magnus Group

7TH EDITION OF INTERNATIONAL

NUTRITION RESEARCH CONFERENCE &

3RD EDITION OF INTERNATIONAL CONFERENCE ON

PROBIOTICS AND PREBIOTICS

MARCH 27-29, 2025
SINGAPORE

Venue: Village Hotel Changi 1 Netheravon Rd, Singapore 508502

BOOK OF ABSTRACTS

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7th Edition of

International Nutrition Research Conference

&

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Probiotics and Prebiotics

MARCH

27-29

BOOK OF

ABSTRACTS

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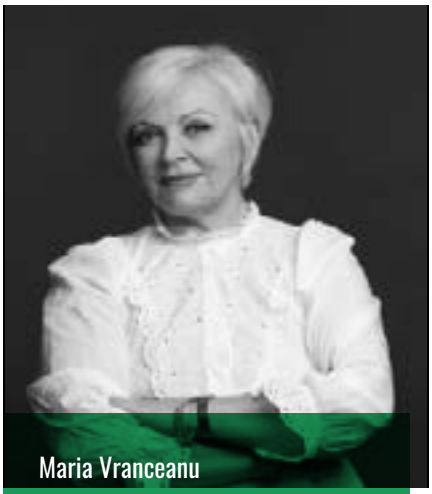

Maria Vranceanu
University of Medicine and Pharmacy Cluj Napoca, Romania

Thank You All...

Keynote Speakers

Neha Bhanusali
University of Central Florida, United States

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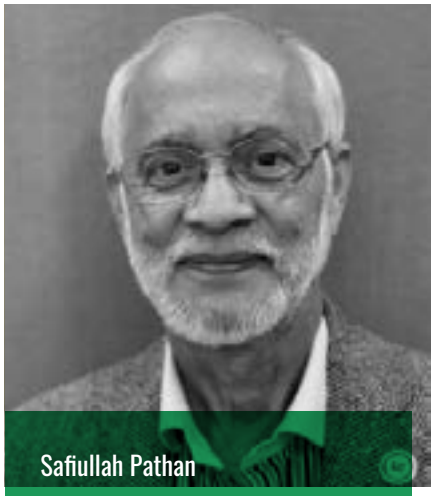
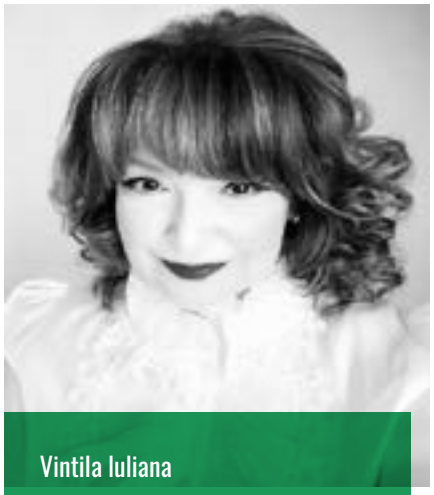


Safiullah Pathan
Lincoln University of Missouri, United States



Vintila Iuliana
University "Dunarea de Jos" Galati, Romania,

Nurinisa Esenbuga
Ataturk University, Turkey

Yasin Ozdemir
Ataturk Horticultural Central Research Institute, Turkey

Thank You All...

Welcome Message

It is a pleasure to welcome the Probiotics 2025 participants. I am honored and grateful to have the opportunity to speak with you during this congress in two presentations on the connections between the dietary shifts away from traditional foods over the past half century and the growing problem of metabolic disorders, such as diabetes and Alzheimer's disease, which have become particularly worrisome in Singapore and in many other countries worldwide. Dietary recommendations to eat a low-fat higher-carbohydrate diet and to replace saturated fat with polyunsaturated fat have encouraged these dietary shifts and have coincided with these epidemics of metabolic disorders. One presentation will explore whether such dietary guidelines are justified by the evidence. The other presentation will discuss how a dietary intervention with ketogenic oils and a whole food diet low in carbohydrates and higher in healthy fats could be beneficial to people with prediabetes, diabetes, Alzheimer's, other neurological and psychiatric disorders, as well as age-related cognitive decline.

Best wishes for a productive congress.

Mary T Newport M.D

Spring Hill, Florida, United States

Welcome Message

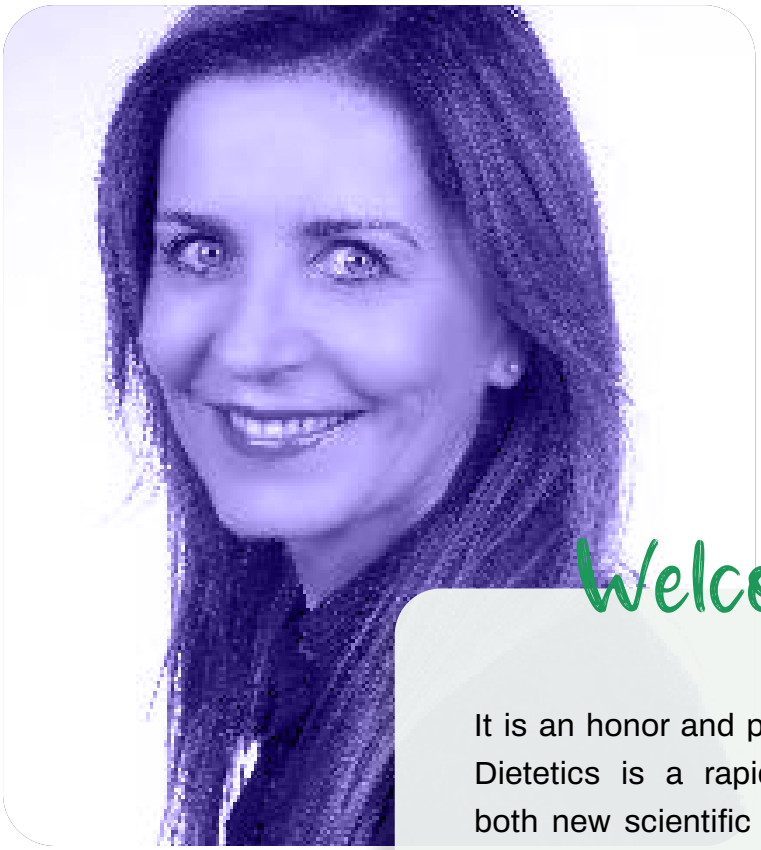
It's my immense pleasure to be part of this international conference and scheduled to deliver a keynote presentation on one of the world's trendy topics, "Globalisation of ayurveda through evidence-based nutraceutical route"

We are increasingly realizing that the one disease–one target–one drug concept does not always lead to successful disease control. This concept has led to new developments in drug discovery including systems-based approaches using the principles of multitarget pharmacology. It is generally accepted worldwide that modern pharmaceuticals will remain out of reach of many people and "health for all" may only be materialized by the use of adequately assessed nutraceutical/phytomedicinal products including Ayurvedic medicines. The globalisation of Ayurvedic medicines and their spread to the postmodern West is a paramount challenge and I'll discuss all these challenges and opportunities, particularly in nutrition and nutraceutical domain.

Please join me to get insight

Prof. Dr. Dilip Ghosh

Nutriconnect, Australia



Welcome Message

It is an honor and pleasure to write a few welcome notes. Dietetics is a rapidly evolving area of science, where both new scientific studies on nutrition in prevention and studies exploring further possibilities of applying diets in the treatments of many diseases, such as diabetes, obesity, cancer, cardiovascular diseases, and others, are regularly emerging. Dietetics is also important knowledge about, nutritional value and energy, as well as their possible interactions with medicines and dietary supplements. Dietetics is therefore an interdisciplinary science that provides a broad knowledge about food, human nutrition, and the effects that we can expect with the application of the diet.

Prof AWF, Dr Hab. Malgorzata Mizgier

Poznan University of Physical Education, Poland

Welcome Message

It is a great honor and pleasure to write a few welcome notes on the 7th Edition of International Nutrition Research Conference. Nutrition is vital for our daily lives and activities and the need for a balanced diet is emphasized from our primary school education. The high rates of cardiovascular disease, diabetes and obesity often stems from marked deviations from such balanced diets. The area of nutrition has exploded recently with development of new technologies, including multi-omics platforms, and personal management plans with explosion of literature on areas such as health and disease in humans (e.g., obesity, weight management, metabolic syndrome and other metabolic disorders, biomarkers, aging) and animals together with associated changes at the cellular or whole-body level (e.g., metabolism, immunology, biochemistry), dietetics and education, nutraceuticals and functional foods, nutrigenomics and nutrigenomics, nutritional immunology, nutrition in health and aging and many others. This conference will provide an unparalleled platform to learn about new developments from cutting-edge research, increase network and foster new collaborations.

Prof. Dipak P. Ramji

Cardiff University, United Kingdom

Welcome Message

As Keynote Speaker, it's my great pleasure in welcoming you to the 7th Edition of International Nutrition Research Conference-Nutri2025. The theme of this year's conference "Nutrition Frontiers: Pioneering Research for a Healthier Tomorrow" will captivate a global audience, foster meaningful connections with peers and industry leaders, and join pivotal discussions on the captivating topic of nutrition for health. I invite you to join us in our international conference to take advantages from this great scientific opportunity of exchanging knowledge and share your significant scientific insights toward the all participants including young and senior researchers, scientists, clinicians and academicians.

A/Prof. Dr. Iuliana Vintila

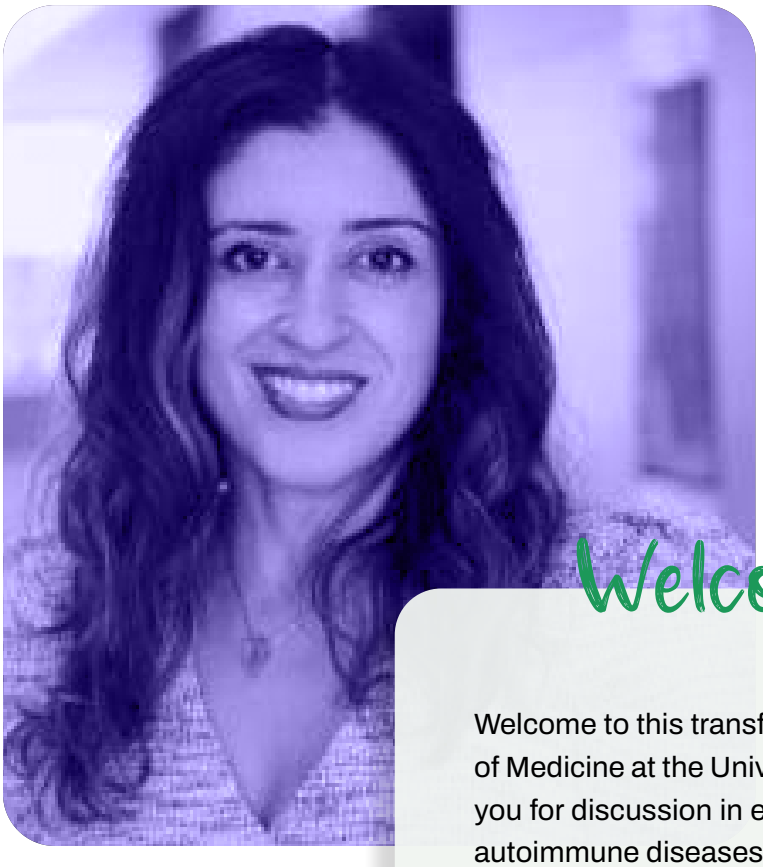
University "Dunarea de Jos" Galati/Global Harmonization Initiative Nutrition WG Chair, Romania/Austria

Welcome Message

it is an honor and pleasure to write a few welcome notes. I am honored and grateful to have the opportunity to share with you the last data in the field of nutrigenetics and precision nutrition. We live in a world where obesity has reached alarming levels, is continuously increasing and for the moment no country is able to stop this growing trend. As the prevalence of obesity continues to rise, it poses a significant threat to public health worldwide. The impact of obesity is staggering, with studies indicating that it is linked to a wide spectrum of co-morbidities, including type 2 diabetes, hypertension, cardiovascular diseases, liver dysfunction, respiratory and musculoskeletal disorders, sub-fertility, and certain types of cancer. The World Health Organization has declared obesity a global epidemic, emphasizing that it remains an under-recognized problem on the public health agenda. This is particularly concerning, as obesity is a chronic, relapsing, and progressive disease that requires comprehensive and effective intervention strategies. Nutrition stands as a pivotal determinant impacting human health, with proficient dietary interventions emerging as a predominant strategy in the prevention and treatment of non-communicable chronic diseases, especially for obesity, Type-2 diabetes and cardiovascular disease. In recent years, nutritional research has been rapidly increasing; however, the attribute risk of inadequate dietary intake contributing to the onset of these diseases remains substantial. This circumstance compels nutrition research to actively explore potential solutions to bridge this gap. “Precision nutrition” has been considered to be a possible solution to this gap for nearly a decade, predominantly based on evidence showcasing inter-individual variability in response to dietary interventions. The area of precision nutrition encompasses a comprehensive continuum spanning from the measurement of dietary intake to the development of intervention strategies based on individual variability. We have a great chance to exchange ideas, investigate fresh research, and work together on creative methods that benefit the individual at this conference. Join me in Singapore from 27-29 March 2025.

