

*2<sup>nd</sup> Edition of International*

# NUTRITION

## RESEARCH CONFERENCE

VIRTUAL EVENT

**JUNE 2022**  
**15-16**

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**BOOK OF  
ABSTRACTS**

**2<sup>ND</sup> EDITION OF INTERNATIONAL  
NUTRITION RESEARCH  
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**15-16** JUNE

# INDEX

## Contents

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About Host	<b>4</b>
About Nutri 2022	<b>5</b>
Keynote Presentations - Day 1	<b>6</b>
Oral Presentations - Day 1	<b>11</b>
Keynote Presentations - Day 2	<b>26</b>
Oral Presentations - Day 2	<b>31</b>
Participants List	<b>44</b>

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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 NUTRI 2022

With an earnest objective to congregate Nutrition professionals, researchers, Nutrition industry experts and scientists Magnus Group proudly enunciates and welcomes you to its **2<sup>nd</sup> Edition of International Nutrition Research Conference (Nutrion 2022)**, which was organized Virtually during **June 15-16, 2022**. This year the global summit will move forward with the theme *From Evolution to Revolution: A Holistic Perspective on Nutrition's Frontier Novelities*.

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 2022 conference during  
September 12-13, 2022.



# KEYNOTE FORUM

DAY 01

2<sup>ND</sup> EDITION OF INTERNATIONAL  
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**15-16** JUNE



## V.N. Gorchakov<sup>1\*</sup>, K.M. Nikolaychuk<sup>1</sup>, O.V. Gorchakova<sup>2</sup>, Yu.P. Kolmogorov<sup>2</sup>

<sup>1</sup>Novosibirsk State University, Novosibirsk, Russia

<sup>2</sup>Research Institute of clinical and experimental Lymphology – branch of Institute of Cytology and Genetics of SB RAS, Novosibirsk, Russia

### Phytomineral complexes as elements of functional nutrition to enhance the protective function of the lymphatic system

The modern medicine estimated a food role in human life, attracting knowledge of lymphology. Accumulation of knowledge of lymphatic system allowed to integrate a lymphology with a nutritiology and pharmacology. It promoted emergence of the new direction a lymphonutritiology. This direction studies biologically active compounds, having lymphotropic properties. Phytonutrients have high therapeutic value. We use biologically active compounds (bioflavonoids) for increase in protective function of peripheral lymphoid organs and management of the natural system of a detoxication through lymphatic system for improvement of an organism, especially, at age-associated pathology. There is basic a justification and implementation of lymphotropic technologies which could correct structure of lymph nodes and offer the real prospect of fight against aging of lymphatic (lymphoid) system.

We developed the phytosorption complex including herbs of Siberia and a compound of food fibres. Bioflavonoids, microelements are a part of the majority of plants that qualitatively expands their biological activity and increases treatment-and-prophylactic potential in saving the health capital. Biologically active compounds (bioflavonoids, microelements and other nutrients) are means of hypotoxicity that it is important for functional food. The obtained data show presence of lymphotropic properties of the applied phytomeans as element of functional food. Lymphotropic properties of phytomeans come down to the following positive effects at the level of lymphatic system (lymph nodes) during the senile period. We observed effect a lymphstimulation. Lymph passage speed through a lymph node increases by 1.3-1.5 times at the majority of old animals after phytotherapy. Phytomeans is causing the structural modifying effect on lymph nodes structure. This effect is expressed in selective increase or reduction of the sizes of structural and functional zones of lymph nodes. It levels senile changes of lymphoid tissue at achievement of “dynamic age standard of health”. Intake of phytocomposition provides the lymphoprotection principle. Bioflavonoids of medicinal plants strengthen function of excretory organs. It reduces toxic pressure on lymphatic system. For the first time we noted lymphoproliferation effect (a neolymphogenesis) as a result of phytotherapy. There is a formation of temporary compensatory lymphoid structures – lymphoid follicles outside and into a lymph node. New lymphoid follicles are necessary for increase in immune function of peripheral lymphoid organs. The ectopia of lymphoid follicles has universal character and appears after phytostimulation of reduced function of lymph nodes. Herbs are a source of additional trace elements. Intake of medicinal plants fill micronutrient deficiency and positively affects structure and function of lymph nodes when aging. The received results became a basis for development of phytolymphotropic technologies of prevention and rehabilitation in sanatoria and health resorts. Herbs in the form of phytosorption complexes, dietary supplements to food proved the efficiency as elements of functional food in “background” therapy age-associated diseases. The positive effect is connected with increase in nonspecific resistance of an organism. Phytomeans are capable to correct structure of lymph nodes and offer the real prospect of fight against various diseases and lymphatic (lymphoid) aging.

#### Audience Take Away:

- The acquired knowledge will make it possible to create phytomineral drugs for increasing the protective function of the lymphatic system
- Increase the effectiveness of functional nutrition in the prevention of pathology and aging

- Knowledge of the lymphatic system and lymphotropic properties of nutrients may be used to enhance research and teaching
- It is proposed to solve the problem of functional nutrition from the position of modern lymphology to increase the nonspecific resistance of the organism
- New information provided with evidence of lymphotropic properties of phyto-mineral complexes
- The use of phyto-mineral complexes with lymphotropic properties will increase the rate of lymphocytosis, correct the structure and function of lymph nodes, which will increase the nonspecific resistance of the body and ensure the quality of life of older people

### **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 lymphonutricology, which provides for the development of bioactive plant-mineral additives with a lymphotropic effect. Author of the book "Undesirable Effects of Bioactive Additives." Hirsch's Index is 9.





## Sudesh Kumar Yadav

Center of Innovative and Applied Bioprocessing (CIAB), India

### New approaches in exploring the potential of agro biomass for food and nutraceutical applications

Our main research focus is the development of processes for exploration of biomass and their transformation into valuable compounds. We have developed edible coatings from waste biomass and demonstrated their use in shelf life enhancement of tomatoes. An economical process for extraction of pectin from black carrot pomace using intermittent microwave, ultrasound and conventional heating has been developed. Ultrasonication was found to be a useful technology for the retention of quality and antioxidants potential of vegetables on hot-air convective drying. Also, an ethanol tolerant bacterium *Acetobacter pasteurianus* SKYAA25 has been identified and characterized for acetic acid production from apple pomace. An efficient and economic process for the production of bacterial cellulose from isolated strain of *Acetobacter pasteurianus* RSV-4 bacterium was developed. Yet another technology on processing-independent extracellular production of high purity C-phycoyanin from *Spirulina platensis* has been developed. Also, developed an improved upstream processing for detoxification and recovery of xylitol from rice straw and corncob. Biocatalysts have been developed and used in the sustainable process for rare sugars production from pure substrate as well as from biomass derived sugars. Xylanase of *Acinetobacter pittii* MASK 25 has been used to develop magnetic-xylanase CLEA for the sustainable production of novel prebiotic predominantly comprised of xylopentose and xylohexose from agro biomass. We have been exploring the use of non-thermal processing technology such as cold plasma in the extraction of valuable compounds like polyphenols, dietary fibers, antioxidants, oligosaccharides from biomass.

#### Biography

Dr. Sudesh Kumar Yadav, Scientist-G, CIAB, Mohali is an outstanding scientist and contributed significantly in the area of biotechnology, metabolic engineering, bioprocessing and nanobiology for crop improvement and production of value added molecules. He has extensively worked on understanding the regulation of key metabolic pathways of crops like tea, stevia, rice and horsegram as well as developed several technologies for value added products from agricultural waste biomass. He has already published more than 175 research papers, 14 patents, 3 books, 20000 citations, 50 h-index, transferred 2 technologies to industries, signed NDA for 3 technologies and developed more than 5 other technologies so far. Listed by Stanford University among the top 2% scientists of the world. He is fellow of national academies such as The National Academy of Sciences, India; National Academy of Agricultural Sciences. He is recipient of S. Ramachandran National Bioscience Award, NASI-Reliance Industries Platinum Jubilee Award, and "Recognition Award" by NAAS. He has also been conferred Indian National Science Academy (INSA)-Young Scientist Award, 2008; The National Academy of Science, India (NASI)-Platinum Jubilee Young Scientist Award, 2009; Council of Scientific and Industrial Research (CSIR)-Young Scientist Award, 2010; BOYSCAST Fellowship, 2008 by DST, GoI; NAAS-Associate, 2013; Prof. Hira Lal Chakravarty Memorial Award of Indian Science Congress Association (ISCA), 2012-2013; Haryana Yuva Vigyan Ratna Award, Haryana Govt., 2011-12.



## Dalia El Khoury PhD RD<sup>1\*</sup>, Maria Rossi BSc MSc(c)<sup>1</sup>, Iris Joye PhD<sup>2</sup>

<sup>1</sup>Department of Family Relations and Applied Nutrition, University of Guelph, Canada

<sup>2</sup>Department of Food Science, University of Guelph, Canada

### Beans and bean-containing products: knowledge and attitude among university students

The growing popularity of the gluten-free diet and the plant-based diet has significantly influenced consumers, food manufacturers and health care professionals. Health experts have been interested in the nutritional adequacy of those diets, as well as their effectiveness in managing disorders including but not limited to weight management, diabetes, cardiovascular diseases, and gluten-related disorders. Beans and bean-containing products have been promoted as excellent sources of dietary protein and other nutrients, particularly for those following a gluten-free diet and/or a plant-based diet. In one of our studies, we wanted to gain more insight into the intake, knowledge, and attitude related to beans and bean-containing products among university students in a Canadian university. The survey focused on bean consumption, knowledge on beans, and attitude and preferences toward novel products containing bean flour. Demographic information such as gender, age, and ethnic background were gathered. Good appearance, good taste, good smell, pleasant texture, high plant-derived protein content, and high fiber content were found to be important features that students looked for in a product containing bean flour. Moreover, health benefits appeared amongst the main drivers to include a product containing bean flour in their diets. Bean consumption, knowledge on beans, and interest to learn more about beans were reported to differ among demographic groups. Identifying knowledge gaps to tailor educational materials on the composition and benefits of beans and bean-containing products, as well as guiding the development of new healthy bean-containing products that are more appealing to consumers, are needed to assist individuals make healthier choices especially when adopting a gluten-free diet and/or a plant-based diet.

#### Biography

Dr. Dalia El Khoury received a BSc in Nutrition and Dietetics (2002) and an MSc in Nutrition (2005) at the American University of Beirut, Lebanon. She completed her PhD in Physiology and Physiopathology at the University of Pierre et Marie Curie, France (2008). Dr. El Khoury then served as a lecturer at the American University of Beirut (2009-2010), and as a postdoctoral fellow and sessional lecturer at the University of Toronto, Canada (2010-2014). Later, she joined a leading company in infant and child nutrition, Mead Johnson Nutrition, as senior scientist in Global Regulatory and Nutrition Science (2014-2016). Currently, Dr. El Khoury is an assistant professor in the department of Family Relations and Applied Nutrition at the University of Guelph, Canada.

