI groups. The increasing in MDA and decreasing in TAC in TBI+ ginkgo group was lower than that of TBI and vehicle groups.

Conclusion: This study showed that administration of ginkgo biloba reduced brain edema, oxidative stress after TBI. Following ginkgo biloba administration after injury improved neurologic outcome. Improvement after injury may be due to reducing inflammation following ginkgo biloba administration. The results suggest that using ginkgo biloba could be considered in TBI and perhaps other neurodegenerative disorders. However, further research is needed to find the mechanisms involved as well as safety.

Audience Take Away :

- She try to share latest findings with others and explain them clearly and the audience will find herbal supplements in treatment of nervous diseases.
- They will also learn that the dose and using time of herbal supplements are also involved.
- The results of this study also help herbal supplements to present a better and safety plan for maintaining of health to people.

Biography:

Dr. Nazanin Sabet studied Medical Physiology at the Kerman University of Medical Sciences and graduated as MSc in 2016. She then joined the research group of Prof. Khaksari at the Institute of Basic and Clinical Physiology Sciences, Faculty of Medicine, Kerman University of Medical Sciences. She received her PhD degree in 2022 at the same institution. She has published more than 10 research articles in ISI journals.) and She has many articles that are under review in ISI journals.



Short-term to long-term strategies for improving food security and nutrition in the covid-19 pandemic

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Research Institute, Iran

Department of Nutrition and Health, The Iranian Academy of Medical Sciences

Statement of the Problem: Sustainable provision of food available and access to all sections of a society and continuous monitoring of food security from farm to fork is one of the main responsibilities of governments to ensure the security of the individual, family and society as an important right of the people, particularly in critical situations. The purpose of study is to consider the challenges of food and nutrition insecurity of households, due to the economic, social and psychological consequences of the Covid-19 pandemic and to investigate the related causes and provide practical short-term to long-term solutions to control and deal with its possible effects.

The dimensions of the issue in the context of the Covid-19 pandemic can be expressed as follows:

- a. Creating weakness and disruption in the chain of production, distribution, and supply of food and agricultural products and thus consumer access and reception.
- b. Exacerbation of various forms of malnutrition, including low or high intake and their side effects, including weakened immune system and increased risk of death.
- c. Further threat of pandemic and the spread of food and nutrition in urban and rural areas, especially low-income groups and deprived of basic facilities. Income inequality and unemployment will likely mitigate income-related health inequalities during the COVID-19 pandemic.
- d. Factors affected by the economic crisis caused by the Covid-19 pandemic include rising unemployment, the cessation of some quarantined jobs and forced housing, declining incomes and economic access to food, especially for the vulnerable and low-income households. And the occurrence or aggravation of economic, social and psychological problems resulting from them.
- e. Insufficient access to agricultural and livestock inputs, including desirability, quantity and cost for farmers and livestock operators in return for the cost of production.
- f. Import of poor quality and unhealthy food in accordance with the standards in the form of smuggling or from the official points of entry of goods due to ignoring the minimum laws and standard rules of each country.

Biography:

Research Associate Professor in Nutrition & has been Director of National Nutrition and Food Technology Research Institute, Dean of Faculty from 2010- End of 2015, and President of Iranian Nutrition Society (INS) 2011- End of 2015. I was the head of WHO- Collaborating Centre for Nutrition Training and Research & WHO-EMRO regional advisor (2010-2014) and a member of the National Board of Nutrition and Academy of Medical Sciences, Iran. I have published over 66 publications and have been serving as a member of the editorial board of Journals of Nutrition and completed PhD in the field of clinical nutrition from Kings College London in 2004. Besides research and educational activities, I have already had a number of consultative and administrative responsibilities at NNFTRI, such as Vice-director for Research, Head of Research Ethics' Committee and National Clinical Nutrition Knowledge and guidelines, Member of several Scientific/Organizing Committee of international Congress, and reviewer and/or editor of journals: IJEM, NSFT, J Nut, IJCN, BMC Nut, PHN, BJN, AIM, IJPM, AJCN, Frontiers in Nutrition and some other National Journals. I have over 66 publications that have been cited over 1450 times, i10-index: 32.



The effect of meal frequency on biochemical cardio metabolic factors: A systematic review and meta-analysis of randomized controlled trials

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Background: Although several randomized controlled trials (RCTs) have supported the beneficial effects of higher meal frequency (MF) on cardiometabolic risk factors, the putative effects of higher MF on health remain inconclusive. This study systematically reviewed the evidence from RCTs of the effect of higher compared with lower MF on the blood lipid profile, glucose homeostasis, and adipokines.

Methods: PubMed, Scopus, ISI Web of Science, and the Cochrane database were searched up to October 2020 to retrieve relevant RCTs. A DerSimonian and Laird random effects model was used to pool mean differences and 95% CI for each outcome. The quality of studies and evidence was assessed through standard methods.