Dr. Maria Vranceanu

University of Medicine and Pharmacy, Cluj Napoca, Romania



Welcome Message

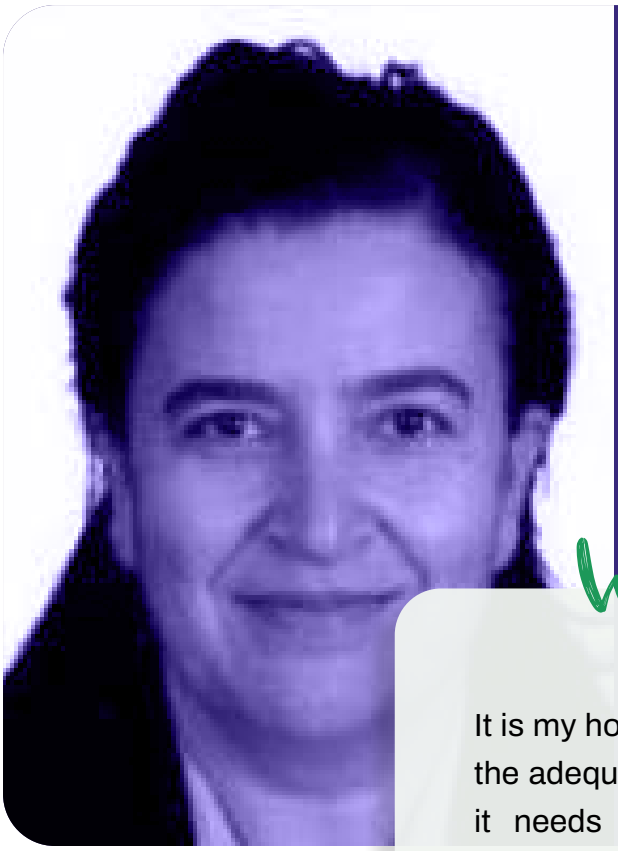
Welcome to this transformative event! As an Associate Professor of Medicine at the University of Central Florida, I am thrilled to join you for discussion in exploring the dynamic intersection between autoimmune diseases and lifestyle medicine, particularly through the lens of nutrition. This topic will illuminate how nutritional strategies can profoundly impact autoimmune conditions and enhance overall well-being.

My work in publishing research on nutrition and my role as culinary medicine faculty at UCF have deepened my appreciation for the critical role that diet plays in managing health conditions. This conference is a fantastic opportunity for us to share knowledge, explore new research, and collaborate on innovative approaches that help the individual.

I look forward to the valuable insights and discussions that will shape our future endeavors in this vital field.

Neha Bhanusali MD

University of Central Florida, United States



Welcome Message

It is my honor to write a welcome note. Nutrition; It includes the adequate, balanced, and healthy intake of the nutrients it needs depending on the productivity level, gender, species, and age of the living thing. Adequate and balanced consumption of nutrients is effective in growth, maintenance of life, protection of health, and increasing quality of life. As it is known, after understanding of the disadvantages of antibiotics on human and animal health, the use of antibiotics as growth factors in animal feeds was prohibited. The gap created as a result of legal regulations regarding antibiotics has brought alternative feed additives such as probiotics to the agenda. Probiotics are biological products that contain live cultures of bacteria or yeast. Probiotics are added to food or water in different forms (powder, granule, liquid suspension, capsule, and pellet) for purposes such as regulating gastrointestinal flora and fauna, preventing the development of pathogenic microorganisms and increasing feed efficiency.

Prof. Dr. Nurinisa Esenbuga

Ataturk University, Erzurum, Turkiye

Welcome Message

It is a great honor for me to welcome you and be with you at this conference. A lot of research has been done on probiotics over the years. In this way, a large probiotic market has been created. Nowadays, the idea of using probiotic bacteria with new components to develop more beneficial probiotic products has come to the fore. Thanks to the increase in new approaches like this, it is possible that new products will be developed and new markets will be created. Thus, more profitable products for producers and more useful products for consumers can be developed. I hope that this symposium will be beneficial to all participants, the scientific world and industrialists, and I wish success to all participants.

Yasin Ozdemir

Ataturk Horticultural Central Research Institute, Türkiye

ABOUT
MAGNUS GROUP

Magnus Group, a distinguished scientific event organizer, has been at the forefront of fostering knowledge exchange and collaboration since its inception in 2015. With a steadfast commitment to the ethos of Share, receive, grow, Magnus Group has successfully organized over 200 conferences spanning diverse fields, including Healthcare, Medical, Pharmaceutics, Chemistry, Nursing, Agriculture, and Plant Sciences.

The core philosophy of Magnus Group revolves around creating dynamic platforms that facilitate the exchange of cutting-edge research, insights, and innovations within the global scientific community. By bringing together experts, scholars, and professionals from various disciplines, Magnus Group cultivates an environment conducive to intellectual discourse, networking, and interdisciplinary collaboration.

Magnus Group's unwavering dedication to organizing impactful scientific events has positioned it as a key player in the global scientific community. By adhering to the motto of Share, receive, grow, Magnus Group continues to contribute significantly to the advancement of knowledge and the development of innovative solutions in various scientific domains.

ABOUT

CPD Accreditation

Continuing Professional Development (CPD) credits are valuable for Nutri-Probiotics 2025 attendees as they provide recognition and validation of their ongoing learning and professional development. The number of CPD credits that can be earned is typically based on the number of sessions attended. You have an opportunity to avail 1 CPD credit for each hour of Attendance.

Some benefits of CPD credits include:

Career advancement: CPD credits demonstrate a commitment to ongoing learning and professional development, which can enhance one's reputation and increase chances of career advancement.

Maintenance of professional credentials: Many professions require a minimum number of CPD credits to maintain their certification or license.

Increased knowledge: Attending Nutri-Probiotics 2025 and earning CPD credits can help attendees stay current with the latest developments and advancements in their field.

Networking opportunities: Nutrition and Probiotics Conference provide opportunities for attendees to network with peers and experts, expanding their professional network and building relationships with potential collaborators.

Note: Each conference attendee will receive 26+ CPD credits.

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Probiotics and Prebiotics

MARCH

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KEYNOTE PRESENTATIONS

Amy Gutman MD, FACEP

AdventHealth, United States

The remarkable impact of a ketogenic diet on brain health

Hippocrates said, "Let food be thy medicine, and medicine thy food." Today, a growing body of evidence-based medical research supports the ketogenic diet's positive impact on brain health known as “the metabolic mindset”.

The diet not only has general implications for multiple non-neurological chronic diseases such as obesity cardiovascular, and oncologic conditions, but it also has the power to cause a near- complete reversal of neurodegenerative diseases like Parkinson's, multiple sclerosis, and ALS. Recent research in 2024 demonstrates that the diet has even helped patients with mental illnesses such as schizophrenia and bipolar disorder, who previously relied on polypharmacy with terrible side effects.

As more mainstream physicians turn to the power of nutrition to improve previously incurable diseases, we must explore the science behind "the metabolic mind," where diet replaces pharmaceuticals. It's time to recognize the power of food as medicine and embrace this revolutionary approach to health.

Biography

Dr. Gutman's dedication to preventive care is a cornerstone of her approach to healthcare. With over three decades of experience in the field, she is board-certified in Emergency Medicine with Fellowships in prehospital care and resuscitation and specialized training/certifications in general surgery, maritime medicine, occupational medicine, and nutritional and ketogenic coaching. She is currently an Attending Emergency Physician in Orlando, Florida, having worked all over the United States and Internationally, including serving as a Medical Director for multiple large hospital departments and prehospital services. She has presented at over 100 conferences and has multiple original research publications. Her commitment to positively impacting patients’ lives is unwavering as she strives to reduce the prevalence of debilitating chronic illnesses. She actively debunks medical misinformation, challenging a healthcare industry that often profits from keeping people sick rather than encouraging wellness. Her confidence in the power of knowledge to transform lives is the driving force behind her commitment to empowering individuals with evidence-based science to take control of their health.

Andrea Maier Noth

University Albstadt-Sigmaringen, Germany

The development of healthy eating habits from infancy into adulthood

Children's vegetable consumption falls below current recommendations, highlighting the need to identify strategies that can successfully promote better acceptance of vegetables. Recently, experimental studies have reported promising interventions that increase acceptance of vegetables. The first, offering French and German infants a high variety of vegetables at weaning, increased acceptance of new foods, including vegetables. The second, offering an initially disliked vegetable at 8 subsequent meals markedly increased acceptance for that vegetable. So far, these effects have been shown to persist for at least several weeks (at 15 months) and several years (3 years). In this study, we present long-term follow-up data at 6 and 18 years obtained through questionnaire and experimental approaches. At 6 and 18 years, observations in an experimental setting showed that children who had been breast-fed and children who had experienced high vegetable variety at the start of weaning ate more of new vegetables and liked them more. They were also more willing to taste different vegetables than formula-fed children or the no or low variety groups. The initially disliked vegetable was still liked by 57%, and 65% of children, respectively.

This follow-up study suggests that experience with chemosensory variety in the context of breastfeeding or at the onset of complementary feeding can influence chemosensory preferences for vegetables into adulthood. It shows the effectiveness of breastfeeding, early experiences with vegetable variety during complementary feeding, and of repeated experience with an initially disliked vegetable in promoting vegetable acceptance into childhood. The effects are long-lasting and provide the foundation for evidence-based recommendations to help parents promote healthy eating habits to their children.

Biography

Prof. Dr. Andrea Maier-Nöth holds a professorship at the University of Applied Sciences in Albstadt-Sigmaringen, Germany, is a scientific consultant in the field of health psychology and nutrition for children and the author of many scientific publications, specialist journals and books. The focus of her expertise is the topic of "Shaping a healthy and sustainable eating culture". The scientist has spent many years working intensively in the field of development of early healthy food preferences in children - in particular its influence on long-term healthy eating behavior. As Managing Director of Eat-Health-Pleasure GmbH and croomel GbR, Prof. Dr. Maier-Nöth develops preventive nutrition concepts to promote the health of pregnant women and young children into adulthood (www.eat-health-pleasure.com) (www.croomel.com)

Ms. Maier-Nöth holds a doctorate in health psychology and nutritional sciences and a bachelor's and master's degree in food technology and nutritional sciences. She is an internationally active expert in the field of child nutrition with a special focus on a holistic approach - i.e. physiological, psychological and

socio-cultural aspects. She advises universities, public institutions and food manufacturers and is involved as a speaker and lecturer at congresses and training events on the subject of health, prevention and nutrition. She also lectures as a visiting professor at universities in Switzerland and Germany. In her professional career, she has worked for universities and companies in various countries (Germany, Switzerland, France, USA, New Zealand, Ireland) in the field of research and development.

Dilip Ghosh PhD, FACN

Nutriconnect, Australia

Globalisation of ayurveda through evidence-based nutraceutical route

We are increasingly realizing that the one disease–one target–one drug concept does not always lead to successful disease control. This concept has led to new developments in drug discovery inclauding systems-based approaches using the principles of multitarget pharmacology. It is generally accepted worldwide that modern pharmaceuticals will remain out of reach of many people and “health for all” may only be materialized by the use of adequately assessed nutraceutical/phytomedicinal products including Ayurvedic medicines.