# SPEAKERS

## DAY 01

2<sup>ND</sup> EDITION OF INTERNATIONAL  
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**15-16** JUNE

**Emily Siu Mei Choi<sup>1\*</sup> and Dr Ivan Chu<sup>2</sup>**

<sup>1</sup>Faculty of Science and Technology, Technological and Higher Education Institute of Hong Kong, Hong Kong

<sup>2</sup>Department of Chemistry, The University of Hong Kong, Hong Kong

**Study of potential synergistic effect of probiotic formulas in food toxin reduction**

Ethyl carbamate (EC), one of the process-induced food toxicants, usually formed in alcoholic beverages and fermented food products. Different methods have been developed to reduce the level of toxicants in food products. In this study, the potential synergistic effects of selected probiotic formulas to reduce EC was investigated. Five selected probiotics, *Lactobacillus bulgaricus*, *Lactobacillus paracasei*, *Lactobacillus plantarum*, *Bifidobacterium lactis*, and *Streptococcus thermophilus*, were incubated with different levels of EC chemical solutions to examine its EC reducing capacity. Three probiotics with higher efficacy on EC reduction under 10<sup>8</sup> CFU/mL cell concentration were selected for probiotic formulas. The probiotic formulas were incubated with (i) standard chemical solutions, (ii) selected wine samples (yellow wine, sake and plum wine) as well as (iii) in-vitro digestion model to evaluate the reduction of EC. LC-MS was used to analyse levels of EC of samples. Synergistic effect of the probiotic formula was only observed in some selected wine samples and the reduction percentage of EC by a combination of *Lactobacillus bulgaricus* and *Lactobacillus plantarum* is significantly higher ( $p < 0.05$ ) than that by single strain of *Lactobacillus plantarum* and *Lactobacillus paracasei*. In conclusion, the reduction of EC by probiotics was demonstrated. However, the synergistic effect of probiotics formulas on reduction of EC and its mechanism of the EC reduction required further studies in the future.

**Biography**

Dr Emily Siu Mei Choi, Assistant Professor of Faculty of Science and Technology, Technological and Higher Education Institute of Hong Kong (THEi), Hong Kong. She received her Bachelor's degree in Food Science and Nutrition from the University of Hong Kong. She obtained Master of Food Safety and Toxicology as well as PhD in Food Science from the University of Hong Kong. She had conducted research in various areas such as plant food protein, process-induced food toxicants and the potential application of probiotics in food safety.



**Tatiana M Giro\***, Sergey V. Kozlov, Ivan F. Gorlov, Andrey V. Kulikovskii, Anna V. Giro, Inna V. Simakova

N. I. Vavilov Saratov State Agrarian University Teatralnaya Sq. 1, Saratov 410012, Russian Federation

## **Biomedical evaluation of antioxidant properties of iodine, selenium and their combination in rat diets on the model of acute toxic hepatitis**

The article presents a study of the antioxidant properties of lamb that was enriched with organic forms of iodine and selenium and used in the diets of laboratory animals on the model of acute toxic hepatitis. The experiments resulted in developing and testing a technique that was effective in enriching lamb with bioorganic elements of iodine and selenium and contributed to the activation metabolism in the bodies of animals consuming the meat. The purpose of the presented investigation was to compare roles of bioorganic iodine and selenium and their combination as antioxidants in rations for rats in a model of acute toxic hepatitis induced by carbon tetrachloride (CCl<sub>4</sub>). The experimental studies have established a hepatoprotective effect of lamb enriched with selenium and iodine, with xenobiotic toxically effecting the rat organism. This was confirmed by the normalized hematological and biochemical parameters of blood of the experimental rats.

### **Biography**

Giro Tatiana took her post-graduate and doctoral courses at the FGBNU V.M.

Gorbatov All Russian Meat Research Institute (VNIIMP) (Moscow). In 2006 she received the degree of Doctor of technical sciences, in 2009 - the academic status of Professor. Under her supervision 8 Candidate's dissertations were defended. She has published more than 400 articles in scientific journals. She presented papers at international congresses: in Serbia (Belgrade) 2007, China (Beijing) 2007, South Africa (Cape Town) 2008, South Korea (Seoul) 2010, Canada (Montreal) 2012. She was a member of the jury of The International Specialized Exhibition of the Meat Industry IFFA – Internationale Fleisch Fach Ausstellung (Germany, Frankfurt on the Main). Innovative projects presented at the IFFA were awarded four gold medals. She headed a team of University students at the international competition "TROPFELIA Europe" (France, Paris, Germany, Cologne), worked as a member of the jury of the same competition

**Cathy W. Levenson<sup>1\*</sup>, Nadine Tassabehji<sup>1,2</sup>, Elise C. Cope<sup>1,3</sup>**

<sup>1</sup>Department of Biomedical Sciences and the Program in Neuroscience, Florida State University College of Medicine, Tallahassee, Florida, USA

<sup>2</sup>Current Address: Department of Comprehensive Care, Tufts School of Dental Medicine, Boston, Massachusetts, USA

<sup>3</sup>Current Address: Department of Neuroscience, Center for Brain Immunology and Glia, University of Virginia School of Medicine, Charlottesville, Virginia, USA

**Role of dietary zinc in the development, prevention, & treatment of depression**

It has been known for a number of years that patients diagnosed with depression have low serum zinc levels. Use of pre-clinical models have enabled us to establish a causative role for zinc deficiency in the development in depression-like behaviours including anorexia, anxiety, and anhedonia. Clinical and pre-clinical work have shown that dietary zinc deficiency may impair the efficacy of anti-depressant drugs and that zinc supplementation may benefit some patients who are on anti-depressant medications, including the commonly prescribed serotonin reuptake inhibitors (SSRIs). Pre-clinical models have the advantage of permitting the identification of cellular and molecular mechanisms of zinc action in the brain that provide new therapeutic targets for treating mood disorders. One particularly strong pre-clinical model is depression induced by traumatic brain injury (TBI). While patients with all forms of TBI report depression, severe cases have significant zinc loss and are particularly vulnerable to depression. The controlled cortical impact model of TBI results in depression-like behaviors as well as impairments in learning and memory. The two-bottle saccharin preference test for anhedonia revealed that dietary zinc supplementation, combined with an early i.p. zinc injection significantly reduced anhedonia ( $p < 0.001$ ). Our data also suggest a role for chronic supplemental zinc in preventing cognitive and behavioral deficits in vulnerable populations in the event of a TBI. Zinc supplementation four-weeks prior to injury prevented the development of depression-like behaviors as well as prevented loss of spatial learning and memory seen in injured animals that were fed a zinc adequate diet without supplementation ( $p < 0.01$ ). Examination of brain gene expression in the hippocampus, a region of the brain that plays a role in depression, showed that TBI altered the expression of over 170 mRNAs, approximately 70 of which were normalized in rats supplemented with zinc. We identified genes involved in cell proliferation, apoptosis, survival, repair, and differentiation, suggesting that zinc supplementation may be playing a role in adult stem cell proliferation and the growth of new neurons. This is an important finding because it is well known that anti-depressant drugs also increase proliferation of neuronal precursor cells in the hippocampus. When we measured this directly using a thymidine analog, we found that TBI doubled the number of proliferating cells in the hippocampus 24 hours post-injury ( $p < 0.05$ ) and, more importantly, supplemental zinc increased this number by an additional 2-fold. Furthermore, four weeks of zinc supplementation significantly increased the density of new doublecortin-positive neurons one-week post-TBI that were maintained for 4 weeks after injury ( $p < 0.01$ ). Together these data suggest that zinc interacts with a variety of cellular and molecular targets that could be used to develop new therapeutic targets to treat and prevent depression and depression-related disorders.

**Take Away Notes:**

- Interactions between zinc and anti-depressant drugs suggest new avenues for nutrition counseling of patients.
- The possible role of zinc in the prevention of TBI-associated depression adds a new dimension to the role of nutrition in patients with brain injury.
- Newly identified genomic mechanisms provide therapeutic targets for the development of novel anti-depressant therapies.
- The identification of zinc regulation of adult stem cells in the hippocampus opens new avenues into future research into the role of this essential nutrient in the brain.

**Biography**

Dr Cathy Levenson received her doctoral degree from the University of Chicago and conducted research in the lab of Dr. Robert Cousins at the University of Florida before accepting a faculty position at Florida State University where she is now Professor of Biomedical Sciences and Neuroscience at the College of Medicine. She also serves as the Vice Chair of the Department and the Associate Chair for Graduate Studies. Her work on the role of zinc, neuronal stem cells, brain injury, and glioma has been published in over 75 peer-reviewed articles and book chapters.

**Tafere G Belay<sup>1\*</sup> and Barbara J. Stoecker<sup>2</sup>**

<sup>1</sup>Health Sciences Department, Central Washington University, Ellensburg, WA, USA

<sup>2</sup>Nutritional Sciences Department, Oklahoma State University, Stillwater, OK, USA

**High variability of iodine in iodized salt and urine from rural households in Sidama zone, southern Ethiopia: A cross-sectional study**

Iodine is essential for the synthesis of thyroid hormones which regulate the metabolic processes of most cells and play important roles in human growth and development. Iodine deficiency has long been one of the most common nutritional problems in the world. Ethiopia, particularly the study population (Sidama) has a history of severe iodine deficiency. The purpose of the study was to assess urinary iodine concentration, level of goiter in mothers and school-age children and household salt iodine concentration in households 10 months after launch of the national salt iodization program. A cross-sectional study was conducted on a randomly selected sample of women and schoolchildren. Goiter was assessed by palpation. Concentrations of iodine in salt, urine and water were analyzed by inductively coupled plasma mass spectrometry (ICP-MS). The study included 193 mothers and 76 children. The median (IQR) urinary iodine concentration (UIC) was 143 (84, 202)  $\mu\text{g/L}$  in the mothers and 187 (102, 278)  $\mu\text{g/L}$  in the children. Mothers' UIC ranged from 17 to 767.2  $\mu\text{g/L}$  and children's UIC ranged from 19 to 739  $\mu\text{g/L}$ . Goiter prevalence was high in both mothers (76%) and children (79%). The median household salt iodine concentration (SIC) was 8.1 (4.3, 13.4) ppm (mg/kg) with a range of 0 to 42 ppm. None of the water samples contained iodine above the detection limit of 1  $\mu\text{g/L}$ . Despite the launch of the salt iodization program in

Ethiopia, 94% of the study participants were not aware that they used iodized salt and 88% did not know the benefits of iodized salt. The major source of iodine for this population was iodized salt; however, the salt at household level contained minimal but variable amounts of iodine. Low concentration of iodine in salt may be further compounded by storage, handling and cooking techniques. The high variability of salt iodine concentration (SIC) was also reflected in the UIC of the mothers and children.

**Take Away Notes:**

- Nationwide salt iodization program helps increase iodine status
- Long-term salt iodization program is needed in order to see effects on goiter
- Unless salt iodization program is closely monitored some people could be exposed to excessive amount of iodine

**Biography**

Dr. Belay holds a PhD and MS in Nutritional Sciences from Oklahoma State University. He has been working at Central Washington University since September 2016. During his stay, he has taught various courses including Introduction to Nutrition, Community Nutrition, Introduction to Foods, Global Nutrition and Food Security, Nutritional Assessment and Advanced Minerals Metabolism. He has done various researches in micronutrient deficiencies, maternal and child nutrition and food insecurity.