Results: Twenty-one RCTs (686 participants) were included in this meta-analysis. Overall results showed a significant improvement in total cholesterol [weighted mean difference (WMD) $\frac{1}{4}$ 6.08 mg/dl; 95%CI: 10.68, 1.48; P $\frac{1}{4}$ 0.01; I² $\frac{1}{4}$ 88%], and low-density cholesterol (LDL-C) (WMD $\frac{1}{4}$ 6.82 mg/dl; 95%CI: 10.97, 1.60; P $\frac{1}{4}$ 0.009; I² $\frac{1}{4}$ 85.7%), while LDL-C to high-density cholesterol ratio (LDL-C: HDL-C) increased (WMD $\frac{1}{4}$ 0.22; 95% CI: 0.07, 0.36; P $\frac{1}{4}$ 0.003; I² $\frac{1}{4}$ 0.0%) in higher MF vs. lower MF. No significant effects were found on measures of glycemic control, apolipoproteins-A1 and B, or leptin. In subgroup analyses, higher MF significantly reduced serum triglyceride (TG), and increased HDL-C, compared with lower MF in interventions > 12 weeks, and decreased serum TC and LDL-C in healthy participants. A significant reduction in LDL-C also was observed in studies where the same foods given both arms, simply divided into different feeding occasions, and in feeding studies, following higher MF compared to lower MF.

Conclusion: Our meta-analysis found that higher, compared with lower MF may improve total cholesterol, and LDL-C. The intervention does not affect measures of glycemic control, apolipoproteins-A1 and B, or leptin. However, the GRADE ratings of low credibility of the currently available evidence highlights the need for more high-quality studies in order to reach a firm conclusion.

Audience Take Away:

- Clinicians and dietitians can use our findings as an adjuvant therapy in the treatment of patients with hypercholesterolemia.
- Future studies could address the nitty-gritty of this issue, such as how many meals are best for anthropometric indices or cardiometabolic indices.

Biography :

Dr. Abdollahi is currently an academic member of the Faculty of Health at the North Khorasan University of Medical Sciences (NKUMS), as an Assistant professor. Dr. Abdollahi completed her Ph.D. in 2019, and her Ph.D. thesis was supported by a grant from the Iranian National Science Foundation. Dr. Abdollahi's publications are reflective of her experience in systematic reviews and meta-analysis, as well as randomized controlled trials of which she has been primary or co-author on 31 papers and 3 book chapters. She was also named Top Researcher, at NKUMS in 2021.



Application of potato (*Solanum tuberosum* L.) peels as an antioxidant in yogurt formulation

Fatiha Brahmi

Abderrahmane Mira University of Bejai, Algeria

The aim of this work was to optimise the extraction parameters for phenolic compounds from potato (*Solanum tuberosum* L.) peels (PP) using response surface methodology (RSM). A central composite design (CCD) was used to establish the impacts of ethanol concentration (%), extraction time (min), and solid/liquid ratio (g/mL). The optimal experimental conditions allowing a maximization of the extraction are the solvent (ethanol) at a concentration of 80% (v/v) for a time of 150 min with a ratio of 1 g/30 mL. Optimal contents of total phenolic (TPC) and total flavonoid (TFC) were 204.41 ± 8.64 mg EAG/100 g DW and 21.47 ± 0.76 mg EQ /100 g DM, respectively. The PP extract has potent antioxidant activity in molybdate and DPPH• assays with IC₅₀ of 10.65 ± 0.21 and 179.75 ± 3.18 µg/mL, respectively. The yogurts formulated with PP revealed significantly higher ($P \leq 0.05$) TPC, TFC and antioxidant power than the control sample. In addition, the taste test demonstrated that the yogurt enriched either by PP flower and their dried pieces are the most preferred (67%) than the control yogurt (33%). Our findings prove PP waste is a good source of antioxidants capable of enriching and protecting yogurt, while served to the revaluation of these agrifood by-products.

Biography:

On the surface, Fatiha Brahmi is a teacher-researcher with over 16 years of experience in the field of natural and life sciences. Dr Brahmi continues to serve in Bejaia University. She is so efficient in her work, she has several publications (more than 30) and communications (66) in the field of natural products, pharmacognosy, fruit and vegetable by-products and involved in several research projects such as the Algero-espanol and Algero-Tunisian projects.



Sound healing for holistic health recovery

N. Singh

The Chicago School of Professional Psychology, United States

Across generations, music as a form of healing has been modified throughout the world. By pulling in a social energetic flow for emotional expression, it can provide more accessibility and sustainability in recovery programming. Traditional music therapy is described as “the art of using musical sounds in bringing changes from undesirable unhealthy conditions to a more comfortable one” (Nnamani, 2014). Community music therapy sessions are considered more than a performance, but an active exchange between the participants and the facilitator described as “community musicking” or “collaborative musicking”. As relaxing music decreases heart rates, it can serve as a catalyst for improved physiological functioning. Challenges around restorative sleep are due to cognitive processing occurring during stages of sleep where interruptions shift the body’s ability to restore and regenerate for the waking hours. Sound as a form of ancestral medicine is a sustainable and easily accessible way to soften the body as it seeks rest and digestion over heightened anxious states of survivals.

Biography:

Singh is a PhD Candidate at TCSPP studying the intersection of integrative techniques for trauma recovery across complex posttraumatic stress survivors. She seeks to explore multigenerational practices for holistic care. In this session, you will learn more about sound healing techniques and experience an interactive sound bath.

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International Nutrition Research Conference

June 19-20, 2023 | Rome, Italy

<https://nutrition.magnusconferences.com/>

5th Edition of
International Nutrition Research Conference

September 11-13, 2023 | Valencia, Spain

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