Ayurveda can be considered as a complex intervention, which includes maintaining a healthy lifestyle and using Ayurvedic therapies and medicines and lastly the spiritual intervention. The globalisation of Ayurvedic medicines and their spread to the postmodern West is a paramount challenge. The integration of contemporary biomedical subjects like biochemistry, pathology, pharmacology, emergency medicine etc with Ayurvedic medicine in terms of practice and education (bilateral) may be the most important reforms towards globalizing Ayurveda. Embracing modernity by Ayurvedic community does not mean blind acceptance of Western logic and reductive methodologies. We need very balanced and evidence-based integrative model of two systems of medicines and through nutraceutical route.

Biography

Dr. Dilip Ghosh has received his PhD in biomedical science from India & post-doc from USDA-ARS, HNRCA at Tufts University, Boston. He is an international speaker, facilitator and author and professionally associated with Nutriconnect, Australia; Adjunct-Industry Fellow, NICM Health Research Institute, Western Sydney University. He is also an Adjunct Professor, Kasturba Health Society, Medical Research Center, Mumbai, Jamia Hamdard University at Food Technology, Delhi, India & Visiting Professor, Tehran University of Medical Sciences, Iran. He is a fellow of American College of Nutrition (ACN), professional member of Australian Institute of Food Science & Technology (AIFST), an advisor and executive board member of Health Foods and Dietary Supplements Association (HADSA), The Society for Ethnopharmacology, India (SFE-India), Council for Ayurveda Research, USA, Australasian Ayurvedic Association, Australia and also in editorial board of several journals. He is also on board of Vitafoods Content Advisory Committee. His research interest includes oxidative stress, bioactive, clinically proven functional food and natural medicine development, regulatory and scientific aspects of functional foods, nutraceuticals and herbal medicines. Dr. Ghosh has published more than 100 papers in peer reviewed journals, numerous articles in food and nutrition magazines and books. His few recent books, “Pharmaceutical to Nutraceutical: A Paradigm shift in disease prevention” & “Natural Medicines-Clinical efficacy, Safety and Quality” under CRC Press, USA has been published in 2017 & 2019. His more recent books, “Nutraceutical in Brain Health & beyond” & “Fenugreek-Traditional & Modern Medicinal Uses” are recently published by Elsevier/Academic Press & CRC Press. His new book, “Nutrition science, marketing nutrition, health claims and public policy” is published by Academic Press/ Elsevier last year. Dr. Ghosh is also a recipient of IASTAM¬—Zandu Oration Award 2022-23.

Dipak P Ramji

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

Understanding the mechanisms underlying the protective actions of nutraceuticals in heart disease and other inflammatory disorders

Atherosclerosclerotic Cardiovascular Disease (ACVD) is responsible for a third of all global deaths. Although a reduction in morbidity and mortality from ACVD has been achieved recently by lifestyle changes and pharmaceutical intervention, this is expected to reverse in the future because of global increase in risk factors such as hypercholesterolemia, obesity and diabetes. Current pharmaceutical therapies against ACVD are associated with substantial residual risk for the disease together with other issues such as side effects. In addition, pharmaceutical agents against many promising targets have proved disappointing in clinical trials. It is therefore essential that the molecular basis of ACVD is fully understood, and new therapeutic/preventative agents or targets are identified and validated.

The major focus of recent research in my laboratory is to understand the molecular mechanisms underlying the protective actions of natural products in ACVD using a combination of in vitro and in vivo model systems together with biochemical, molecular biology, pharmacological and immunological approaches. Our research has provided novel insights into the mechanisms underlying the protective actions of several nutraceuticals, including fatty acids, polyphenols and probiotic bacteria. In addition to the beneficial effects on ACVD, our studies have revealed protective actions against other inflammatory disorders, particularly non-alcoholic fatty liver disease. Our findings on the mechanisms underlying the beneficial actions of key nutraceuticals will be presented.

Biography

Dipak Ramji is Professor of Cardiovascular Science and Deputy Head of the School of Biosciences at Cardiff University. He is also Fellow of the Learned Society of Wales. He received his BSc (Hons) degree (Biochemistry) and his PhD (Molecular Biology) from the University of Leeds. This was followed by post-doctoral research at EMBL (Heidelberg) and IRBM (Rome) with fellowships from the Royal Society and the EU. His current research is focused on understanding how natural products regulate cellular processes in heart disease and other inflammatory disorders with the goal of attaining deeper mechanistic insight and identifying preventative/therapeutic agents. He has published over 150 research articles (h index 43 and i10 index 79 with over 9,160 citations), including 880-page book in 2022 on Methods in Atherosclerosis. He is an Editorial Board member of many international journals, member of the British Heart Foundation Project Grants Committee, external examiner of taught programmes at three universities and has supervised 27 PhD students to completion.

Dipak P Ramji

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

Probiotics in the prevention and treatment of atherosclerotic cardiovascular disease: Focus on molecular mechanisms

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

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

Biography

Dipak Ramji is Professor of Cardiovascular Science and Deputy Head at the School of Biosciences in Cardiff University. He is also Fellow of the Learned Society of Wales. He received his BSc (Hons) degree (Biochemistry) and his PhD (Molecular Biology) from the University of Leeds. This was followed by post-doctoral research at EMBL (Heidelberg) and IRBM (Rome) with fellowships from the Royal Society and the EU. His current research is focused on understanding how natural products regulate cellular processes in heart disease with the goal of attaining deeper mechanistic insight and identifying preventative/therapeutic agents. He has published over 150 research articles (h index 43 and i10 index 79 with over 9,160 citations), including 880-page book in 2022 on Methods in Atherosclerosis. He is an Editorial Board member of 16 international journals; regular organising committee member, speaker, and track/session chair at international conferences on heart disease; involved in grant evaluation for over 20 organisations; and supervised over 25 PhD students.

Małgorzata Mizgier

Department of Sports Dietetics, Chair of Dietetics, Faculty of Health Sciences, Poznan University of Physical Education, Poznan, Poland

Therapeutic potential of aidiet in the treatment of adolescent Polycystic Ovary Syndrome (PCOS) girls

An internationally recognized model of diet associated with beneficial eating patterns is the Mediterranean Diet (MD). This diet regimen is rich in vegetables and fruits, nuts, wholegrain cereals, and fish and contains compounds with antioxidant and anti-inflammatory properties.

It has been proven that regular consumption of MD is associated with beneficial changes in the concentration of inflammatory markers such as C-Reactive Protein (CRP), interleukin (IL)-6, and Tumor Necrosis Factor (TNF)-α, and favorable changes in clinical and metabolic parameters, including weight, Body Mass Index (BMI), Waist Circumference (WC), blood glucose, and insulin.

The results of our research show that an AIDiet, based on the assumption of MD results in a beneficial change in metabolic, hormonal, and immunological parameters in the group of young female Polycystic Ovary Syndrome (PCOS) patients. This effect was observed not only in overweight/obese but also in slim PCOS girls. Recent findings of our research team on this subject will be presented.

Biography

Małgorzata Mizgier is Associate Professor at the Poznan University of Physical Education, Department of Sports Dietetics, Chair of Dietetics, Faculty of Health Sciences. She received her Ph.D. from the Department of Hygiene and Human Nutrition, Dietetics Division, at Poznan University of Life Sciences; Habilitation at Poznan University of Medical Sciences, in the field of health sciences and medical sciences. The focus of her current research includes the influence of diet and physical activity on clinical, hormonal, immune-metabolic parameters in females with Polycystic Ovary Syndrome, menstrual disorders, infertility, and pregnancy.

Maria Vranceanu

University of Medicine and Pharmacy Cluj Napoca, Romania

Nutrigenetics and precision nutrition as a tool for managing obesity and cardiovascular diseases

The estimated nutritional needs of individuals without a recognized ailment are reflected in public health nutrition guidelines that include reference intakes and recommended dietary allowances. In addition to preventing prevalent nutrition-related problems including obesity, diabetes, and cardiovascular diseases, these norms are meant to meet the dietary needs of the majority of a population. It is crucial to understand that reference intakes are not meant to treat patients with other illnesses or metabolic abnormalities. The recommendations are also not helpful to those with other common genetic variations because some of them are known to make people more susceptible to certain foods or nutrients, while others need higher intake to prevent disease as effectively as possible. For instance, two-thirds of the world's population cannot tolerate consuming large amounts of foods high in lactose, like milk. Another example is the fact that many women require significantly more folate than most others due to their genetic makeup in order to reduce their risk of producing children with birth abnormalities.

The capacity to combine various elements, including data from different "omics" data sources and the individual's genome, microbiome, and epigenome, is probably going to be essential to the success of precision nutrition.

Researchers can now screen thoroughly and evaluate the impact of genetic differences in complicated metabolic responses to particular meals, dietary recommendations, or individual nutrients thanks to new genetic techniques and nutritional scores. Therefore, by enabling the creation of tailored healthy lifestyle and nutrition guidance, nutrigenetics holds enormous promise as a tool for personalizing disease prevention, diagnosis and prognosis, and therapy in a wide range of nutrition, obesity, and other metabolic illnesses. Nutrigenetics is foreseen to be a potent instrument for complementing dietary advice in health care and prevention.

Biography

Dr. Maria Vranceanu, a Nutritionist and author, specializes in nutrigenetics, nutrigenomics, epigenetics, and anti-aging medicine, certified by A.M.I.A. She holds a PhD from the University of Medicine and Pharmacy Cluj Napoca, Romania, and multiple master's degrees, including Human Nutrition (University of Florence, 2012), Personalized Nutrition and Genetics (University of Tor Vergata, Rome, 2015), and Biology (Al.I. Cuza University of Iasi). Dr. Vranceanu has pursued extensive postgraduate training globally, including programs at Harvard Medical School, Boston University, Johns Hopkins University, and the School of Preventive, Regenerative, and Antiaging Medicine, Milan. She has completed specialized ESPEN LLL courses on cancer, obesity, neurodegenerative diseases, and GI disorders, alongside bariatric surgery and obesity management courses with the American Society for Metabolic and Bariatric Surgery. Her research focuses on genetics, nutrition, and metabolic health, with notable studies on obesity genes, vitamin D deficiency, and plant-derived nutraceuticals published in Nutrients, Plants, BMC Nutrition, and Foods. She is the author of Genetics, Personalized Nutrition, and Precision Medicine (2017). With over 20 years of experience, Dr. Vranceanu's contributions to personalized nutrition and precision medicine have advanced research in nutritional science and metabolic health.

Mary T. Newport M.D.

Independent Researcher, Spring Hill, Florida, USA

The lipid-heart hypothesis and the dietary guidelines: Does the evidence support low dietary fat and saturated fat?

In response to a perceived epidemic of coronary heart disease, the lipid–heart hypothesis was introduced in 1953 by Ancel Keys, who asserted that high intakes of total fat, saturated fat, and cholesterol lead to atherosclerosis and that consuming less fat and cholesterol, and replacing saturated fat with polyunsaturated fat, would reduce serum cholesterol and consequently the risk of heart disease. Keys proposed an equation to predict changes in total serum cholesterol based on the relative consumption of saturated fat and polyunsaturated fat which was used for decades in dietary fat research. However, the Keys equation conflated natural saturated fat and industrial trans-fat into a single parameter and considered only linoleic acid as the polyunsaturated fat. Natural sources of saturated fat such as lard and butter were not studied separately from hydrogenated shortenings and margarines which often contained up to 35-45% trans-fat and were widely consumed in the US and other countries. By the mid-1940s consumption of shortening and margarines exceeded consumption of lard and butter in the US. Replacement of saturated fat with polyunsaturated fat due to its cholesterol lowering effect has also promoted an imbalance of omega-6 to omega-3 fatty acids in the diet. Studies have failed to show that reducing dietary cholesterol or the percentage of total calories as fat has a significant effect of lowering serum cholesterol or cardiovascular disease. While many studies have found that replacing saturated fat with polyunsaturated fat reduces serum cholesterol levels, numerous observational, epidemiological, interventional,

Biography

Mary Newport, M.D. graduated from University of Cincinnati College of Medicine, then trained in pediatrics at Children's Hospital Medical Center, Cincinnati, Ohio, and in neonatology at the Medical University Hospital in Charleston, South Carolina. She practiced newborn intensive care for thirty years followed by hospice care. Her husband Steve with early onset Alzheimer's had a dramatic improvement lasting nearly four years in response to ketogenic interventions with coconut and MCT oil, a ketogenic diet, and a ketone ester developed at the NIH. Dr. Newport is the author of four books and an international speaker on ketones and the brain.

and autopsy studies of the lipid–heart hypothesis have failed to show that lowering serum cholesterol in this way has any effect of reducing cardiovascular disease mortality and most studies found no reduction in serious cardiac events. Raw data recovered from two major studies completed prior to 1980, but unpublished at the time, found that a high intake of linoleic acid in place of saturated fat was associated with higher risk of all-cause and cardiovascular mortality than the typical American diet at that time which was higher in saturated fat. Nevertheless, guidelines to reduce total fat intake and replace saturated fat with polyunsaturated fat have been the cornerstone of national and international dietary guidelines which have focused disproportionately on heart disease and much less so on cancer and metabolic disorders, such as obesity and diabetes, which affect people of all ages and have steadily increased since the adoption of the lipid-heart hypothesis.