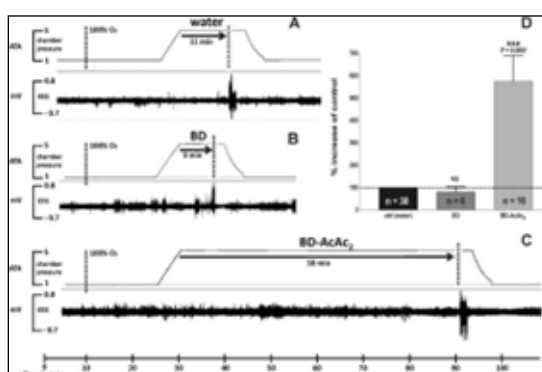


## Raffaele Pilla

Pharm D, PhD – St. John of God Hospital – Fatebenefratelli, Benevento, Italy

### Therapeutic ketosis and the broad field of applications for the ketogenic diet: Ketone ester applications & clinical updates

It has been recently shown that nutritional ketosis is effective against seizure disorders and various acute/chronic neurological disorders. Physiologically, glucose is the primary metabolic fuel for cells. However, many neurodegenerative disorders have been associated with impaired glucose transport/metabolism and with mitochondrial dysfunction, such as Alzheimer's/Parkinson's disease, general seizure disorders, and traumatic brain injury. Ketone bodies and tricarboxylic acid cycle intermediates represent alternative fuels for the brain and can bypass the rate-limiting steps associated with impaired neuronal glucose metabolism. Therefore, therapeutic ketosis can be considered as a metabolic therapy by providing alternative energy substrates. It has been estimated that the brain derives over 60% of its total energy from ketones when glucose availability is limited. In fact, after prolonged periods of fasting or ketogenic diet (KD), the body utilizes energy obtained from free fatty acids (FFAs) released from adipose tissue. Because the brain is unable to derive significant energy from FFAs, hepatic ketogenesis converts FFAs into ketone bodies-hydroxybutyrate (BHB) and acetoacetate (AcAc)-while a percentage of AcAc spontaneously decarboxylates to acetone. Large quantities of ketone bodies accumulate in the blood through this mechanism. This represents a state of normal physiological ketosis and can be therapeutic. Ketone bodies are transported across the blood-brain barrier by monocarboxylic acid transporters to fuel brain function. Starvation or nutritional ketosis is an essential survival mechanism that ensures metabolic flexibility during prolonged fasting or lack of carbohydrate ingestion. Therapeutic ketosis leads to metabolic adaptations that may improve brain metabolism, restore mitochondrial ATP production, decrease reactive oxygen species production, reduce inflammation, and increase neurotrophic factors' function. It has been shown that KD mimics the effects of fasting and the lack of glucose/insulin signaling, promoting a metabolic shift towards fatty acid utilization. In this work, the author reports a number of successful case reports treated through metabolic ketosis.



**Figure 1:** Ketone Ester significantly increased resistance against Central Nervous System Oxygen Toxicity seizures (D'Agostino D.P. et al., 2013 Am J Physiol Regul Integr Comp Physiol. 304(10):R829- 36).

#### Biography

Raffaele Pilla, Pharm.D., Ph.D., Doctor Europaeus, received his Master's degree in Pharmacy at G. d'Annunzio University in Chieti-Pescara, Italy in 2005, where he also served internships at the Cell Physiology Laboratory and Molecular Biology Laboratory. Prior, he was an Erasmus Student at Faculte de Pharmacie de Reims in Reims, France. He received his Doctor Europaeus in 2010 from Pitie-Salpetriere Institute in Paris, France. Also in 2010, he received his Ph.D. in Biochemistry, Physiology, and Pathology of Muscle at G. d'Annunzio University in Chieti-Pescara, Italy. He was hired as a Postdoctoral Scholar in the Department of Pharmacology and Physiology at the University of South Florida in Tampa, on two research grants funded by the Office of Naval Research (US Navy) and Divers' Alert Network. He has written and lectured widely worldwide. He has been involved in ongoing research at the University of South Florida with the use of ketone esters.



**Silvia Bittner Fialova<sup>1</sup>, Peter Gal<sup>1,2</sup>, Milan Nagy<sup>1</sup>, Pavel Mucaji<sup>1\*</sup>**

<sup>1</sup>Department of Pharmacognosy and Botany, Faculty of Pharmacy, Comenius University in Bratislava, Bratislava, Slovakia

<sup>2</sup>Department of Pharmacology, Faculty of Medicine, Pavol Jozef Safarik University, Kosice, Slovakia

## ***Agrimonia eupatoria L.* and *Cynara cardunculus L.* Water Infusions: anti-diabetic, antimicrobial, and wound healing activity**

Artichokes as an important part of the Mediterranean diet have a positive impact on human health. Traditional applications of *C. cardunculus* consider the usage of the blanched leaves, fleshy leaf petioles and the receptacle in soups, stews, and salads. Cardoon leaves are used for their cholagogue actions, for treatment of dyspepsia, and as antidiabetics. *Agrimonia eupatoria L.* is an herb of the Rosaceae family, widely used in traditional medicine for its beneficial effects. Herbal medicines containing agrimony are usually available as herbal teas to be drunk, or as gargles. They are also available as liquids to be applied to the skin or used as a bath additive.

Both, *A. eupatoria* and *C. cardunculus* extracts contain nearly 8% of total polyphenols and are able to protect cells and tissues against oxidative damage acting both as radical scavengers as well as by increasing the antioxidant activity. In vitro results demonstrate that AE extract showed more efficient antioxidant activity than the CC extract. This extract was selected for the animal study of wound healing. The mean vital area of a skin flap in the control group was 48.7% ± 9.4%, whereas the AE-treated rats had increased flap viability to 58.1% ± 7.7% ( $p < 0.05$ ). To evaluate the potential anti-diabetic activity of the plants the inhibitory effect of  $\alpha$ -glucosidase and serum glucose levels were determined. To complete the panel of experiments inhibition of advanced glycation end-products (AGEs), the activity of butyrylcholinesterase (BuChE), reactivity of aortas, and measurement of body weight were employed to assess the plants protective properties against the development of DVC. The antimicrobial activity of CC extract was estimated using a microdilution technique against food-borne, mycotoxin producers and human pathogenic bacteria, and micromycetes. In biological assays, *C. cardunculus* extracts showed antimicrobial activity comparable with standard antibiotics.

The obtained results indicated that both AE and CC extracts are able to protect cells and tissues against oxidative damage. The in vivo study on AE extract demonstrated the capacity to also act on damaged skin, suggesting potential positive activity in wound repair. Nevertheless, the optimal treatment protocol for use in humans remains to be found in further clinical studies.

### **Take Away Notes:**

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

### **Biography**

Dr. Mucaji studied Pharmacy at Comenius University in Bratislava, Slovakia, and graduated with an MS in 1993. He received his Ph.D. degree in Pharmacognosy in 1997 at the same institution. In 2004 he obtained the position of Associate Professor at the Faculty of Pharmacy, Comenius University, and in 2013 position of Professor. He has published more than 60 research articles in SCI(E) journals with around 1000 citations. His field of interest is Pharmacognosy, separation and identification of natural compounds, extracts standardization, and evaluation of the biological activity of natural compounds.



## Shraddha Bhargande<sup>1\*</sup>, Shraddha Deo<sup>2</sup>

<sup>1</sup>SNEH Foundation

<sup>2</sup>Wipro Cares

### **Correlation between anemia during pregnancy and low birth weight in children: Evidence from Project Vatsalya from the urban slums of PCMC, Pune- India**

According to WHO, In 2019, global anemia prevalence was 29.9% in women of reproductive age, equivalent to over half a billion women aged 15-49yrs. Prevalence was 29.6% in non-pregnant women of reproductive age, and 36.5% in pregnant women. Anemia in mothers and children has been implicated as one of the factors contributing to the deaths of children, yet it has not received adequate attention. Low birth weight has been widely studied and is an important risk factor for infant morbidity and mortality. However, insufficient weight has received little attention, even though three decades ago, children with birth weights less than 3000 grams were considered to have a risk of mortality that was three times higher during the first year of life than that of children whose weights were above or equal to this cutoff point. Anemia during pregnancy is a serious health concern because it leads to many life-threatening complications and poor pregnancy outcomes.

We conducted a survey to identify pregnant anemic mothers from urban slum communities and to determine the association between Anemia and low birth weight in their children after birth. As part of the study, 200 mothers were included via a household survey and pre-test to assess their knowledge about Anemia and its effects on mothers during pregnancy as well as on children. All the pregnant mothers from the reproductive age group about 15 to 45yrs, were included in the project from 6 slums of the Pimpri Chinchwad (PCMC) Pune-India. As part of our guidance, we have emphasized nutritional intake and consumption of Iron and Folic Acid supplements during pregnancy and postpartum to ensure a healthy hemoglobin count through regular home visits. The hemoglobin level is tracked down on a monthly basis during ANC Check-ups to ensure the rise in the hemoglobin count. During the year 2020-21, about 74% of cases from the sample females were recorded to have anemia during pregnancy and about 18% of females have alarming signs of anemia. It was also noted that more number of children of mothers having anemia during pregnancy had low birth weights compared to children with mothers having good Hb during pregnancy. 36% of children had birth weight between 2-2.5 Kgs while about 5% of them had birth weight below 2 Kgs. The data suggests that about 65% of mothers had alarming anemic signs and their hemoglobin level was in the range 10-11gm/dl.

The study concludes that we need to focus more on nutrition during the pre-conception stage along with rigorous counseling regarding maternal and new born health care. We also need to spread awareness about menstruation, reproduction, maternity etc. among the adolescents along with regular health check ups for better impact.

#### **Biography**

Ms. Shraddha works as a CEO at SNEH Foundation, India. She has been involved in end-to-end operations of the organization that works for Community based Malnutrition, maternal health, and Education. She has a special interest in community-based initiatives, research-based methodologies, and sustainable approaches to problems, especially while working in the urban slums of India which are the major focus areas of SNEH at the moment. She also believes that strengthening the existing systems, population control and spreading holistic awareness among the residents about healthcare is a must to have the sustainable impact of the community-based initiatives. Ms. Shraddha has completed her Masters in Clinical Psychology and has 11 years of experience of working in mental health. She was associated with a psychiatric hospital and a rehabilitation center for mental disorders and drug addiction. She has also worked with various special schools, K.E.M. Hospital, Poona Hospital, and Dr. Anjali Morris Educational and Health Foundation, an NGO working in the field of Specific Learning Disability and ADHD in Pune. She was heading the Maharashtra region's team in her previous organization that worked for overall child development in various schools of Maharashtra. She has worked as a research associate with one of the leading psychiatrists in Pune. Shraddha currently serves on the state-level Mental health core committee headed by the disability commissioner of Maharashtra.



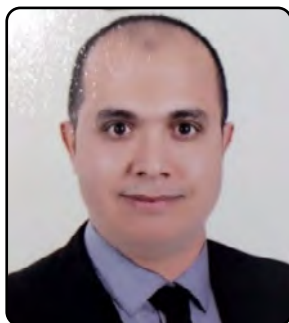
**Dauda Adegbola Oladele<sup>1\*</sup>, Hassan Hauwawu<sup>1</sup>, Babayeju<sup>1</sup>,  
Adeshola A Oyelade<sup>2</sup>**

<sup>1</sup>Department of Home Economics and Food Science, University of Ilorin,  
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<sup>2</sup>Department of Agricultural Extension and Rural Development, University  
of Ibadan, Ibadan, Nigeria

## **Fermentation potentials of baobab (*adansonia digitata*) pulp powder in yoghurt production**

**B**aobab, *Adansonia digitata* of the genus *Adansonia* and *Malvaceae*, is a deciduous and most common tropical multipurpose valued fruit tree with many uses and nutritional benefits. As such, this study evaluated the effect of baobab-pulp powder on the quality and production of yoghurt. Baobab-pulp powder was used at 0.34%, 0.52%, 0.69%, and 0.85%, while control sample was yoghurt made from DVS starter culture. The proximate, physicochemical, microbial, and sensory properties of the samples were analysed using standard procedures. With the use of baobab-pulp powder as inoculum, moisture, crude protein and fat contents decreased, while fibre, ash and carbohydrate contents increased, with pH between 3.95 and 4.24. Also, titratable acidity increased (0.62-0.69); brix increased from 30.85-40.02; viscosity increased from 200.05-200.14, while total bacterial and fungi count ranged from  $8.65 \times 10^4$  to  $15.51 \times 10^4$  CfU/ml and  $1.12 \times 10^4$  to  $4.54 \times 10^4$  CfU/ml respectively. Significant difference was noticed in the over-all acceptability of samples; sample with 0.85% baobab-pulp powder, was the most preferred, followed by that with 0.69%, while the least accepted was control. This showed that milk inoculated with baobab-pulp powder had improved quality and acceptability. Use of baobab-pulp powder greatly improves taste and consistency, reduces pH and increased total titratable acidity leading to reduced microbial load. The use of baobab-pulp as inoculum confers longer shelf-life on the yoghurt.



## Mahmoud Mahrous Mohammed Abbas

Al-Azhar University, Egypt

### Health risk assessment of heavy metals in the crayfish muscles

Potential health risks of heavy metal exposure have been reported in the past few decades. In particular, recent studies have demonstrated that metals have cancer and non-cancer risks to human health beings. Cancer and non-cancer risks after consumption of metals via water and crayfish muscles was reported in few studies.

Heavy metals can be divided into essential metals and non-essential metals. Essential metals, including Fe, Cu, Co, Mn, and Zn, are necessary for biological life, but they become poisonous at higher concentrations. Other metals (non-essential metals), such as Pb, Cd, Hg, and As, are not necessary and can be harmful even in low concentrations

Lead (Pb) is reported to be an accumulative metabolic poison, which affects the nervous, cardiovascular, renal, hematopoietic, and reproductive systems in human. It can also cause mental retardation and hyperactivity in children. Cadmium can cause acute kidney damage, bone damage, spontaneous abortion, and cancer through absorption of the intestine, stomach, lung, and skin.

Arsenic (As), which is more toxic in its inorganic salts than in its organic salts, was associated with carcinogen by the International Agency for Research on Cancer (IARC). Inhalation of inorganic As caused lung cancer in smelter workers. Inorganic form of As might be established as low birth weight, fetal loss, cardiovascular disease, cognitive deficit, and skin impairment.

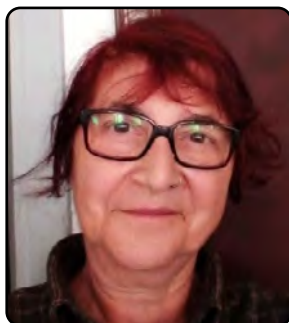
Elemental mercury (Hg) was harmful for the central nervous system, while inorganic Hg compounds primarily affected the kidney. Particularly, methyl-mercury (MeHg) was a potent neurotoxin. Even low dose Hg was reported to decrease performance in motor function and memory not only in children but also in adults.

Therefore, it is very important to evaluate the potential risks to human health caused by food intake contaminated by heavy metals in *Procambarus clarkii*.

Human health risk assessment of HM exposure through fish muscle consumption was examined in both people who eat a standard amount of fish (normal people) and those who eat it often (habitual people).

#### Biography

Mahmoud Mahrous Mohammed Abbas is Lecturer of Marine Biology at Zoology Depart., Facu. of Science Al-Azhar Uni., Cairo, Egypt. Teaching various courses in Faculty of Science Al-Azhar University. He is a member in the Marine biology Lab and in the Animal House at the Faculty of Science of A-Azhar University since 2012. He received a B.S. of marine biology and chemistry from Al-Azhar University in 2009, and an M.S. of environmental pollution from the Al-Azhar University of Cairo at Egypt in 2015. He received his Ph.D. of fish Biotechnology from the University of Al-Azhar in 2020. His research interest includes fish biotechnology, aquatic toxicology, marine environment and nanotechnology. Much of his work has been on improving the fish preservatives, metal toxicity and human risk health assessment. Abbas also organized workshops on biostatics and aquaculture for academics and professionals. He has given numerous invited talks and tutorials, and is a consultant to some companies involved in fish processing and technology. Abbas website includes Science.



**Enrica Donati<sup>1</sup>, Isabella Nicoletti<sup>1</sup>, Valentina Ramundi<sup>1,2</sup>,  
Sara Cimini<sup>2</sup>, Francesca Mariani<sup>1\*</sup>**

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## Edible wild plants embody healthy and sustainable food for the future

**M**editerranean countries are characterized by an enormous biodiversity and a rich heritage of edible wild plants (EWPs), which grow spontaneously in nature without human intervention, particularly in agricultural lands, fallow lands, forests and near streams and roadside. Since ancient times EWPs were employed by rural community as source of food and for medicinal purpose. In the last century, the industrialization of agriculture together with cultural transformations have led to changes in eating habits, causing the loss of the knowledge acquired over generations regarding the use of these plants. Despite that, the increasing demand for healthy foods and natural antioxidants, combined with the development of sustainable cuisine, has renewed interest in the use of wild flora. In addition, besides having very positive health effects, eating wild plants also provides economic benefits for rural areas through the sale of high-quality local products and promotes a sustainable development concept (“zero kilometer”). The health-promoting effect is due to the presence in these matrices of biologically active secondary metabolites like phenolic compounds, which have been reported to exhibit multiple pharmacological activities such as anticancer, anti-inflammatory, antimicrobial and antioxidant activities. The present study is aimed at showing useful data for furthering the knowledge of edible wild plants properties. In particular, the purpose of this research was to identify and quantify the main phenolic compounds that were found to be characteristic for the EWPs under investigation, notably *Glechoma hederacea* and *Sonchus oleraceus*.

A simple method coupling Ultra Performance Liquid Chromatography (UPLC) with Photodiode-Array detector (PDA) and Electrospray Ionization Mass Spectrometry (ESI-MS) was developed for the identification and quantitation of the main phenolic compounds in the plants extract. Polyphenols determination was then followed by the analysis of the EWPs antimicrobial properties by Minimal Inhibitory and Bactericidal Concentration assays (MIC/MBC) and by determining the Minimum Biofilm Inhibitory Concentration (MBIC) using a microtitre plate assay.

### Biography

Dr. Mariani studied Biology at the Sapienza Rome University, Italy, and graduated in 1990. She then joined the research group of Prof. Colizzi at Biology Dept. Tor Vergata University, Rome, Italy. She received her PhD degree in 1993 at the same institution. She then moved in 1994 for a two years postdoctoral fellowship supervised by Dr De Libero at the Department of Research, Experimental Immunology Lab. University Hospital, Switzerland.

**Vaijayanthi Kanabur<sup>1\*</sup> and R P Latha Reddy<sup>2</sup>**

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**The myths and facts of Organic foods**

**O**rganic foods are the foods produced without the use of chemicals during production, storage and processing. Consumers have a strong perception that organic foods are superior to the conventional foods. But there is very limited research work carried out to prove or disprove this claim. Phytonutrients, with known beneficial (often antioxidant) effects on human health, are expected to be higher in organic produce for various reasons. In conventional agriculture the use of fertilizers promote primary growth, at the cost of secondary growth. Organic crops are not protected by pesticides and plant metabolites are generated by a plant when attacked by pests.

Scientists have opined that the nutritive value of organic foods in terms of macro and micronutrients is not of great significance as the nutrient needs can be met from a variety of food sources. The secondary plant metabolites which are believed to be more in organic foods are of great significance due to the role played by them in prevention of many degenerative diseases.

In our study we have compared the antioxidant capacity of organic and conventional vegetables and found that among the four vegetables studied, organic samples of spinach and tomato showed significantly higher antioxidant capacity which may be due to heavy usage of pesticides in case of conventionally grown spinach and tomato samples. Contrary to these results, the conventionally grown beet root sample had higher antioxidant capacity than organic beet root sample. In general, there seems to be a difference in the antioxidant capacity in organic and conventional vegetables where there is heavy usage of pesticides.

Researchers have opined that there is a need to go beyond the nutritive value of foods in assessing the food quality. The forms in which the nutrients exist, particularly glycosylation status influence the bioavailability, health etc. A study by Yanez *et al.* (2008) showed that organic production can markedly alter both the glycosylation status and levels of chiral flavonoids. So there is need to understand these complex interactions involving structural changes and their functional significance. A number of studies that have compared the taste and organoleptic quality of organic and conventional foods and have not found consistent or significant differences between organic and conventional produce. The taste difference perceived by many consumers may be due to the fact that organic fruits and vegetables are more farm-fresh when they reach the consumer due to short supply chain and organic farmers often breed with primary focus on “taste” instead of “marketability”. Other significant issues with respect to organic foods are food safety and the productivity of organic foods. With respect to food hazards, such as endogenous plant toxins, biological pesticides and pathogenic micro organisms, available evidence is extremely limited.

The research on the differences between organic and conventional foods is limited, conflicting and complex. There is a need to go beyond nutritive value in assessing their effect on health. In addition, organic foods have a larger role to play in maintaining soil health, genetic diversity, minimizing pollution.

**Take Away Notes:**

- There is a strong perception among the consumers that organic foods are superior to conventional foods. There is a need to understand if this is scientifically valid or not
- There is a need to go beyond the nutritive value of foods in assessing the food quality. The forms in which the nutrients exist, particularly glycosylation status influence the bioavailability, and health
- The role of organic foods in sustainable food production and in achieving the food and nutrition security

**Biography**

Dr. Vaijyanthi Kanabur, studied M Sc Food and Nutrition at Agricultural University, Hyderabad in 1999. She received her PhD from Bangalore University. She is a recipient of Junior Research Fellowship from Indian Council of Agricultural Research, New Delhi. She has received summer research fellowship from Indian Academy of Sciences, Bangalore. She has published 14 research papers and 4 books. She has completed two research projects. She is working as Assistant Professor in Department of Food and Nutrition, Post graduate and Research Centre, Smt. VHD Central Institute of Home Science, Maharani Cluster University, Bangalore.





**Gauri Jairath<sup>1\*</sup>, A.K. Verma<sup>2</sup>, Devi Gopinath<sup>1</sup>, Gorakh Mal<sup>1</sup>,  
Birbal Singh<sup>1</sup>, Rinku Sharma<sup>1</sup>, Ajayta Rialch<sup>1</sup> and Putan Singh<sup>1</sup>**

<sup>1</sup>ICAR-Indian Veterinary Research Institute, Regional Station,  
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## **Bio-processing of agro-wastes for economic *chevon* production**

*Chevon* is relished all over the world and does not bear a tag of any religious or social taboo. Organized goat farms follow a standard diet chart for the feeding of their animals and include concentrate mixture and fodder as two main constituents. The concentrate part generally accounts for the cost of ration. In view of that, agro-wastes with high nutritional value can be utilized to reduce the cost of their production. Agro-wastes are generally discarded despite their nutritional worth and thus, can be bioprocessed for their efficient utilization. Different qualities of agro-wastes can be identified and combined in a way to produce an economical feed. Apple pomace, spent mushroom compost and wheat straw can be naturally bioprocessed by combining them at optimum ratios to develop a feeding material. Owing to the quality and nutritional attributes, the developed product can either be used as a maize replacer or as an additive in the goat feed. The feeding trial can be conducted to evaluate their efficient utilization as a feed ingredient in the goat's concentrate mixture or as an additive. The bioprocessing of agro-wastes into feed will not only provide an economic feeding material but would also a window to address the increasing environmental load.