Neha Bhanusali MD, FACR

Associate Professor of Medicine, Department of Rheumatology University of Central Florida College of Medicine, Florida, United States

Using nutrition to optimize outcomes in connective tissue diseases

Connective Tissue Diseases (CTDs) such as lupus, rheumatoid arthritis, and myositis, among others significantly impact patients' lives. While medication is essential, nutrition emerges as a powerful tool in managing these complex conditions. This presentation will explore the critical role of nutrition in CTD care. We will discuss how dietary interventions can positively influence disease activity, reduce symptoms, and improve overall well-being in individuals with CTDs. By understanding the connection between nutrition and CTDs, healthcare providers can empower patients to make informed food choices and optimize their treatment plans.

Biography

Dr. Neha Bhanusali is a triple board-certified rheumatologist and Associate Professor of Medicine at the University of Central Florida specializing in autoimmune diseases. She combines traditional medicine with holistic approaches, such as diet, exercise, and stress management for conditions such as rheumatoid arthritis, lupus among others. As teaching faculty, she trains future healthcare providers while staying at the forefront of rheumatology and has published several papers in the field.

Nurinisa Esenbuga*, Mevlut Karaoglu, M. Irfan Aksu Muhlis Macit

Department of Animal Sciences, Faculty of Agriculture, Ataturk University, Erzurum, Turkey

Effect of dietary probiotic on the pH and colour characteristics of carcasses, breast fillets and drumsticks of broilers

The aim of this study was to determine the effect of probiotics on the color characteristics of carcasses and dissected products in broiler chickens. For this purpose, Ross-308 male chicks were fed with probiotic-supplemented diets containing Saccharomyces cerevisiae at levels of 0g/kg (P0), 1g/kg (P1) and 2g/kg (P2) for 49 days. At the end of the experiment, all birds were slaughtered and the pH and skin color of the carcasses were determined at various times during the first 24 h (1, 3, 7, 12, 17 and 24 h). After dissection, breasts and drumsticks were stored at 3±0.5°C for 12 days. During the storage period, the pH and colors of breast meat, drumstick meat and drumstick skin were determined.

Keywords: Probiotics, Broilers, Meat Characteristics.

Biography

Prof. Dr. Nurinisa Esenbuga is a Professor at the Department of Animal Science of Ataturk University in Turkey. She has M.Sc. (1995) and Ph.D. (2000) degrees from the Department of Animal Science. Since 1992 she has continued her research and teaching activities. She is the author of more than 106 scientific papers. She had studied at the Department of Animal Science of Ohio State University as post-doctorate. She has contributed different project and had some grants from National Institutions. Prof. Dr. Esenbuga has gained major experience in project development; implementation and management by means of the various roles. She has undertaken in several national (e.g. TÜBİTAK, KUDAKA and BAP) research projects throughout her research career.

Prof. M. Suriyavathana

Dr. M. Suriyavathana, Professor, Department of Biochemistry, Periyar University, Salem-11, Tamil Nadu. India

Phytochemical analysis and antioxidant activity of physalis minima

Global practice of traditional herbal medicine, hundreds of plant-based bioactive compounds are employed in treating various human diseases. Widely acknowledged for their efficacy, these bioactive compounds continue to contribute to effective treatments and advancements in medical practices. The fruits of Physalis minima are rich in vitamins, minerals, carbohydrates, and phytosterols, contributing to their nutritional value. With increasing demand, this plant is gaining popularity due to its antioxidant and antimicrobial activities. The plant is known to preserve phytochemicals with medicinal value, including alkaloids, tannins, phenolics, steroids, and tannins, which have shown antibacterial and anti-neoplastic properties. Plant components that are frequently investigated for phytochemical analysis include leaves, roots, stem barks, and fruits. For extraction, a variety of solvents are utilized, including water, petroleum ether, ethanol, methanol, acetone, hexane, and ethyl acetate. Numerous phytochemicals are studied, including glycosides, alkaloids, flavonoids, terpenoids, and phenolics. Medicinal plants, which are utilized in treating various diseases and ailments, serve as rich sources of diverse phytochemicals. Antioxidants are substances that either totally prevent or greatly lessen the harm that free radicals unstable molecules the body produces in reaction to outside stimuli do to cells. Medicinal plants harbor a rich array of phytochemicals with potent antioxidant properties, making them valuable in preventive healthcare and culinary traditions. Ingredients like tamarind, cardamom, lemon grass, and galangal basil, commonly integrated into ethnic foods, are notable examples known for their

Biography

Prof. M. Suriyavathana, M.Sc., M.Phil., Ph.D graduated at Bharathiar University in 1991. She received her Doctoral degree in 2007 at the Bharathiar University. She obtained the position of Professor at Periyar University, Salem, Tamilnadu. To her credentials she has published 110 research articles (national & international) and 3 books (national & international). To her research expertise she has guided 37 M. Phil and 23 Doctoral candidates (Ph.D). She has delivered 7 plenary lectures in International conferences including at USA and UAE. She has organized 10 national and international conferences and seminars, participated and delivered 70 national and international conferences and seminars and she has received her patent, to her credit she has been awarded as Best Researcher /Women scientist in 2015, Outstanding researcher in Plant therapeutics and Clinical Biochemistry (2015), Indo Asian Research Excellence Award (2022) and Outstanding Scientist Award (2023).

antioxidant content. Qualitative phytochemical analysis of Physalis minima revealed the presence of Flavonoids (15.583±2.919), Phenols (8.426±2.192), Tannins (49.523±0.825) and Steroids (60.833±1.443). This comprehensive investigation offersinsights into the therapeutic advantages of the plant material. The DPPH radical scavenging and FRAP assays are effective methods for assessing its antioxidant activity, with PHYMIN-22 showing significant scavenging effects, as indicated by IC50 values of 28.35µg/ml and 26.28µg/ml, respectively. These assays provide reliable insights into the compound's ability to combat free radicals, indicating its potential therapeutic applications in medicine.

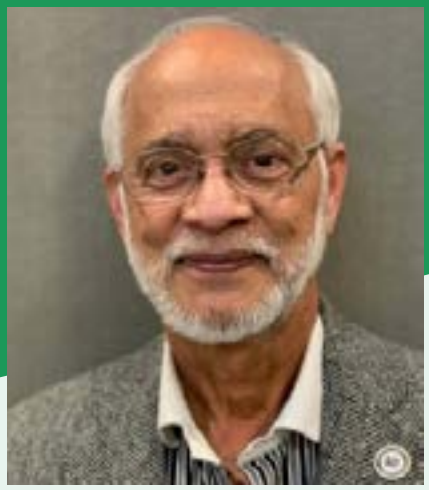
Dr. Safiullah Pathan

Department of Agriculture and Environmental Sciences Lincoln University of Missouri, Jefferson City, Missouri, USA

Quinoa green leaves: A promising nutrient-rich vegetable to improve human health

Quinoa (Chenopodium quinoa Willd.) is a nutrient-rich grain native to the Andean region of South America, domesticated around 7,000 years ago. Once a forgotten crop, quinoa has recently been rediscovered. The seeds are gluten-free and contain high levels of protein, essential amino acids, important minerals, and vitamins. Due to these nutritional properties and health benefits, quinoa is considered a novel, functional, and popular health food–often referred to as a 'superfood.' In addition to its grains, quinoa's green leaves, known as quinoa greens, are also packed with nutrients and beneficial phytochemicals. However, the consumption of quinoa greens as a vegetable is uncommon. Like the grains, the leafy greens are rich in nutritional value, boasting higher protein content, lower carbohydrates, and more omega-3 fatty acids compared to similar leafy vegetables. They are also an excellent source of essential amino acids and minerals. Moreover, quinoa leaves offer health-promoting properties, including antimicrobial, anticancer, antidiabetic, and anti-obesity benefits. Quinoa greens are higher in protein and lower in carbohydrates than vegetables like spinach and amaranth. Quinoa, as a crop, is drought-, salinity-, and cold-tolerant, and requires minimal water and fertilizer to grow. This makes quinoa greens an ideal vegetable crop in a climate-changing environment, as they can be grown year-round in fields, greenhouses, or high tunnels, with a harvesting period of about 30 days. Quinoa greens can be enjoyed in various ways: stir-fried, sautéed, stewed, steamed, and in salads. In taste surveys, quinoa leafy greens were found to have a taste, texture, and flavor comparable to or even better than spinach.

Biography



Dr. Safiullah Pathan is an Associate Professor of Crop Science at Lincoln University of Missouri in Jefferson City, MO, USA with over four decades of experience in teaching, research, and extension. He earned his Ph.D. in agronomy from Texas Tech University in Lubbock, TX. His research focuses on improving crop varieties for higher yield, abiotic stress tolerance, and value-added traits. Recently, Dr. Pathan has focused on producing and promoting quinoa greens as a nutrient-rich vegetable. He has authored over 100 publications, including journal articles and book chapters, and has presented at national and international conferences on quinoa's nutritional benefits.

Vintila Iuliana

Department of Food Science, Food Engineering, Biotechnology and Aquaculture, University ”Dunarea de Jos” Galati, Romania

The legal issues regarding the fop nutrition claims labelling for foods and catering products

Science-based solutions need to be involved in order to solve the public issues for the foods & foodservices suppliers and the national authorities which verify the legal conformity of menu’s nutrition labelling. A legal measure regarding the menus nutritional labelling need to be integrated in a social public package of nutritional status assessment for each groups and social communities, with information about correct personalized diets and adapted nutrition for special needs. The harmonized legal requirements of foods & menu FOP nutrition claims labelling represent the key for transparency in declaration and equity in commercialization, in the benefit of the final consumer, including the online, take-away or other delivery food services.

Biography

Vintila Iuliana is actually Associate Professor, PhD in Food Science and Engineering. She is author of 23 books and book chapters in international and national publishing houses (Elsevier, Wiley, Lambert, etc.), first author and co-author for 19 articles in ISI journals and relevant ISI proceedings, 114 BDI scientific papers indexed in recognized international databases, articles presented in national & international conferences and published articles revues. Also, she is member of prestigious international organization such European Federation of Food Science and Technology (2009), Co-Chair (since 2013) and Chair (since 2022) of Nutrition WG in Global Harmonization Initiative, International Society of Food Engineering (2010), Balkan Environmental Association (2008), Global Environmental Standard (GES) Community of Interest (2011), European Academy for Education and Social Research (2012). She acts as international projects Expert for European Science Foundation, Eurostar Program, EC « Expert area in the Participant Portal » and « Connecting Europe Facility », Horizon Europe Program, Innovation Fund Denmark Expert, EU TAIEX, COST, EACEA, Erasmus Mundus (2010). She is Guest Associate Editor and Research Topic Editor for “Frontiers in Food Science and Technology”, Regional Editor “Advance Journal of Food Science and Technology”, Academic Editor “European Journal of Nutrition & Food Safety”, Editorial Board Member SciEdTech, Editorial Board Member “African Journal of Water Conservation and Sustainability”, “Journal of Agriculture” Canada Editorial Board Member, “EC Nutrition” Editorial Board, Editorial board “Clinical Journal of Nutrition and Dietetics”, Editorial Board “Discoveries in Food Technology and Nutrition Sciences”, etc.