### **Talk will cover following:**

- What is need of agro-waste utilization?
- How agro-wastes can be utilized as animal feed?
- Different ways of agro-waste processing
- Natural method of agro-waste processing
- Basis on which agro-wastes can be combined by natural processing
- Role in agro-wastes in economic meat production

### **What will audience learn from your presentation?**

- Field applicability of natural processing of agro-wastes utilization
- Points to be taken care of while combining them
- How utilization of agro-wastes based feed can be validated for animal feed
- Meat production parameters to be analysed while experimenting

### **Biography**

Dr. Gauri Jairath (B.V.Sc (Gold medal), M.V.Sc., Ph.D. and PGDAW) is posted as a scientist at ICAR-Indian Veterinary Research Institute, Regional Station, Palampur (H.P.) and working on agro-waste utilization as feed for goat meat production. She has been awarded thrice with Young Scientist Award by various societies and also honored with Inspiring lady Veterinarian Award, 2021 by Pashudhan Praharee for her contributions to Research and Development. She has published about 30 peer-reviewed articles in national and international journals, 19 book chapters and 2 edited books. She is an editorial board member of Journal of Veterinary and Marine Sciences.

# KEYNOTE FORUM

DAY 02

2<sup>ND</sup> EDITION OF INTERNATIONAL  
**NUTRITION RESEARCH  
CONFERENCE**

**15-16** JUNE



## Vasudeva Singh

Former Professor, Dept. of Bio-Engg and Technology, Food Science Division, Gauhati University, Gauhati, Assam 781 014, India

### Grain processing in general and rice technology in specific

Production of cereals in World is around 2600 million tonnes (MT) and India produces around 280 MT as on 2018-19. 750 MT of paddy rice is produced in World and India produces around 160 MT. From this, ~10% (16 MT) goes for the production of rice products like rice flakes, expanded rice and popped rice which are generally prepared or manufactured in small scale industries. Around 75 MT produced is used for production of raw rice and balance ( 75 MT) is used for the production of parboiled rice. World rice have been classified into 8 groups based on some of their physico-chemical properties like amylose content, gelatinization temp., alkali score, pasting behavior or viscographic parameters, cooking behavior etc. Importance of brown rice along with manufacturing large scale brown rice as well as nutri rice will be highlighted. Importance of Tiny rice mill will also be informed. Parboiling, a method of improving the technological and nutritive values of rice will also be highlighted. Medicinal rice Njawara, a pigmented variety, having high nutrients compared to other normal pigmented and non-pigmented rice varieties, its various physicochemical properties, protein and lipid profile in comparison with non-medicinal rice will be touched upon. Preparation of pre-gelatinized starches will be informed. Usage of cereals, millets, legumes in the preparation of multi grain ready to cook (RTC) and ready to eat (RTE) products will also be touched upon. Making of dhal from whole pulses and their technologies which are generally followed all over the world in some parts of Asia will also be focused upon. Millet technology in brief, maize grits manufacture and products from maize, in addition manufacture of starch from tapioca, which is generally used for the manufacture of Sago will also be touched upon. If time permits weaning foods preparation will also be touched upon.

#### Take Away Notes:

- By hearing this lecture, public will think processing of grains at a smaller scale, even at house hold no. of grains could be processed and they will also get an idea of manufacturing the grain products on a large scale
- This lecture will certainly throw light on earning their bread even at house hold level
- In addition to how they can process tapioca roots in order to get sago at house hold level will be learnt by the public
- How to consume brown rice or partially milled brown rice after simple treatment at home, such that it can be used even after 3 months storage at room temperature, as by simple treatment, its lipase activity will be reduced, hence rancidity will be minimized i.e formation of FFA will be reduced, hence it can be used even after few months
- Simple tiny rice mill will be shown, from which even a small quantity of paddy rice could be processed to get either brown rice or partially milled brown rice or fully milled rice could be obtained
- Simple technologies will be shown, when public can prepare RTC or RTE products, by knowing the subject from the parent institution, CSIR-CFTRI, Mysore
- Etc, etc,.

#### 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.



## R Pandiselvam

Physiology, Biochemistry and Post-Harvest Technology Division, ICAR – Central Plantation Crops Research Institute, Kasaragod-671 124, Kerala, India

### Skimmed coconut milk culture-based fermentation method for production of virgin coconut oil

Application of aerobic fermented skimmed coconut milk culture (SCMC) at varying concentrations (5-25%) was explored to maximize the yield and quality and to minimize the cost, time and energy during the production of virgin coconut oil (VCO) in fermentation process (Fig.9). It was observed that 24 h old SCMC at 10% concentration recorded maximum yield (19.2%) in 19 h fermentation. Individual and interactive effect of type of culture (24 h and 48 h old SCMC) and concentration has significant effect ( $P < 0.001$ ) on yield and non-significant effect on physical (moisture content, viscosity, specific gravity and refractive index) and chemical profile (free fatty acid, peroxide value, acid value, saponification value, iodine value, and total phenolic content) of VCO. The physico-chemical properties of VCO prepared by using SCMC induced fermentation method met the standards laid out by Food Safety and Standards Authority of India (FSSAI) and Asian and Pacific Coconut Community (APCC). SCMC is the cheapest alternative which could be useful to induce the fermentation rate during the production of VCO.

#### Audience Take Away:

- The fermentation techniques –present applications and future prospects
- Application of different culture for the enhancement of fermentation rate would be helpful to produce the virgin coconut oil at low cost
- The audience could understand the efficiency of culture on fermentation rate
- This study results will expand the area of research in the area of fermentation for oil production
- This is a base line study for understanding the implication of fermentation method on oil quality

#### Biography

Dr. R. Pandiselvam is a young academician actively engaged in food engineering research. He received B.Tech Agricultural Engineering in 2010 and M. Tech. (Agricultural Processing & Food Engineering) in 2012 from the Tamil Nadu Agricultural University. After completion of doctorate studies from Tamil Nadu Agricultural University at 2015, he has joined ICAR as a scientist (Agricultural Process Engineering) at Central Plantation Crops Research Institute (CPCRI), Kasaragod, India in 2016. Dr. R. Pandiselvam has played an instrumental role in the first report of the reaction kinetics and diffusion of ozone gas in paddy grains, rice grains, and green gram under Indian climatic condition. This work was presented in “International Conference on Innovative Insect Management Approaches for Sustainable Agro Eco System” and was conferred with a best poster award. He has contributed in design and development of minimal processing machine for tender coconut, continuous type coconut testa removing machine, tender coconut cutting machine and preservation protocol for trimmed tender coconut and also developer/co-developer many value-added food products (viz., Kalpa Krunch, Frozen Coconut Delicacy and Matured Coconut Water based Beverages), which are commercialized to many entrepreneurs. Dr. R. Pandiselvam authored more than 100 articles published in the national and international journals of repute. He has been author or co-author of 6 books and 55 book chapters. Dr. R. Pandiselvam is the associate editor of Measurement: Food (Elsevier Journal) and Frontiers in Nutrition. He has served/serving as a Guest Editor for Ozone Science and Engineering (Taylor & Francis Journal), Journal of Food Process Engineering (Wiley-Blackwell Journal) and Journal of Texture Studies. Dr. R. Pandiselvam also features in the editorial board member of Ozone Science and Engineering, Journal of Texture Studies, Quality Assurance and Safety of Crops & Foods, Nutrition & Food Science, and Current Agriculture Research Journal. He conferred with National Academy of Agricultural Sciences (NAAS) Young Scientist Award, NAAS Associate and Indian Society of Agricultural Engineers (ISAE)-Distinguished Service Award-2020.



## Joao PM Lima

<sup>1</sup>Polytechnic Institute of Coimbra, Coimbra Health School, Scientific-pedagogical Unit of Nutrition and Dietetics, Coimbra, Portugal

<sup>2</sup>GreenUPorto - Sustainable Agrifood Production Research Center, Porto, Portugal

<sup>3</sup>ciTechCare - Center for Innovative Care and Health Technology, Leiria, Portugal

### Digital platforms and social networks: An opportunity to healthy eating promotion or to nutrition dismiss information

**F**ood and nutrition have been identified as the main modifiable risk factors associated with the loss of healthy life years. Additionally, knowledge in nutrition has been described as one of the main determinants of food choices, although it is often associated with myths and misconceptions.

The importance of health literacy is highlighted and the direct effect it has on the individual's health status, since it conditions their ability to make adequate decisions regarding their health, as well as to adopt certain behaviors.

In order to achieve the objective of improving health literacy, it will be necessary to establish alliances between different sectors of society, constituting different partnerships, namely between health and education with the aim of increasing literacy levels in the population.

It will be necessary to bet on more personalized forms of communication and on educational campaigns involving the community and reaching different social and age groups, promoting autonomy and awareness of individuals for decision-making, acting according to the acquired knowledge.

The growing use of digital media represents an innovative way of providing this personalized information, especially among young people. Mobile platforms, health education and literacy and the promotion of healthy eating have had a profound impact today. Information and communication technologies (ICTs), in particular mobile electronic technologies, can be used in surveillance and monitoring, prevention and intervention in health, becoming accessible and relatively easy to use, having been widely adopted by various socioeconomic groups and different age groups.

Digital platforms and social networking applications for these media offer an excellent opportunity to expand the accessibility of health information, promoting literacy and the implementation of health programs, especially among young people, who adhere much more easily to the new technologies.

There is ample scope for exploring new approaches with real-world impact that combine young people's propensity for new technologies with the need to encourage them to change behaviors. The new means of communication, thanks to their interactive nature and the opportunities for sharing experiences and mutual support, have great potential to motivate their users to change health behaviors. Its dynamic nature facilitates the creation of more user-oriented messages, taking into account their personal and cultural background.

The communication of information about food, nutrition and science must be done in a simple, clear way, based on scientific evidence, taking advantage of the potential in digital platforms and social networks, but recognizing their strengths and weaknesses, namely in the dissemination of nutritional misinformation.

#### Audience Take Away:

- Potential usages of digital platforms and social networks to share nutritional information
- Strengths and weaknesses of nutritional dissemination on digital platforms and social networks
- Specific examples of the usage of social networks to healthy eating promotion and to nutrition dismiss information

#### Biography

Joao Lima, nutritionist, since 2012, by University of Porto. Completed in 2017 his PhD in Food Consumer Sciences and Nutrition by the same institution. He is a nutritionist specialized in Community Nutrition and Public Health and Adjunct Professor at Coimbra Health School of the Polytechnic Institute of Coimbra and coordinator of international relations for the field of Dietetics and Nutrition at the same institution. Member of the team responsible for the curricular internships of the Degree in Dietetics and Nutrition. His main interests are in the areas of Nutrition and Public Health and Food Service.



## Rueda Puente Edgar Omar

University of Sonora. Agriculture department, Sonora, Mexico

### Current situation of the agricultural sector in the world and the covid agricultural reconversion in which countries

COVID-19 (coronavirus) plunges the world economy into the worst recession since World War II. As a result of severe distortions to domestic supply and demand, trade, and finance, economic activity in advanced economies is expected to contract by 7% in 2020. The world's agricultural economies of the main countries that produce basic grains (corn, soybeans) are being altered (USA, China, Brazil, Argentina). For the remaining agricultural countries, it is an opportunity for agricultural reconversion. The reconversion of crops refers to the change of product or activity that allows a better use of the soil, favors its fertility and breaks the biological cycles of pests and diseases to have an effective control and prevent them from becoming immune or resistant. Therefore, this change, whether of product or activity, represents greater economic profitability and social viability for the producer, because comparative and competitive advantages are taken advantage of, and products with value can be offered in the internal and external markets. The types of conversion that can be carried out are: change from an annual crop to another of the same cycle; change from annual crops to perennials, for example, in the area of cultivation that was destined for cereal to establish in its place a certain fruit tree, another example is when annual seasonal crops are intercropped by grasslands. Likewise, there may be shift changes between the different productive sectors, for example, when moving from an agricultural activity to a livestock or from a livestock to a forestry one.

#### Biography

Awarded with the Doctor Honoris Causa degree by the International Organization for Inclusion and Educational Quality. Level two in the National System of Researchers of CONACYT. Six occasions as distinguished 2004-2006-2008-2010-; 2012-; 2014-2015; QUALIFIED TO AUDIT AND IMPLEMENT INSTITUTIONS MANAGEMENT SYSTEMS by Mexican Accreditation Entity (EMA: ISO 9001: 2015 Quality Management Systems; ISO 14001: 2015 Environmental Management System; ISO 21001: 2018 Management System for educational organizations; ISO 50001 Energy management systems; Certification in labor competence in the EC0217-CONOCER Competency Standard (teaching of training courses in a group face-to-face manner; Member of the Inter-secretarial Commission for Biosafety of Genetically Organisms Modified in Mexico.

# SPEAKERS

## DAY 02

2<sup>ND</sup> EDITION OF INTERNATIONAL  
**NUTRITION RESEARCH  
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**15-16** JUNE



## Sima Kianpour Rad<sup>1,2,3</sup> and Parastoo MojtahedZadeh-Ardabili<sup>4</sup>

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<sup>2</sup>The Basil Hetzel Institute for Translational Health Research, The Queen Elizabeth Hospital, The University of Adelaide, Woodville, SA 5011, Australia,

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<sup>4</sup>Physiology Department, Faculty of Medicine, University of Medical Science, Mashhad, Iran

### Neptune krill oil and fish oil possess anti-pain and anti-inflammation like effects of against carrageenan induced inflammation in mice

Although inflammation is a reactive to injurious stimuli and considered as beneficial process in body, but it causes some discomforts, such as pain. Murine dietary contains appreciable amounts of fatty acids and antioxidants which encourages researchers to focus on their potential therapeutic effects. This study is aimed to examine the analgesic and anti-inflammatory activity of Neptune krill oil (NKO) and fish oil (FO) in rodent model which are two well-known sources of rich content of n-3 polyunsaturated fatty acids (n-3 PUFAs), mostly eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). NKO and FO were used at the same dose of 500 mg and also balanced at similar doses of EPA: 12 in NKO vs. 12 in FO wt%, DHA: 7 NKO vs. 8 FO wt%. Application of NKO and FO in acetic acid-induced writhing effect, hot plate, and formalin induced test, indicated the nociceptive activity of the two tested drugs in comparison with normal saline. Also, the anti-inflammatory effect of these supplements was confirmed by carrageenan test. Analysis of cytokines levels in the blood samples of the mice after induction inflammation by carrageenan indicated decreased levels of those proteins compared to that in the normal groups. Both tested drugs, effectively could reduce severe inflammation and pain in rodents in comparison with the references drugs (depends on the tests); however, NKO was found to be more effective.

#### Take Away Notes:

- Although inflammation is a reactive to injurious stimuli and considered as beneficial process in body, but it causes some discomforts, such as pain. Nutrition plays a significant role in inhibition of pain and inflammation, for instance, murine dietary contains appreciable amounts of fatty acids and antioxidants which encourages researchers to focus on their potential therapeutic effects. This study is aimed to examine the analgesic and anti-inflammatory activity of Neptune krill oil (NKO) and fish oil (FO) in rodent model which are two well-known sources of rich content of n-3 polyunsaturated fatty acids (n-3 PUFAs), mostly eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) types of breast cancer in vitro
- Both Krill and fish oil supplements, showed anti-pain and anti-inflammation effects in mice model.
- The exact mechanism underlying this activity is not clear yet. Moreover, the bioactive compounds of each supplements need to be more studied in terms of such bio activity
- Faculty of Medicine: Clinical trial design
- Faculty of chemistry: Identification of bioactive compounds of the two oily supplements. Designing and developing molecules with a scaffold structurally similar to that of the bioactive compounds
- Faculty of nutrition/ Health and Medical Science: Studying the bio activity of new emerged drugs

#### Biography

I studied biomedical science, at the University Of Malaya, Malaysia and graduated as MedMS in 2016. I then joined the research group of Prof. Abolfazl Movafagh, Shahid Beheshti University, Iran.

I received the full scholarship of two G8 universities of Australia and started my PhD program ( Title of project: The biology of triple negative breast cancer ) under supervision of Dr Eric Smith, Associate Professor Wendy Ingman and Dr, Amanda Townsend in the University of Adelaide /Basil Hetzel Institute for Translational Health Research (Queens Elizabeth Hospital) in Adelaide, Australia (2022). I have published more than 10 articles in SCI(E) and PubMed indexed journals.





## Adryana Cordeiro<sup>1,2\*</sup> and Andrea Ramalho<sup>2</sup>

<sup>1</sup>Department of Nutrition, Universidad Iberoamericana, Campeche, Mexico

<sup>2</sup> Micronutrients research Center, Institute of Nutrition, Federal University of Rio de Janeiro, Brazil

### Association between MAFLD and vitamin D in obesity

**M**etabolic Associated Fatty Liver Disease (MAFLD) is the new term to Nonalcoholic fatty liver disease (NAFLD), that has become one of the most common chronic liver diseases worldwide. MAFLD is characterized by an accumulation of fat in the liver in the absence of such secondary causes as alcohol abuse, viral hepatitis, and so forth, while presenting such wide-ranging histological features as simple macrovesicular steatosis and nonalcoholic steatohepatitis (NASH) that can evolve into fibrosis, cirrhosis, or hepatocellular carcinoma.

Vitamin D deficiency (VDD) can result from problems relating to the absorption of vitamin D (25(OH)D), hydroxylation due to liver failure, inadequate exposure to sunlight and other factors. It is one of the most prevalent micronutrient deficiencies in the world, with a billion people estimated to be deficient. Individuals with obesity, including those suffering from liver disease, are more susceptible to VDD. A potential explanation for this deficiency is, when there is damage of the liver, synthesis of 25(OH)D may be impaired by the presence of steatosis. VDD can exacerbate MAFLD at least in part through an inflammatory-mediated pathway, given how vitamin D mediates its intracellular signals via the vitamin D receptor (VDR), which is constitutively expressed in the liver.

There is limited information on the potential role VDD plays in MAFLD diagnosed via liver biopsy, mainly where NASH is concerned.

Thus, the aim of this presentation will be demonstrating the relationship between serum 25(OH)D concentrations and MAFLD staging, mainly, as diagnosed by liver biopsy, the gold standard method, in class III obesity [Body Mass Index (BMI)  $\geq 40\text{kg/m}^2$ ].

#### Take Away Notes:

- Recent researches about relationship between Metabolic Associated Fatty Liver Disease and Deficiency of Vitamin D
- Impact of steatosis hepatic in conversion of 25(OH)D
- The results will present could instigate researches to find out more information about this relationship, mainly provide answers to use in a clinical practice.

#### Biography

Prof. Dr<sup>a</sup> 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/ Biomedicine Department/ Biochemistry Unit/ Faculty of Medicine/ University of Porto – Portugal and Researcher of Post-doc/Institute of Nutrition Josué de Castro/ University Federal of Rio de Janeiro/Brazil. Director of Institute Adryana Cordeiro



## Seba Harphoush<sup>1,2</sup>

<sup>1</sup>The Key Laboratory of Modern Toxicology of Ministry of Education, School of Public Health, Nanjing Medical University, Nanjing 211166, China

<sup>2</sup>Faculty of Health Science, Al-Baath University, Homs, Syria

### Syrian children growth, health awareness and nutritional practices under the impact of the crisis and COVID-19 epidemic

Despite the great steadfastness that Syria has achieved in the face of more than a decade of stifling crisis followed by the global COVID-19 pandemic, the heavy impacts of these long rough years are certain and crucial on the health and nutrition levels, specially on vulnerable groups like women and children. Moreover, the lack of research and data on health and nutritional status of children within Syria makes it very difficult to draw conclusions and act effectively. The purpose of the current study was to evaluate growth development and give an insight about the public health awareness and nutritional practices among Syrian primary schools children. A cross-sectional study was conducted among private and public primary schools students aged 6 to 9 years old in Homs governorate in January to April 2021, anthropometric measures were taken and data about nutritional practices and health awareness were assessment by conducting two surveys answered by parents and students.

Analyses indicated the prevalence of obesity to be (5.3%, 8.2%), severely wasted (3.9%, 5.2%) and stunting (15.7%, 7.8%) for public and private schools respectively with a significant higher stunting prevalence among public schools student. Differences in nutritional practices and health awareness were recorded between public and private schools students under socioeconomic impact. This study contributes to evaluate the burden of crisis and COVID-19 pandemic on Syrian children growth and health practices in Syria. Improving health awareness and nutritional support among Syrian families to help children meet their growth needs is recommended. Moreover, additional research should be conducted to evaluate micro-nutrients deficiencies and provide appropriate medical support effectively.

#### Take Away Notes:

- There is a crucial lack of research and data on health and nutritional status of children within Syria
- This manuscript will contribute to improve understanding of the risks and impacts of COVID-19 to crisis-affected populations specially vulnerable groups like children
- This study contributes to evaluate the burden of crisis and COVID-19 pandemic on Syrian children growth and health practices in Syria
- Our results defines a critical level of stunting among primary school children
- Actions must be taken effectively to rise health conscious between parents and family members. This whole generation born and grew up under crisis lesion needs to join hands and make a great efforts to rehabilitate on the educational, health and living levels
- It is necessary to provide facilities and financial and technical support for health and community research to provide a better picture of the health reality, which helps in determining the most effective measures to raise health awareness and improve the nutritional status of Syrian children
- Schools constitute an important platform for providing health and nutritional support to children and their families. It is important and useful to have a growth monitoring department under the supervision of a nutritionist and health specialists to monitor the growth of children periodically, which provides data that helps in assessing the health and nutritional status and facilitates individual assistance when necessary

#### Biography

Dr. Seba studied Nutrition at Faculty of Health Science at Al-Baath University, Syria. Later she conducted her post-graduated studies at school of food science at Jiangnan University and graduated as MS in 2019. She then joined the research group of Prof. Li Zhong at School of Public Health, Nanjing Medical University, Nanjing, China. She will receive her PhD degree in 2023 at the same institution. During her doctorate study, she worked as an Associate Professor at Al-Baath University. She has published few research articles in SCI(E) journals.)