Yasin Ozdemir*, Seda Kayahan, Hasret Altunkanat

Food Technologies Department, Ataturk Horticultural Central Research Institute, Yalova, Turkiye

Pharmacological properties and water and olive oil soluble products of fullerene C60

Fullerene (C60) is a spherical carbon molecule which has a unique cage structure. The bio-activity of C60 derivatives demonstrates their potential for medical applications. C60 is rapidly absorbed by tissues and excreted via the urinary tract and enterons, showing low toxicity in in vitro and in vivo studies. Water-soluble C60 derivatives from chemical modification greatly increase biological activity. A great deal of information has accumulated on the beneficial effects of fullerenes and their water-soluble derivatives. neuroprotection, radio protection, antiproliferative, antitumor, anti-inflammatory activities. Still studies are focused on pharmacological, cosmetic and food supplement/food enrichment uses of water-soluble and oil-soluble forms of C60. This study is aimed to present pharmacological properties of fullerene C60, current studies with future expectations and provide information about the products produced by dissolving C60 in water and olive oil. It's pharmacological properties such as anti-cancer and chemoprotective capabilities appear to be complex and situation-dependent. For this reason, much more research is necessary before C60 fullerene can be considered a safe and effective treatments. More data is required to understanding mechanism of action in the systems of mammals.

It is known that in some countries, especially European countries and the United States, C60 is marketed dissolved forms in water and olive oil. In addition, it is

Biography

Yasin Ozdemir studied Food Engineering at Ege University, Türkiye, and graduated with an MS in 2004. He received her Ph.D. degree in 2011 at Namık Kemal University. During Ph.D. studies he started to work at Ataturk Horticultural Central Research Institute. He has 3 processes patents and 2 national awards in his scientific study area. He has taken part in 22 national research projects, 4 international projects and 5 private sector-supported projects. He published more than 100 articles in international journals and congress proceedings.

seen that the online sales volumes of this sector are increasing every year. There are studies on its protective effects against diseases, especially its immune-boosting effect. However, the majority of these studies were conducted on animals or in vitro environments. Although many studies mention its potentially positive effects on health, it has been reported that more detailed and comprehensive research can be obtained in the future. For instance in a molecular and cytogenetic research results reported that C60 and virgin olive oil can exhibit anti-genotoxic agents against cadmium chloride (cadmium is known as one of the important environmental pollutant) induced genotoxicity in rats. Along with these positive results, it was reported in the same study that the most suitable conditions for these positive potential effects should be investigated and that more beneficial results could be achieved through further research. There are studies on the positive effects that can occur when C60 is used with medicinal plants or with olive oil. Perhaps in future studies, the effects that may occur when C60 is used together with prebiotics or probiotics may be the subject of new research and interesting results may be obtained.

BOOK OF ABSTRACTS

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Probiotics and Prebiotics

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ORAL PRESENTATIONS

Amy Gutman MD, FACEP

AdventHealth, United States

How food and pharmaceutical conglomerates make customers for life by keeping you sick

Uncover the profound truth behind how food and pharmaceutical conglomerates maintain lifelong customers through scientifically inaccurate nutritional guidelines, false advertising, manipulative marketing, and the increasingly addictive nature of ultra-processed foods.

Gaining access to unbiased truth about health and wellness is exceedingly challenging due to the closely intertwined relationships between leading health advisory organizations, medical schools, physicians, scientific journals, food conglomerates, and pharmaceutical companies.

This presentation provides invaluable insights into the strategies utilized by these conglomerates. Gain a comprehensive understanding of how they manipulate and control our health and well- being, ensuring our continuous patronage while facilitating clinical medical education and research to perpetuate this detrimental cycle.

You are invited to join us for an enlightening keynote summary that will expose the unscrupulous practices of these industries, revealing how their profits soar at the expense of the well-being of millions. Empower yourself to become a discerning and informed consumer.

Brief Outline

- Uncovering hidden histories and connections between food and pharmaceutical conglomerates and close ties to government regulatory agencies.
- How even educated consumers are deceived into believing manipulated science.
- The “Psychology of Deception” used in marketing ultra-processed foods as “healthy choices”
- The simple truth and guidance to obtaining and maintaining optimal health via nutrition for all.

Biography

Dr. Gutman's dedication to preventive care is a cornerstone of her approach to healthcare. With over three decades of experience in the field, she is board-certified in Emergency Medicine with Fellowships in prehospital care and resuscitation and specialized training/certifications in general surgery, maritime medicine, occupational medicine, and nutritional and ketogenic coaching. She is currently an Attending Emergency Physician in Orlando, Florida, having worked all over the United States and Internationally, including serving as a Medical Director for multiple large hospital departments and prehospital services. She has presented at over 100 conferences and has multiple original research publications. Her commitment to positively impacting patients’ lives is unwavering as she strives to reduce the prevalence of debilitating chronic illnesses. She actively debunks medical misinformation, challenging a healthcare industry that often profits from keeping people sick rather than encouraging wellness. Her confidence in the power of knowledge to transform lives is the driving force behind her commitment to empowering individuals with evidence-based science to take control of their health.

Arun Kumar*, Praveen Kumar Mehta

Centre for Molecular Biology, Central University of Jammu, Jammu and Kashmir, India

Bacillus sp. and its potential applications in Levan (prebiotic) synthesis using solid-waste valorization approach

Organic solid waste from agricultural industries, forestry residues, household garbage, vegetable and fruit markets, and other municipal waste are major sources of environmental contamination which not only affects the environment but also has adverse effects on population health. Waste valorization is a recent, efficient, and sustainable method of waste management. In this study, a potent thermophile (*Bacillus* sp.) was isolated from the thermal springs in India to hydrolyze and convert different organic solid wastes into an industrially important atypical biopolymer, levan (a well-known prebiotic). Morphological study using Scanning Electron Microscopy (SEM), biochemical characterization, antibiotics sensitivity test, and antimicrobial and antioxidant potential of *Bacillus* sp. ATS 95 was checked. Maximum levansucrase activity and levan production from the strain ATS 95 were achieved using statistical methodologies. Various parameters like thermal stability, storage stability, higher sucrose and NaCl tolerance, bacterial growth, temperature, rpm, medium optimization including nitrogen, and carbon sources and their concentrations were analyzed. The effect of metal ions and organic solvents was also studied. The wide substrate affinity, high thermal, storage stability, and high salt, and sucrose tolerance ability of *Bacillus* sp. suggests its strong potential to degrade different solid wastes and valorize them into levan synthesis at an industrial scale. Further characterization study of levan synthesized from different wastes using X-ray Diffraction (XRD), and Thermogravimetric Analysis (TGA) showed the amorphous and crystalline nature of the prebiotic production with very high thermal stability. This study is further aimed at the synthesis of levan-composite biofilm for coating raw as well as processed food items which will help in increasing their shelf life while maintaining texture and quality in an environment-friendly manner.

Keywords: *Bacillus* sp., Levan Characterization, Solid Waste Valorization, Levan-Composite Biofilm, Food Shelf Life.

Biography

Mr. Arun Kumar is a passionate researcher with expertise in biological sciences. He earned his Bachelor's in Biomedical Science from Delhi University and a Master's from the University of North Bengal via CEEB, Jawaharlal Nehru University (JNU), India. Currently pursuing a Ph.D. at the Centre for Molecular Biology, Central University of Jammu. His research focuses on synthesizing clinically and industrially significant prebiotics like Levan from organic and municipal solid wastes. He has received prestigious awards, including the Young Scientist Award and Second-Best Poster Presentation. Mr. Arun actively participates in conferences and workshops, showcasing his dedication to advancing scientific innovation.

Bhagyashree Karmarkar*, Dhiraj Dhotre

National Centre for Cell Science, Pune, India

Metagenomic inquiry of human gut microbiome for gluten-degrading enzymes for celiac disease therapy

Celiac Disease (CeD) is experiencing a notable surge in incidence across India. While the genetic predisposition—carrying the HLA-DQ2/DQ8 gene—plays a role, not all genetically susceptible individuals develop the disease, pointing to other critical factors in CeD pathogenesis. Emerging research suggests that differences in gut microbiota may be key, with certain microbes in healthy individuals potentially transforming gluten, the primary environmental trigger, into a non-immunogenic form. Our innovative work explores the use of metagenomic data to identify gut microbial enzymes which degrade the harmful components of gluten, paving the way for novel therapeutic strategies to manage CeD.

Using advanced metagenomic analysis approaches combined with in silico filtering, we have identified two promising enzyme candidates with the potential to neutralize the immunogenic properties of gluten. These recombinant enzymes, validated at the molecular level and in CaCo-2 cell line, have demonstrated remarkable efficacy in reducing gliadin immunogenicity. Functional assays—including qPCR analysis of ZO-1 and occludin, confocal microscopy, TEER assay and IL-6 secretion measurement—confirm their ability to restore barrier integrity and reduce inflammatory responses.

Our next phase involves validating these promising enzymes in a preclinical mouse model, with the ultimate goal of translating this research into a pioneering therapeutic approach for CeD. By targeting the root cause of gluten immunogenicity, this research holds the potential to significantly remodel how CeD is managed and treated.

Biography

Bhagyashree Karmarkar is a PhD researcher in the lab of Dr. Dhiraj Dhotre at National Centre for Cell Science. Her research work is focused on bioinformatic mining, in-silico evaluation and cell line based validation of human gut microbiota derived enzymes.

Daniel Kajura Baguma
Independent researcher, Uganda

Social economic factors associated with the nutritional status of children in Western Uganda

The study explores socio-economic factors, health related and individual factors that influence the breastfeeding habits of mothers and their effect on the nutritional status of their infants in the Rwenzori region of Western Uganda. A cross sectional research design was adopted and it involved use of the self-administered questionnaires, interview guides and focused group discussion guides to assess the extent to which socio-demographic factors associated with breastfeeding practices influence child malnutrition. Using this design, data was collected from 276 mother paired infants over a period of ten days. Findings reveal that children of mothers who used milk substitutes besides breastfeeding are over two times more likely to be stunted, compared to those whose mothers exclusively breastfed them. Feeding children with milk substitutes instead of breastmilk predisposes them to both stunting and underweight. Children of mothers between 18 and 34 years of age are less likely to be underweight, as were those who were breastfed over 10 times in a day. The study further reveals that 55% of the children were underweight and 49% were stunted. Of the underweight children, an equal number (58/151) are either mildly or moderately underweight (38%); and 23% (35/151) were severely underweight. Empowering Community outreach programs by increasing knowledge and increased access to services on integrated management of child malnutrition is crucial to curbing down child malnutrition in rural areas.

Biography

Daniel Kajura Baguma is an enthusiastic, adaptive and competent learner person with a broad and acute interest in the domains of medical anthropology, public health and sustainable development strategies tailored towards alleviating rural poverty and promoting equitable A development. He particularly enjoys collaborating with development specialists and professionals from diverse disciplines to develop problem based solutions. Daniel has valued competencies and expertise in Program management, reproductive health and health systems strengthening, evidence based advocacy and participatory evidence based research.

Diana Catalina Castro Rodriguez

Investigadores CONAHCYT, Departamento de Biología de la Reproducción, Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán, Mexico City, Mexico

Effect of maternal nutrition on offspring ageing: Importance of microbiota and probiotics

The overall health of pregnant and lactating women is an important element in a country's development. The nutritional status of the mother affects the weight of the newborn, which in turn affects the health of the individual in adulthood. Malnutrition during the early stages of development (pregnancy and lactation) is associated with increased oxidative stress, which is implicated in the pathogenesis of many diseases and developmental defects. Epidemiological studies have shown that maternal nutritional imbalance alters the metabolism and composition of the microbiota of both mother and offspring. Thus, pregnancy and lactation are windows of opportunity to implement lifestyle modifications that could prevent adverse effects in both mother and offspring. One of these modifications would be the consumption of probiotics, microorganisms that stimulate the protective functions of the digestive tract, thus helping to ameliorate the metabolic and immunological changes associated with malnutrition. As described above, the consumption of probiotics plays an important role in maintaining the intestinal ecosystem and stimulating the immune system, thereby improving or preventing certain pathologies. While pregnancy is a period of vulnerability for predisposition to disease in postnatal life, it is also a window of opportunity to implement interventions to improve the health of the mother and consequently her offspring. Today, women are increasingly aware of the link between nutrition and health, which has prompted the development of functional foods such as probiotics.