**Vikas Dadwal**<sup>1,2\*</sup>, **Robin Joshi**<sup>1,2</sup> **Mahesh Gupta**<sup>1,2</sup>

<sup>1</sup>CSIR-Institute of Himalayan Bioresource Technology, Palampur, 176061, H.P, India

<sup>2</sup>Academy of Scientific and Innovative Research (AcSIR), Ghaziabad, 201002, India

**Impact of edible polysaccharide fillers on citrus phenolic encapsulation: Development and characterization studies**

*Citrus medica* L. phenolic constituents were encapsulated in alginate microbeads with improved binding efficiency using polysaccharide fillers to deliver healthy attributes. Food grade polysaccharide fillers (starch, carrageenan, and pectin) were utilized at different concentrations (0.5–4%) to accelerate encapsulation efficiency, and control swelling release. For controlled extrusion and acquiring uniform microbead size, blended solutions were exposed to a similar set of instrumental conditions. Among these various sets of encapsulations, four concentration mixtures [AE; Alginate (2%) and phenolic extract (2%), ASE; Alginate (2%), starch (2%), phenolic extract (2%)], [APE; Alginate (2%), pectin (2%), phenolic extract (2%)], and [ACE; Alginate (2%), carrageenan (1%), phenolic extract (2%)] were selected based on encapsulation efficiencies. Further, physical properties such as sphericity factor, size, viscosity) were analyzed on these three optimized microbeads. Results have shown that higher encapsulation efficiency was achieved in APE (90.18%) with higher antioxidant activity (EC<sub>50</sub>- 108.97 µg/mL). APE also showed a controlled release and swelling pattern compared to others in simulated *in vitro* gastrointestinal conditions. Further, UHPLC-DAD-QTOF-IMS detected a higher hesperidin amount (264.11 mg/100 g) followed by polymethoxyflavones (PMFs) in APE microbeads. FTIR-based chemical interactions and SEM detection of smooth surface morphology in APE confirmed that extract encapsulation can be enhanced in alginate mixtures through polysaccharide fillers. Finally, would assist the therapeutic or preventive applications of citrus phenolic constituents.

**Biography**

Mr. Vikas Dadwal is a Ph.D. researcher at the Academy of Scientific and Industrial Research (AcSIR) at CSIR-IHBT in Palampur, Himachal Pradesh, India. The Indian Council of Scientific and Industrial Research awarded him a full senior research fellowship grant for his continuing research project. He has also worked on government-funded research projects from the Department of Science and Technology (DST) focused on bamboo-based nutraceuticals. Recently, he was awarded by AWSAR national award for his outstanding scientific writing skills. He contributed more than 13+ research articles in the peer reviews journals in the area of food science and technology.



## Dinanath T. Gaikwad<sup>1\*</sup>, Sayali J. Patil<sup>1</sup> and Suresh G. Killedar<sup>2</sup>

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<sup>2</sup>Department of Pharmacognosy, Sant Gajanan Maharaj College of Pharmacy, Mahagaon, 416503, Maharashtra, India

### Exploration of *Cassia fistula* L. seed mucilage as a natural biopolymer

*Cassia fistula* L. reported to be used as a source of human food and nutrition. Objective of the present study was to explore *Cassia fistula* L. seed mucilage as a natural polymer into controlled release floating drug delivery system. Firstly, *Cassia fistula* L. seed mucilage was extracted and evaluated for phytochemical screening, solubility studies, swelling index, viscosity and surface tension. Then, Atenolol floating systems were prepared with and without the *Cassia fistula* L. seed mucilage by direct compression method. Phytochemical screening resulted the presence of secondary metabolite carbohydrate in good amount. Results of hardness, friability, drug content and swelling index were satisfactory. The floating behaviour can increase the gastric residence time and eventually improve the bioavailability of the drug as evidenced from *in vitro* buoyancy and dissolution studies. Interestingly, developed floating system showed remarkable increase in dissolution. Conclusively, the results suggest that developed Atenolol floating system with *Cassia fistula* L. seed mucilage demonstrate interesting attributes to be explored for potential biomedical and industrial application.

#### Take Away Notes:

- Present study will fill the gap of industrial applications of natural-based medicinal application, which is a current need of modern therapeutics
- This research could use to expand other faculty's research or teaching
- Continuous research progress on natural polymer will promote the discovery towards the new biomedical applications

#### Biography

Dr. Dinanath T. Gaikwad studied Pharmacy at the Shivaji University, Kolhapur and graduated in 2004. He then joined the various academic institutes since from 2006. He received his PhD degree in 2020 at the same university. He has been actively engaged as Secretary for conduction of various academic as well as research programs at Lead College Scheme, Shivaji University. He has published more than 50 research articles in SCI(E) journals.



## Usman Naeem<sup>1</sup>, Muhammad Umair Arshad<sup>2</sup>, Farhan Saeed<sup>2</sup>, Ali Imran<sup>2\*</sup>

<sup>1</sup>Department of Nutritional Sciences, Govt College University, Faisalabad-Pakistan

<sup>2</sup>Department of Food Sciences, Govt College University, Faisalabad-Pakistan

### Extraction and characterization of polyphenols from fruits and vegetable waste through green extraction technologies with special reference to antioxidant profile

Food insecurity is deemed as one of the biggest challenges faced by the developing economies and Pakistan is no more exception. Moreover, the food waste further amplified the scarcity. The utilization of food waste is considered one of the prime strategies to support the circular economy and food security. The mandate of the current investigation was to extract and characterize the polyphenols from selected fruits and vegetable waste via green extraction technologies. Purposely, banana, orange, apple, onion and garlic processing industry by-products (peel & husk) were collected and subjected to compositional analysis followed by nutritional profiling with special reference to minerals. Later, the antioxidants from the studied peel were extracted by adapting the supercritical and ultrasound added extraction techniques alongside conventional extraction. The results indicated that the tested peels exhibited a promising amount of fiber and protein alongside K, Mg, iron, sodium and calcium. Among the extraction modules, supercritical at 3000psi elucidated the highest total phenolic contents (TPC), Total flavonoids (TF), DPPH, FRAP, ABTS activity as  $473.73 \pm 23.6$  mg GAE/100g,  $126.39 \pm 9.54$  mg CE/100g,  $53.81 \pm 3.82$  (%),  $22.24 \pm 0.25$   $\mu\text{M Fe}^{+2}/\text{g}$  and  $12.14 \pm 0.15$   $\mu\text{M TE}/\text{g}$ , respectively followed by ultrasound and conventional extraction. Among the peels, onion peel showed the highest antioxidant activity as  $914.44 \pm 39.4$  mg GAE/100g)  $178.19 \pm 14.5$  mg CE/100g,  $82.47 \pm 5.48$  %,  $30.22 \pm 0.19$   $\mu\text{M Fe}^{+2}/\text{g}$  and  $17.33 \pm 0.26$   $\mu\text{M TE}/\text{g}$  for TPC, TF, DPPH, FRAP and ABTS, respectively.

#### Biography

Dr. Ali Imran is currently working as assistant Professor in the Institute of Home and Food Science from more than 6yrs. 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 50 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



## Madhav Pokhrel

WHO Nepal, Nepal

### How healthy foods can help deal with mental health issues?

The connection between diet and emotions stems from the close relationship between your brain and your gastrointestinal tract, often called the “second brain”

Here’s how it works: Your GI tract is home to billions of bacteria that influence the production of neurotransmitters, chemical substances that constantly carry messages from the gut to the brain. (Dopamine and serotonin are two common examples.)

Eating healthy food promotes the growth of “good” bacteria, which in turn positively affects neurotransmitter production. A steady diet of junk food, on the other hand, can cause inflammation that hampers production. When neurotransmitter production is in good shape, your brain receives these positive messages loud and clear, and your emotions reflect it. But when production goes awry, so might your mood.

#### Take Away Notes:

- Definition of Healthy Foods and Mental Health Issues
- Relationship between Healthy foods and Mental health issues
- Factors how to develop behavior Of healthy foods to avoid mental health issues

#### Biography

Mr. Madhav Pokhrel studied science at Kathmandu Bernhardt college, Kathmandu and graduated as Intermediate in 2010. Then I joined the research group of Prof. salau din myia at Central Institute of science and technology. I received my Bachelor’s degree in 2018 at the same institution. After two years nutrition fellowship supervised by Dr. Navin Shrestha, I obtained the position of an nutrition officer and program officer. I have published more than 10 research articles in different journals 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

**Nazanin Sabet<sup>1\*</sup>, Zahra Soltani<sup>2</sup> Mohammad Khaksari<sup>3</sup>**

<sup>1</sup>Research Center of Tropical and Infectious Diseases, Kerman University of Medical Sciences, Kerman, Iran

<sup>2</sup>Endocrinology and Metabolism Research Center, Institute of Basic and Clinical Physiology Sciences, Faculty of Medicine, Kerman University of Medical Sciences, Kerman, Iran

<sup>3</sup>Physiology Research Center, Institute of Neuropharmacology, Kerman University of Medical Sciences, Kerman, Iran

**Investigating the effect of endurance exercise and two different food programs on experimental induced acute renal failure in male rats: the role of SIRT1**

**Background and Objectives:** Acute kidney injury (AKI) is a syndrome characterized by rapid loss of excretory function of kidney. Both exercise and some diets have been shown to increase silent information regulator (SIRT1) expression leading to reduction of kidney injury. In this study, the effect of alone and combined exercise and two different diets on kidney function, oxidative stress, inflammation, apoptosis and SIRT1 in AKI was investigated.

**Methods:** A number of rats were randomly divided into six groups; control, calorie restriction (CR), time restriction (TR), control with exercise, exercise + calorie restriction (CR), and exercise + time restriction (TR). Each group was divided into two subgroups of without AKI and with AKI (six rats in each group). Endurance exercise and diets were implemented before AKI. Serum urea and creatinine, urinary albumin, glomerular filtration rate (GFR), relative kidney weight, malondialdehyde (MDA), total antioxidant capacity (TAC), transforming growth factor (TGF- $\beta$ 1), SIRT1 levels, and Bcl2 Associated X (BAX), B-cell lymphoma 2 (Bcl2) levels, and histopathological outcome were measured before and 24 h after AKI induction.

**Results:** After induction of kidney injury, serum urea and creatinine, urinary albumin, relative kidney weight, kidney MDA and TGF- $\beta$ 1 levels, BAX increased in rats with both previous exercise and no previous exercise ( $p < 0.001$ ), while GFR, and kidney TAC SIRT1 and Bcl2 levels decreased ( $p < 0.001$ ). In the CR and TR group, these changes were less and in the TR group was greater. These changes after AKI were less in the group with previous exercise than in the group that had no exercise ( $p < 0.001$ ). The TR diet during exercise caused a less increase in serum urea ( $p < 0.01$ ) and creatinine ( $p < 0.01$ ), and urinary albumin ( $p < 0.001$ ) and BAX ( $p < 0.001$ ) levels after injury compared to the just exercise group. Also, both CR and TR diets during exercise caused less change in MDA ( $p < 0.001$ ) and TAC ( $p < 0.05$ ,  $p < 0.001$ , respectively) and Bcl2 ( $p < 0.001$ ) levels compared to just exercise group.

**Conclusion:** The results showed that, both of exercise and diets alone caused less changes in function impairment of kidney, oxidative stress, inflammation, apoptosis and SIRT1 levels and histopathological outcome following AKI and the effect of TR is greater. However, when the CR and TR diets were implemented during exercise, strong renoprotective effects appeared. For the effectiveness of different diets, more research is needed according to the type, intensity, and duration of exercise.

**Take Away Notes:**

- I try to share my latest findings with others and explain them clearly and the audience will find out what kind of diet to use to maintain their health to avoid the risk of metabolic diseases.
- They will also learn that the amount and type of diet and the intensity, type, and frequency of exercise are also involved.
- The results of this study also help nutritionists and exercise professionals 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.