Biography

Dr. Diana Castro studied chemistry at the Universidad Industrial de Santander, Colombia. She holds a PhD in Bioprocess Sciences. Her research focuses on the biosynthesis, analysis and characterisation of functional foods, such as probiotics and prebiotics, and their use in the prevention of chronic degenerative diseases. She has trained students at undergraduate and postgraduate level. She currently has 24 publications, three book chapters and three patents. She has completed two international research stays, one at the Institute of Agrochemistry and Food Technology, Spain, and the other at the Texas Biomedical Research Institute and Southwest National Primate Research Center, USA.

Dr. Dilip Ghosh
Director, Nutriconnect, Australia

Pharma (illness) to nutra (wellness): A new model in healthcare industry

In the past decade, the world has witnessed the explosive growth of a multi-billion-dollar industry known as functional foods/nutraceuticals/phytomedicines/Ayurceutical. Nutra(Ayur) ceuticals appear to be of benefit in both the treatment and prevention of disease. Nutra(Ayur) ceuticals often possess unique chemical actions that are unavailable in pharmaceuticals. The human has been using food bioactive and/or herbal medicine for healing purpose from the beginning of human civilization. In recent times, use of evidence-based nutraceuticals for healthcare has increased steadily all over the world although it was neglected for decades by Western societies. The current landscape sees manufacturers and consumers struggle to define the boundaries between the nutrition and pharma as recent innovation draws on disciplines spanning the two sectors. The combination therapy of pharmaceuticals and food bioactive in disease prevention and treatments is one of the most dis-cussed topics in recent time. The transition of the pharmaceutical industry from its traditional business model is ongoing and interesting to see how their next blockbuster molecule could be derived through different routes. The transition from current 'high-risk, high-margin' business model to 'low cost, high volume' nutra business model is dependent on many factors.

With nutrition and pharma taking lessons from each other, an attempt to be made in this presentation to re-define Nutra(Ayur)ceuticals /functional foods/phytopharmaceuticals as well as to summarize the application of nutraceuticals

Biography

Dilip Ghosh, PhD, FACN, is a Sydney-based expert in food, nutrition, nutraceuticals, and natural medicine. He holds a PhD in biomedical science and has over 20 years of experience in pharmaceutical and food-nutrition industries, including roles in R&D, clinical trials, and product commercialization. Dr. Ghosh has published 100+ peer-reviewed papers, authored several books, and contributed extensively to global conferences and editorial boards. He is an Honorary Ambassador for the Global Harmonization Initiative and a consultant for WHO-GTMC. With affiliations to leading universities and organizations worldwide, Dr. Ghosh is a recognized thought leader in functional foods and nutraceutical innovation.

Ke Gu*, Aimin Wu, Daiwen Chen

Institute of Animal Nutrition, Sichuan Agricultural University, Chengdu, China

Absence of gut microbiota alleviates iron overload-induced colitis by modulating ferroptosis in mice

Introduction: Iron overload disrupts gut microbiota and induces ferroptosis, contributing to colitis. However, whether gut microbiota directly drives iron overload-induced colitis and its underlying mechanism remain unclear.

Objectives: The study aimed to explore whether gut microbiota can directly regulate iron overload-induced colitis and its underling mechanism.

Methods: Male C57BL/6N mice were fed with ferrous sulfate to establish an iron overload model. Antibiotics and DSS were used to create germ-free and colitis models, respectively.

Results: Results showed that iron overload caused disruption of systemic iron homeostasis via activating pro-inflammation response, which caused induction of ferroptosis and eventually resulted in colitis in mice. Notably, iron overload inhibited System Xc- and activated the nuclear factor E2-related factor 2/heme oxygenase-1 pathway, driving ferroptosis and colitis progression. Similar results were observed in mouse colon epithelial cells, which were treated with high doses ferric ammonium citrate. Additionally, iron overload exacerbated DSS-induced colitis by activating the ferroptosis and increasing harmful bacteria (e.g., Mucispirillum) abundance. Interestingly, eliminating gut microbiota attenuated iron overload-induced colitis, without affecting systemic inflammation through inhibiting ferroptosis of mice. Depletion of the gut microbiota partially mitigated the exacerbating effect of iron overload on DSS-induced colitis through inhibiting ferroptosis of mice.

Conclusion: Iron overload activates ferroptosis in colonic cells, increases the relative abundance of harmful bacteria, and exacerbates DSS-induced colitis in mice. Iron overload exacerbates DSS-induced ferroptosis and colitis in a microbiota-dependent manner. Targeting gut microbiota may offer new strategies for managing iron overload-ind olitis.

Biography

Dr. Gu Ke graduated with a Master's degree from Sichuan Agricultural University in 2022. She study at the Institute of Animal Nutrition, Sichuan Agricultural University, to pursue her PhD. Currently, she is undertaking a one-year joint PhD at the Biomedical Research Institute of Girona, Spain. She has published 6 research articles in SCI (E) journals as first author, with a total impact factor of 40.5 and the highest single-article impact factor of 11.4. Main research directions are nutrition, microorganisms and intestinal health.

Mrs Hanaa Amiirah Sohawon-Soreefan

Nutritionist-Dietitian at Private Practice. Port-Louis, Mauritius

Dietary guidelines and meal planning for the diabetic patient during ramadan

According to the NCD Survey 2021, in Mauritius 20% of the 1.3 million people suffers from Type 2 diabetes. This represents at least one diabetic or pre-diabetic person in every Mauritian household. The aim of this study is to raise awareness among diabetic patients on how to plan their meals for a good glycaemic control, especially among those who fast for the month of Ramadan. Fasting can cause both hypoglycaemia and hyperglycaemia in diabetic patients if they do not know what to eat during Ramadan. The study was conducted among 300 diabetic patients, both males and females equally, aged between 25-65 years old via an anonymous, survey-based questionnaire. Amongst other data, blood test results which included fasting blood glucose and HbA1c were recorded for each patient. The study showed that patients who followed the Ramadan healthy meal plan showed better fasting blood glucose readings and HbA1c results, as opposed to those who did not follow the meal plan. Positive health outcomes such as healthy weight loss and good glycaemic control were also observed among obese and overweight diabetic patients. Consequently, if diabetic patients follow the dietary guidelines given by a dietitian, together with medications prescribed by their treating diabetologist, they can safely fast for Ramadan, without falling into either hypoglycaemia and hyperglycaemia.

Biography

Mrs. Hanaa A Sohawon Soreefan holds a BSc (Hons) Nutritional Sciences (with Specialisation in Dietetics) and also possess an MSc in Public Health. She is currently working as Nutritionist-Dietitian at Naturhouse Dietetic Centre since the past 10 years. She is the member of the World Public Health Nutrition Association. She is also an Editorial Board member for the Journal of Nutritional Dietetics & Probiotics (JNDPS). She has published two articles in the Asian Academic Research Journal of Multidisciplinary and in the Journal of Nutritional Dietetics & Probiotics. Her areas of interest encompass public health nutrition, diet-diseases relationship and malnutrition.

Hanjing Wu[1*], Marissa K. Caldow[2], Audrey S. Chan[2], Gordon S. Lynch[2], Hafiz A.R. Suleria[1]

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Evaluating mitigated and regulated effects of spontaneous fermented coffee on Lipopolysaccharide (LPS)-treated raw264.7 macrophages

Spontaneous fermentation by indigenous microorganisms has been widely applied to coffee beans processing once harvested. Chemical composition of coffee beans and its physiological impacts after consumption could be changed during fermentation so that affect its potential protective effects on human health. However, the anti-inflammatory properties of fermented coffee extracts are still unknown. Therefore, in this research, phenolic composition, in vitro anti-inflammatory potential, and regulation pathway of fermented and unfermented Coffea arabica coffee extracts were investigated at light roasting levels. Totally, 48 phenolic compounds were tentatively characterized through LC-ESI-QTOF-MS/MS. Amongst, 24 phenolic compounds were particularly detected from the fermented coffee extract where mainly adopted by phenolic acids and flavonoids, while only 6 from the unfermented. The anti-inflammatory performance was evaluated in Lipopolysaccharides (LPS)-stimulated RAW 264.7 macrophage cell line. Fermented coffee extract better protected against LPS-induced cell death and decreased the Nitric Oxide (NO) production after 48 hours. Moreover, for cell morphology, the dendritic differentiation of macrophage as well as the mRNA expression of potential transcriptional factors (c-FOS and Socs1) was significantly alleviated by fermented coffee extract. For their acuate impact on genes, the mRNA expression of anti-inflammatory cytokines, including IL-10 and SOD2, was significantly higher after 4 hours fermented coffee extract treatment. For pro-inflammatory cytokines, both type of coffee extract reduced the expression of TNF-α, Socs3, and COX-2 however aggravated that of CCL2, IL-6, and IL-1β in a similar trend. Therefore, it suggested that coffee extract might down-regulate inflammatory reactions mainly through MAPK and JAK-STAT pathway correlated with the response of oxidative stress. Furthermore, spontaneous fermentation of coffee could provide benefits on its anti-inflammatory and regulatory effects through the liberation and microbial metabolization of phenolic compounds. In a long-term aspect, regular consumption of fermented coffee would be more highly potential to control the risk of chronic reactions and relevant diseases.

Biography

Miss. Wu is a third-Year PhD student in food sciences at the university of Melbourne, Australia. Her research is investigating the effects of post-harvesting processing, specifically indigenous fermentation and roasting, on the sensory, nutritional properties, and health benefits of arabica coffee beans using various non-invasive digital technologies, cutting-edge analytical instruments, in vitro digestion and colonic fermentation, and cellular models. She has published 27 research and review articles in SCI journals, eight of which are first author.

Hemavathy Subramaiam[1]*, Wan-Loy Chu[2], Ammu Kutty Radhakrishnan[3], Srikumar Chakravarthi[4], Kanga Rani Selvaduray[5] and Yih-Yih Kok[6]

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[3]Jeffrey Cheah School of Medicine and Health Sciences, Monash University Malaysia, Bandar Sunway, Malaysia
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Evaluating anticancer and immunomodulatory effects of Spirulina (arthrospira) platensis and gamma-tocotrienol supplementation in a syngeneic mouse model of breast cancer

Nutrition can modulate host immune responses as well as promote anticancer effects. In this study, two nutritional supplements, namely gamma-tocotrienol (T3) and Spirulina, were evaluated for their immune-enhancing and anticancer effects in a syngeneic mouse model of breast cancer (BC). Five-week-old female BALB/c mice were fed Spirulina, T3, or a combination of Spirulina and T3 (Spirulina + T3) for 56 days. The mice were inoculated with 4T1 cells into their mammary fat pad on day 28 to induce BC. The animals were culled on day 56 for various analyses. There was a marked increase ($p < 0.05$) of CD4/CD127+ T-cells and decrease ($p < 0.05$) of T-regulatory cells in peripheral blood from mice fed with either T3 or Spirulina. The breast tissue of the combined group showed abundant areas of necrosis, but did not prevent metastasis to the liver. This showed that combined T3 + Spirulina treatment did not show any synergistic anticancer effects in this study model.

- Nutraceuticals such as Spirulina and tocotrienol have been widely used by humans as a supplement. It will be beneficial to know if the combination of both can be therapeutic against breast cancer as it is one of the leading cause of death amongst women.
- This work could be extended to understand the mechanism of action of combined Spirulina and tocotrienol against breast cancer.

Biography

Dr Hemavathy did her MSc studies at the Immunology unit, Faculty of Medicine and Health Sciences, University Putra Malaysia and graduated with MSc in Immunobiology in 2011. She then joined as a lecturer at the International Medical University, Malaysia. She enrolled as a PhD candidate at the same university, while teaching and graduated with a PhD in Medical and Health Sciences in 2018.

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Identification and characterization of bacteria related to Gout

The global incidence of gout has continually increased to about 1%. Gout is a heterogeneous disease in which blood uric acid levels are elevated due to disorders of purine metabolism or uric acid excretion. When the blood uric acid level exceeds the joint monosodium urate saturation, urate crystals are precipitated and deposited in the peripheral joints and surrounding tissues, thus causing a local inflammatory response, resulting in a gouty attack. As an important physiological flora in the human gut, probiotics, which refer to a group of microorganisms that have beneficial effects on the host, have functions such as enhancing immunity, maintaining intestinal mucosal barrier, antibacterial and immune regulation. There are many types of probiotics, mainly including Bifidobacterium, Lactobacillus, Bacillus, Streptococcus and other types 14. About 30% of uric acid in the human body is directly excreted from the intestine or degraded by the intestinal flora. Studies have shown that some probiotics have the effect of degrading uric acid. Uric acid is the terminal metabolite of purine metabolism in humans because of the pseudogenization of the uricase gene. It is an oxidoreductase involved in the body's purine metabolism and can convert uric acid to allantoin, whose solubility is 5 to 10 times that of uric acid, which is soluble in urine and excreted by the kidneys. Because urate oxidase can degrade uric acid rapidly and has the advantages of high specificity and sensitivity in the binding and oxidation of blood uric acid, it has been widely used in the detection of blood uric acid and in the clinical treatment of diseases caused by hyperuricemia and gout. Uric acid oxidase can be used for gout treatment, however, for a better treatment of gout it's urgently required to identify novel uric acid oxidase and novel bacteria related to gout. Here we report a novel bacteria related to gout, which has great potential for better treatment of gout. Detailed identification and characterization of the bacteria related to gout will be described during the meeting.

Biography

Professor Hongwu Xin obtained his MD in China, and his PhD from National University of Singapore. After his training as a post-doctoral research fellow in Harvard Medical School, he worked as a research fellow in National Institutes of Health, USA. Now Professor Xin is an academic leader of basic medical sciences in Qilu Medical University, China. He has published more than 50 SCI papers, including those in high impact journals, such as Gut. Some of his papers are ranked as highly cited papers and hot papers by ESI.

Wanqing Zhou[1], Jiali Tong[1], Zhiyu Wen[1], Mao Mao[1], Yimin Wei[1], Xiang Li[1], Ming Zhou[1], Hua Wan[2]*

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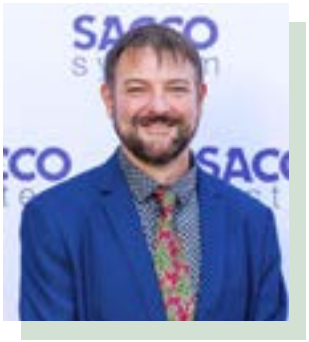
[2]Department of Health Management, Sir Run Run Hospital, Nanjing Medical University, 108 Longmian Avenue, Jiangning District, Nanjing 211166, China

Prevalence and factors associated with dynapenia among middle-aged and elderly people in rural Southern China

To estimate the prevalence of dynapenia and examine potential risk factors for dynapenia using a sample of rural middle-aged and elderly Chinese. A cross-sectional study of 253 Chinese adults aged 50 years and older was conducted from June to August in 2022 in Nanjing. A questionnaire was used to collect data on all socioeconomic variables. Body weight, height, body fat percentage, grip strength, waist circumference, calf circumference, and gait speed were measured. The prevalence of dynapenia was 69.6%, 62.3% in men and 72.7% in women respectively. Binary logistic regressions indicated significant associations between dynapenia and age (odds ratio [OR]=2.59; 95% Confidence Interval [CI] 1.63, 4.12; p<0.001), educational level (OR=0.55; 95 % CI 0.38, 0.80; p=0.002). Dynapenia was prevalent among rural middle-aged and elderly people in southern China. Age and lower education level were both associated with dynapenia. Nutrition and physical activity should be strongly recommended as important strategies to maintain and improve muscle strength.

Biography

Dr. Wan studied Clinical Medicine at the Xiangya Medical School, Central Southe University, China and graduated as MS in 2003. She then joined the research team at Pilot Candidate Medical Examination Center and obtained the position of an director of the center in 2012. Then she obtained the position of the director of the Health Management Center at Sir Run Run Hospital, Nanjing Medical University in 2019.Then she received her MD degree in 2024 at Nanjing Medical Univesity. She has published more than 30 research articles in SCI (E) journals.)



Jason Ryan*, Andrea Rabellino, Marcela Charry, Alex Riley

Sacco System Australia, Brisbane, Queensland, Australia

Scale up for manufacturing next generation probiotics: Process development strategies and processes to fast track products into the market

Next Generation Probiotics, such as Akkermansia muciniphila, Faecalibacterium prausnitzii, Christensenella minuta and Veillonella, are a new market for the probiotics in many innovative markets. As most of the next generation probiotics are obligate anaerobes the existing system for the development, manufacturing and capsulation technologies of probiotics cannot always been transferred across.

Process development is a critical step in the pathway to take a strain from discovery to market following the discovery phase. It is often the step where decisions are made on the whether to progress the product to scale up and manufacturing and generation of material for preclinical studies. Some of the critical parameters are robustness, productivity and stability of the process. Sacco System Australia has recently established to provide this service for next generation probiotics and Live Biotherapeutics. Some examples of development approaches and scale up issues will be presented, focusing on the bioprocessing impacts and outcomes.

Examples of the use of high throughput screening using a 96 well plate system, optimisation at 1L and scale up to 30L production will be presented, all conducted under anaerobic conditions. Application of different methods of media sterilisation will be reviewed and the use of small-scale discontinuous centrifugation for cell recovery will be discussed. Finally approaches for lyophilisation development will be discussed with focus on stability of the product under different temperatures and oxygen conditions

Biography

Dr. Ryan studied Biotechnology at Griffith University, Australia, as an undergraduate completing his degree in 1996, then Masters in Biotechnology at Massey University, New Zealand in 2006. He then completed his PhD in Bioprocessing Engineering at the University of Canterbury in 2012. He has worked in a range of private and government laboratories and manufacturing facilities developing upstream and downstream processes in the environmental, industrial, nutrition and pharmaceutical industries. Currently he is the Head of Scientific Development at Sacco System Australia and has published 21 research papers and 1 patent.

Juan Ignacio Gonzalez Pacheco[1*], Mariela Beatriz Maldonado[1,2]

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Quantitative analysis of the diffusion process of a natural dye within a prebiotic-sweetened food matrix

This study investigates the application of polyalcohols, particularly xylitol, in enhancing the formulation of maraschino cherries by exploring its role as a nutritional sweetener and prebiotic additive. Our research involved sensory evaluation through tasting panels to determine the acceptability and palatability of various cherry formulations. In addition to sensory attributes, we delve into the essential study of diffusion processes in biological materials, a critical aspect in food science, engineering, and pharmaceuticals. To advance our understanding of diffusive phenomena, we integrate both numerical and analytical methods to analyze the diffusion characteristics of substances within complex food matrices. We propose an innovative method for sweetening Bing-type cherries (Prunus avium) using sucrose/xylitol solutions while employing a staining technique with erythrosine and red gardenia at concentrations of 119, 238, and 357 ppm, under varying thermal conditions (40, 50, and 60°C). Our findings reveal that the epidermis of the fruit presents significant resistance, resulting in lower effective diffusivities in the skin compared to the flesh. Notably, the synergistic effects of temperature and concentration significantly enhance diffusion coefficients and dye penetration, with the optimal conditions occurring at 357 ppm and 60°C. The red gardenia dye exhibited pronounced temperature-dependent variations ($p=0.001$), while erythrosine day maintained stability across temperature changes ($p>0.05$). The effective diffusivities recorded for gardenia in cherry flesh and skin at optimal conditions were 3.89E-08 m^2/s and 6.61E-09 m^2/s, respectively, indicating substantial variability when compared to lower temperatures and concentrations. Ultimately, this research underscores the critical role of temperature and concentration in the mass transfer dynamics of food coloring processes and contributes valuable insights for the development of preservation methodologies within the food industry. These findings pave the way for improved formulation strategies and innovative applications of prebiotic natural sweeteners in food science.

Biography

Juan Ignacio González Pacheco is an accomplished Chemical Engineer with extensive knowledge of the nuclear engineering cycle. His academic distinctions include the Gold Medal and Faculty Flag, for achieving the highest academic performance in his Chemical Engineering program. His record includes publications in prestigious international journals (Nature's Scientific Reports, Cell Press's Heliyon) and congresses. He is recognized for his proficiency in Process Modeling, Simulation, and Advanced and Special Mathematics. Currently, he is pursuing a doctoral degree and continues to make significant contributions to the field of Food Engineering through his research and academic activities in candied prebiotic food matrices.

Kunihiro Sakuma
Institute for Liberal Arts, Institute of Science Tokyo, Tokyo, Japan

Molecular mechanism and possible nutritional approach for sarcopenia

Sarcopenia, the age-related loss of skeletal muscle mass, is characterized by a deterioration of muscle quantity and quality leading to a gradual slowing of movement, a decline in strength and power, increased risk of fall-related injury, and often frailty. Muscle loss has been linked with several proteolytic systems, including the ubiquitin-proteasome or lysosome-autophagy systems. Although many factors are considered to regulate age-dependent muscle loss, this gentle atrophy is not affected by factors known to enhance rapid atrophy (denervation, hindlimb suspension etc). Intriguingly, recent studies indicated an apparent functional defect in autophagy-dependent signaling in sarcopenic muscle. The combination of resistance training with supplements containing amino acids is the gold standard for preventing sarcopenia. Amino acid (HMB) supplementation alone has no significant effect on muscle strength or muscle mass in sarcopenia, but the combination of HMB and exercise (whole body vibration stimulation) is likely to be effective. Tea catechins, soy isoflavones, and ursolic acid are interesting candidates for reducing sarcopenia, but both more detailed basic research on this treatment and clinical studies in humans are needed. In this symposium, I summarized molecular mechanism and nutritional approach for sarcopenia.

Biography

Dr. Sakuma studied Exercise Physiology at the University of Tsukuba, Japan and graduated as MS in 1993 and PhD in 1996. First, he worked a researcher, Department of Physiology in Aichi Human Service Center until 2000, and then transferred as assistant professor at Department of Legal Medicine in Kyoto Prefectural University of Medicine until 2005. From 2005, he worked as associate professor in Toyohashi University of Technology. From 2016, he obtained the position of a Professor at the Institute for Liberal Arts in the Institute of Science Tokyo. He has published more than 70 research articles and 20 book chapters.

Lizeng Cheng
School of Agriculture and Biology, Shanghai Jiao Tong University, Shanghai, China

Deciphering the remarkable potential of dark tea against metabolic syndrome

Metabolic Syndrome (MetS) is a cluster of chronic metabolic disorders, including dyslipidemia, abdominal obesity, diabetes, and hypertension, that co-occur in an individual more often than might be expected by chance. Humans are currently experiencing global epidemics of MetS, with approximately 10-60% of individuals suffering from MetS across diverse ethnic, gender, and age groups. It elevated the risk not only of metabolic disorders but also of cardiovascular disease and death, as demonstrated by epidemiological studies that the overall risks of cardiovascular disease and death in patients with MetS were 1.58-2.0 times higher than those in people without MetS. MetS has emerged as a serious public health concern worldwide.

As a microbial-fermented tea, dark tea has a long-standing reputation against Metabolic Syndrome (anti-MetS). According to the ancient record of “Seeking Truth from Materia Medica”, dark tea has multiple pharmacological effects, including weight loss, lipid-lowering, and diabetic treatment. In recent decades, scientific studies have shown that dark tea is excellent in improving lipid profile, lowering body weight, alleviating chronic hyperglycemia, and attenuating hypertension. Rodents treated with green, oolong, black, and dark tea showed that dark tea was most effective at lowering lipid levels, body weight, and fasting hyperglycemia. A comparison of dark tea and raw tea leaves revealed that the anti-MetS effect was greatly biofortified after microbial fermentation. Considering that one of the most manageable approaches to combat MetS in humans is to prevent its development through dietary management, dark tea holds great potential for mitigating MetS.

Although the anti-MetS effect of dark tea is well recognized, its chemical basis and molecular mechanisms are ambiguous. There is increasing evidence that the anti-MetS effect of dark tea is highly associated with its regulation of gut microbiota, but the interaction between dark tea consumption, gut microbiota, and metabolic improvement is less thoroughly understood. This lecture deciphers the remarkable anti-MetS potential of dark tea, with special attention paid to its chemical basis and molecular mechanisms, and addresses the link between dark tea drinking, gut microbiota, and metabolic improvement.

Biography

Lizeng Cheng, Ph.D., joined Shanghai Jiao Tong University in 2022 and mainly engaged in “Health-promoting Mechanism of Dark Tea”. He is an executive expert of Jinshan Professor Workstation, guest editor of Microorganisms (Q2, IF=4.1), youth editor of “Beverage Plant research” and “iMeta” (Q1, IF=23.7). With over 10 years of experience in the field, Dr. Cheng won the first prize of “Shanghai Science and Technology Award” in 2020, the first prize of “Science and Technology Progress Award of China Light Industry Federation” in 2021, and ScienceFather’s Best Researcher Award in 2024.