## AliReza Alizadeh

Department of Embryology, Reproductive Biomedicine Research Center,  
Royan Institute for Reproductive Biomedicine, ACECR, Tehran, Iran

### Nutritional Approaches for Practical Suggestions in Fertility

This presentation details the essential role of nutrition and the challenges in fertility with a futuristic outlook for research and clinical purposes. Dietary amino acids (especially branched-chain amino acids; BCAA), microminerals, vitamins, and fatty acids have been shown to have a role in maintaining and improving male/female fertility. On the other hand, advanced glycation end products (AGEs) was introduced as a striking link between modern diet and health. Hence, the effects of dietary pattern (Western diet versus Mediterranean diet) on fertility have been discussed in several studies. While previous studies confirmed the critical roles of oxidative stress on infertility related diseases and syndromes in female, the quality of the evidence in the antioxidant versus placebo/no treatment and in the antioxidant versus antioxidant comparisons was assessed to be very low. Interestingly, antioxidants appear to be beneficial when it is the male partner who is supplemented. Folic acid supplementation may improve fertility indices in women and decrease erectile dysfunction in men which warrants further studies. Although the vitamin D levels and the association between vitamin D and health is a hot topic, previous studies found that vitamin D supplementation was not associated with clinical pregnancy rates. Our research at Royan Institute, Tehran, Iran on vitamin D levels in serum of sub-fertile men showed a high incidence of deficiency and insufficiency 25(OH) D Levels (<20ng/ml) observed in Iranian men. Uniquely, the challenges of women and men infertility is more pronounced today than ever before and could be partially related to the changes in the human diet over the past 100 years, most notably with regard to the type and amount of fatty acids (FAs) consumed. Therefore, a growing body of evidence points to a link between FAs and male/female fertility. Generally, studies regarding dietary FAs are expected to contribute to the research and clinical practices at least along three broad lines, namely research on the negative effects of trans FAs, positive effects of n-3 FAs, and optimization on n-3: n-6 FAs ratio. It seems that plant proteins appear to have a positive impact on fertility, while animal protein (especially from processed meat and red meat) a negative impact. In this regard, more attention should be given to BCAA metabolism as well as dietary BCAA and fertility that was previously ignored. While the studies on nutrition and reproduction crosstalk for providing a complete picture of the role of nutrition on fertility is far from complete, much progress has been made. In conclusion, the survey on diet and lifestyle of men/women suffering from sub-fertility/infertility who refer to infertility clinic of each country is considered as a spectacular and emerging issue for clinic and basic.

#### Take Away Notes:

- Since we worked on fertility improvement for more than ten years in a research institute (Royan Institute, Tehran, Iran), I will provide some practical suggestions for nutritionists.

#### Biography

Dr. Alizadeh is an animal nutritionist. Since joining the Embryology Department of Royan Institute, Tehran, Iran as a Senior Research Fellow (2010-2015) and Assistant Professor (2016 – Present), he has focused his research program on nutrition and reproduction interplay. He spent sabbatical leave at University of Bonn, Bonn, Germany on 2015-2016. Embryology Department of Royan Institute draws on oocyte as well as sperm cells, adipose tissue and live animals as models to uncover regulatory mechanisms associated with nutrient effects on fertility/infertility. He is member of four scientific committees regarding fertility at Royan Institute and reviewer of scientific journals about nutrition or reproduction.





## Sanjeeva S.P. Godakandage

Family Health Bureau, Colombo, Sri Lanka

### Programmatic considerations of maternal overweight and obesity in Sri Lanka

**Background and objectives:** Overweight and obesity of antenatal women have important implications on women themselves as well as their offspring. The implications to the antenatal woman include higher risk of miscarriage/stillbirth, gestational diabetes mellitus, preeclampsia, and the offspring is also more prone to congenital anomalies, macrosomia, childhood asthma and growth and development issues. In addition to health implications socioeconomic implications too need attention.

There is a national health program in Sri Lanka targeting newly married couples, where nutritional issues including overweight and obesity are addressed. It deals with overweight and obesity before the first conception, but a similar intervention is not available for women prior to subsequent pregnancies.

The objective of the current analysis is to study the trends of maternal overweight and obesity in Sri Lanka which are of programmatic significance.

**Methods:** Sources of information searched included PubMed and google scholar databases, scientific journals, printed reports and review meeting presentations. The keywords used included 'maternal', 'pregnancy', 'antenatal', 'overweight' and 'obesity'.

**Results:** There has been a rising tendency of maternal overweight and obesity according to studies conducted in numerous settings globally. This tendency is more marked in middle income countries. In Sri Lanka also maternal overweight and obesity has increased by more than one third in the five-year period from 2015 to 2019, according to the Reproductive Health Management Information System of Ministry of Health, Sri Lanka. However, there is lack of scientific investigations carried out in Sri Lanka regarding this issue.

There is a dearth of scientific evidence generated on the association between parity and maternal overweight and obesity in Sri Lanka. However, unpublished data reveal a dramatic rise in maternal overweight and obesity with increasing parity. This needs to be reviewed in the backdrop of absence of pre-pregnancy care for multiparous women in Sri Lanka.

**Conclusions:** Maternal overweight and obesity in Sri Lanka is an important issue that requires better focus by policy makers, service providers and researchers.

#### Take Away Notes:

- Overweight and obesity is an important health implication during pregnancy. Currently, the focus in low and middle income countries is on underweight across the whole life cycle, including in pregnancy. The participants, especially from low and middle income countries, will start focusing more on overweight and obesity during pregnancy
- Health and nutrition service providers will pay more emphasis on prevention of overweight and obesity in reproductive age women
- Currently there is global emphasis on providing healthcare to newly married couples that include addressing their nutritional issues prior to first pregnancy. However, a similar strategy is lacking in many settings for addressing nutritional issues prior to subsequent pregnancies. The participants will be motivated to address this important gap in service provision
- Participants from health and nutrition education sectors will be motivated to focus more on maternal overweight and obesity, as well as on inter-pregnancy care
- Participants will be motivated to generate evidence related to maternal overweight and obesity

**Biography**

Dr. Godakandage received his bachelor's degree in Medicine and Surgery from University of Ruhuna, Sri Lanka and MSc and MD degrees in Community Medicine from University of Colombo. Subsequent to his postdoctoral training attached to NHS, UK, he was Board Certified as a Specialist in Community Medicine in Sri Lanka and was appointed as a Consultant Community Physician by Ministry of Health, Sri Lanka. He also completed Postgraduate Certificate in Nutritional Medicine at University of Surrey. Currently he works as the technical focal point of the National Maternal Care Programme in Sri Lanka. He has published in numerous peer-reviewed journals.



## Ruby Natale<sup>1\*</sup>, Yaray Agosto<sup>2</sup>, Sarah Messiah<sup>3</sup>

<sup>1</sup>Department of Pediatrics, University of Miami School of Medicine, Miami, FL, USA

<sup>1</sup>Department of Pediatrics, University of Miami School of Medicine, Miami, FL, USA

<sup>2</sup>Department of Public Health, University of Texas, Houston, Texas, FL

### Implementing nutrition pillars and practices to improve early childhood classrooms for children with disabilities

There is a need to improve the nutrition environment of childcare centers serving young children of higher risk and that are underserved, including racial and ethnic minority groups and people living in rural communities. Children at the intersection of these two disparities (ethnic minority status and CSHCN) have rarely been studied<sup>1</sup>, yet obesity is 38% higher in children with disabilities compared to their peers without disabilities and three to four times higher in non-Hispanic black and Hispanic preschool age children compared to non-Hispanic whites. These statistics are concerning because obese preschool-age children are five times more likely to be overweight during adolescence

To address this issue, we developed the Healthy Caregivers-Healthy Children program which was designed to implement a nutrition program in child care centers. The goal is aimed at taking children off the trajectory of becoming overweight. The program is underway, however, our baseline data was collected which shows that over 50% of the 240 children we sampled had a BMI in the obese or overweight range. These are children who are ages 2 to 5 years old. Thus, there is clearly a need to intervene. We developed a nutrition program focused on snack and beverage pillars and implemented it in childcare centers serving children with disabilities. We will discuss how the program was implemented.

#### Take Away Notes:

- Participants will learn a method and strategies for developing a nutrition intervention to address obesity prevention for children with disabilities
- Participants will learn how child care centers have the ability to impact the growth and development of young children and their families
- Participants will learn how to properly assess the impacts of a nutrition program on child body mass Index (BMI)
- Other faculty can learn how to expand the research in this area by addressing the long-term impacts of a nutrition intervention on child BMI

#### Biography

Dr. Natale is a pediatric psychologist and Associate Professor of Clinical Pediatrics at the University of Miami School of Medicine/Mailman Center for Child Development. She leads the Community Wellness Interprofessional Collaborative with a mission to demonstrate, through solid research and scientific methods, the importance of working with young children birth through age 5 to promote a positive health trajectory. With over 40 publications, she has ensured the rapid translation of research from “bench to bedside” to implement innovative, early interventions for young children. Of the utmost importance to her is helping children with disabilities and families achieve optimal outcomes.

# Participants List

Adegbola Oladele Dauda University of Ilorin, Nigeria	20
Adryana Cordeiro Universidad Iberoamericana, Mexico	33
Ali Imran, Government College University Faisalabad, Pakistan	37
AliReza Alizadeh Moghadam Masouleh Royan Institute, Iran (Islamic Republic of)	40
Cathy W Levenson Florida State University College of Medicine, United States	14
Dalia El Khoury University of Guelph, Canada	10
Dinanath T Gaikwad Bharati Vidyapeeth College of Pharmacy, India	36
Edgar Omar Rueda Puente Universidad de Sonora, Mexico	30
Emily Siu Mei Choi Technological and Higher Education Institute of Hong Kong (THEI), Hong Kong	12
Francesca Mariani Montelibrettinal Research Council, Italy	22
Gauri Jairath Scientist, ICAR-Indian Veterinary Research Institute, Regional Station, India	25
Giro Tatiana Saratov State Vavilov Agrarian University, Russian Federation	13
Joao PM Lima Polytechnic Institute of Coimbra, Portugal	29
Madhav Pokhrel WHO, Nepal	38
Mahmoud Mahrous Mohammed Abbas Al-Azhar University, Egypt	21

Nazanin SabetKerman University of Medical Sciences, Iran (Islamic Republic of)	<b>39</b>
Pavel Mucaji Comenius University, Slovak Republic	<b>18</b>
R Pandiselvam ICAR-Central Plantation Crops Research Institute, India	<b>28</b>
Raffaele Pilla St. John of God Hospital, Italy	<b>17</b>
Ruby Natale University of Miami School of Medicine, United States	<b>43</b>
Seba Harphoush Nanjing Medical University, Chile	<b>34</b>
Sanjeeva S.P.Godakandage Family Health Bureau, Sri Lanka	<b>41</b>
Shraddha Bhargande SNEH Foundation, India, SNEH Foundation, India	<b>19</b>
Sima Kianpour Rad The Queen Elizabeth Hospital, Australia	<b>32</b>
Sudesh Kumar Yadav Center of Innovative and Applied Bioprocessing (CIAB), India	<b>09</b>
Tafere G Belay Central Washington University, United States	<b>16</b>
Vaijyanthi Kanabur Central Institute of Home Science, India	<b>23</b>
Vasudeva Singh Gauhati University, India	<b>27</b>
Vikas Dadwal CSIR-Institute of Himalayan Bioresource Technology, Palampur, India	<b>35</b>
Vladimir Gorchakov Novosibirsk State University, Russian Federation	<b>07</b>

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