Margaret J. Kuo*, T.Y. Lau, H. T. Vong

Sports Nutrition & Monitoring Centre, Sports Medicine Division, Hong Kong Sports Institute, Shatin, Hong Kong China

Insights from elite athletes in Hong Kong about eleutherococcus senticosus tea

The Asian herb *Eleutherococcus senticosus* (ES), known as Ciwujia in Chinese, is recognized for its effects on qi (energy) rejuvenation and nourishing circulation (Davydov & Krikorian, 2000). Two preceding randomized, double-blind trials demonstrated elevations in aerobic capacity and endurance exercise duration, in addition to anti-oxidation and anti-fatigue effects (Kuo et al., 2006; Kuo et al., 2007). In prospective studies, 18 college students and 10 school team athletes were orally supplemented with 600 mg of ES or starch (placebo) for 8 weeks. Cycling exhaustion exercise tests were performed at baseline and at the end of the supplementation period. Blood parameters (blood lactic acid, blood-free fatty acid, albumin, glutathione peroxidase, TEAC levels, and TBARS levels) were collected before, during, and after each test. Significant differences across groups ($p<0.05$) were shown in terms of endurance exercise time (increased by 30%), HRmax (increased by 4%), blood lactic acid (decreased by 18%), and blood-free fatty acid (increased by 20%). In addition, there were antagonistic trends in GPx ($p<0.05$) and TBARS levels between groups, where the placebo group showed an increase while the ES group showed a decrease. Albumin levels increased in the ES group post-exercise ($p<0.05$). Therefore, this paper aims to update the perception of ES through oral feedback from athletes regarding endurance capacity, recovery, and sleep quality after consuming ES tea.

The herbal drink has been served at the Elite Corner in The Hong Kong Sports Institute for Hong Kong elite athletes since April 2024. At the Elite Corner, a food kiosk, athletes can obtain nutritious meals to accommodate their daily training regimen. Inspections are executed consistently to uphold herbal quality and safety. Athletes are recommended to consume the drink twice daily before breakfast and dinner (2×250 mL). User experiences and feedback have been positive. They conveyed that the drink was aromatic, smooth, and relieving. They also noted improvements in endurance training activities and sleep quality. The safety and validity of durable intake to enhance the flow of qi are confirmed and concluded. In the future, ES tea will be offered at two temperatures (*70°C/10°C*) depending on the weather.

Biography

Dr. Margaret Jip Kuo currently as the Manager of the Sports Nutrition Monitoring Centre of the Hong Kong Sports Institute. She leads and manages the biochemistry and nutrition service to support and enhance elite athletes' training and preparation for competitions. She was a former Assistant Professor in the China University of Technology, Taiwan and the Head Consultant of some supplement companies. Margaret received her Doctorate in Food Sciences and Nutrition from Fu Jen Catholic University. Her research interests include ergogenic aids and diet planning for athletes. Margaret has authored 15 books and 2 research articles in SCI (E) journals.

Mariela Maldonado[1,2*], Juan González Pacheco[2]

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Canned cherries made with lactitol or xilitol: An dietetics and prebiotic alternative to reduce its caloric value

Polyalcohols are commonly utilized in the food industry as nutritional sweeteners due to their syrupy appearance when dissolved in water and their prebiotic properties. Our studies examined various formulations of maraschino cherries made with lactitol and xylitol that were found to be acceptable and palatable by tasting panels. The experiment also involved measuring the impact of water efflux resulting from osmotic dehydration and determining the diffusion coefficients at various stages of the formulation. These coefficients were found to be in the order of 1E-09 and 1E-08m2/s, indicating that polyalcohols have a plasticizing and humectant effect when added to the formulation. Furthermore, both lactitol and xylitol provide approximately half the calories of sugar and promote beneficial microbial flora, making them prebiotics and an attractive dietary alternative.

Biography

Dra. Maldonado studied Biological Sciences. She receives her doctoral thesis with honors in 2004 at the Universidad Nacional de Cuyo. Mendoza. Argentina. She is Specialist in Quality Engineering. She received a lot of awards: gold plate and honor diploma for National University of Cuyo, honorary mention, federation of University Women Argentina merit for the best in your graduate and honorary member the centro de bromatólogos Mendoza. And She won 3rd mention in VI Food Congress XXI Conference Food, Nutrition and Health XXXIX for this work: "Use of low digestibility carbohydrates as sucrose substitutes in the production of preserved cherries" She has wrote a lot of papers in international magazines and Congress.

Mary T. Newport, M.D.
Independent Researcher, Spring Hill, Florida, USA

Ketogenic strategies for alzheimer's and other memory impairment: History, rationale, and 288 anecdotal reports

Glucose hypometabolism predates Alzheimer's disease symptoms by at least one to two decades. Ketones are an alternative fuel to glucose and are taken up normally in affected regions of the Alzheimer's brain and could address certain pathologies that are common in the aging brain and exaggerated in Alzheimer's disease including insulin resistance, a brain-energy deficit, mitochondrial dysfunction, oxidative stress, and neuroinflammation. Ketones have also been shown to reduce formation of beta-amyloid plaques and neurofibrillary tangles in animal models. Experts have estimated that at least 30 percent of Alzheimer's and other dementias could be avoided by adopting a healthy diet, increasing physical activity, and correcting other modifiable lifestyle risk factors. Mild to moderate ketosis can be achieved through consumption of a healthy whole food low-carbohydrate ketogenic diet, ketogenic oils containing medium-chain triglycerides, or exogenous ketone supplements as well as intermittent or overnight fasting, and moderately vigorous aerobic exercise. An analysis was performed of 288 anecdotal reports about people with Alzheimer's, other dementias, Parkinson's disease with dementia, mild cognitive impairment, and other diagnosed or subjective memory impairments consuming coconut oil and/or medium-chain triglyceride oil. 89.2 percent reported improvement overall, 7.3 percent no improvement, 2.4 percent no improvement but stabilization for at least 3 months. One or more improvements were reported in the areas of memory/cognition (65.3%), social/behavior/mood/personality (32.6%), speech/language/ conversation (33%), resumption of self-care/other activities (24.7%), physical symptoms (18.4%), and sleep (3.5%), appetite (2.4%), vision (1.4%), and improvement that was otherwise unspecified (8%). Certain fatty acids found in medium-chain triglyceride oil and coconut oil are ketogenic but also have other important biological effects, and, along with polyphenols and other bioactive substances in virgin coconut oil, could explain these results. Adopting a personalized ketogenic lifestyle plan using one or more ketogenic strategies could address certain pathological processes that occur in the aging brain while potentially improving symptoms in people with Alzheimer's disease and could possibly prevent or delay the onset of cognitive impairment during aging, though larger long-term studies would be needed to confirm this.

Biography

Mary Newport, M.D. graduated from University of Cincinnati College of Medicine, then trained in pediatrics at Children's Hospital Medical Center, Cincinnati, Ohio, and in neonatology at the Medical University Hospital in Charleston, South Carolina. She practiced newborn intensive care for thirty years followed by hospice care. Her husband Steve with early onset Alzheimer's had a dramatic improvement lasting nearly four years in response to ketogenic interventions with coconut and MCT oil, a ketogenic diet, and a ketone ester developed at the NIH. Dr. Newport is the author of four books and an international speaker on ketones and the brain.

Mohamed Salem Mohamed Baazab[1*], Jalal Ali Bilal[2], Iman Ali Ba-Saddik[3], Ali Mohammed Arabi[4]

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[4]Faculty of Medicine, University of Khartoum, Sudan, Associate Professor(MD)

Risk factors of supplementary suckling technique in infants less than 6 months of age with severe acute malnutrition in Yemen and Sudan

Objectives: Supplementary Suckling Technique (SST) can support and sustain nutritional rehabilitation for catch-up growth. The main aim of this study was to identify the associated risk factors of supplementary suckling technique in infants less than 6 months of age with SAM in Yemen and Sudan.

Methods: This was a prospective hospital-based study among infants less than 6 months of age with SAM who were exposed to supplementary suckling technique, following breastfeeding failure. The study was conducted between January 2018 through December 2020 in both domains.

Results: A total of 145 infants with Severe Acute Malnutrition less than 6 months of age were included in this study. The risk factors that were studied included age, mother's education, income of the families per month, home displacement, war affection and feeding practices. In the current study the mean age of SAM infants was3.8 months (SD+1.2), the minimum age of 1 month and the maximum of 5.5 month with a range 4.5 months. The mother's education of primary level represented 60 (40.7 %) while illiterate level constituted 59 (41.4 %) of them. The income per month of the families was less than 100 US Dollars representing 141 (79.3 %). Only 44 (30.3) of SAM infants were displaced and 46 (31.7 %) were affected by war. A higher proportion of infants 108 (74.5%) were not breastfed at all and 36(24.8%) were on partial breastfeeding and only one (0.7%) SAM infant was exclusively breastfed.

Conclusion: The major risk factors in this study were age between 2-4 months, partial breast-feeding, mother education, income per month of the family, home displacement, war affection and social class.

Biography

Dr. Mohamed Baazab studied Pediatrics at the University of Aden, Yemen and graduated as MS in 2000. He then joined the teaching staff at University of Aden, Yemen in 2011. He received his MD degree in 2024 at the University of Khartoum, Sudan. He obtained the position of an Assistant Professor at University of Aden, Yemen in 2024. He has published 2 research articles in BMC Pediatrics and EJUA.

Naveen Kumar V*, Chitra V.

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Repurposing tavaborole for enhanced wound healing in chronic venous leg ulcers: A study on arginase inhibition and inflammatory modulation

Chronic Venous Insufficiency (CVI) often leads to Venous Leg Ulcers (VLUs), which present significant challenges in wound healing due to venous reflux, elevated pressure, inflammation, and endothelial dysfunction. This study investigates the potential of tavaborole, an arginase inhibitor, in improving wound healing in VLUs by targeting key factors such as arginase activity, nitric oxide production, oxidative stress, and the inflammatory response. RAW 264.7 macrophages were treated with various concentrations of tavaborole and compared to L-Norvaline, a standard arginase inhibitor. The effects on cell viability, arginase activity, Nitric Oxide (NO) production, Reactive Oxygen Species (ROS) generation, and wound healing were assessed through MTT, arginase inhibition assays, Griess reagent, ROS fluorescence assay, and scratch assays. Additionally, gene expression analysis of arginase-1 was conducted via quantitative Real-Time PCR (qRT-PCR) to examine the impact of tavaborole on arginase-1 expression. The results revealed that tavaborole significantly inhibited arginase activity, reduced NO production, and lowered IL-6 levels, compared to L-Norvaline. Gene expression analysis of arginase-1 confirmed a reduction in arginase-1 expression in tavaborole-treated cells, indicating its role in modulating arginase activity. Furthermore, tavaborole demonstrated promising effects in reducing ROS production and promoting wound healing, as observed in the scratch assays. In conclusion, tavaborole appears to be a promising therapeutic agent for enhancing wound healing in VLUs by modulating inflammatory pathways, reducing oxidative stress, and restoring endothelial function. Its potential in targeting key factors such as arginase activity and nitric oxide production makes it a valuable candidate for further investigation in chronic wound management.

Keywords: Tavaborole, Arginase Inhibition, RAW 264.7 Macrophages, Venous Leg Ulcers, Wound Healing.

Biography

Naveen Kumar V is a doctoral research scholar at SRM College of Pharmacy, SRM Institute of Science and Technology, Kattankulathur, Chennai, Tamil Nadu, India. He has qualified GPAT-2020, received InRes Young Researcher Award 2024, SRM Phoenix Project award 2020 and TEREE Dr. A. P. J. Abdul Kalam Young Research Fellowship 2019-2020 on biomedical applications of graphene-based materials. His research interests include drug repurposing for chronic diseases, oncotherapeutics, computer-aided drug design, zebrafish model, bio-applications of graphene-based nanomaterials, neurodegenerative and cardiovascular diseases. He has published 4 research and 2 review articles in well reputed journals. He received best presentation awards/prizes in 4 international and 2 national conferences.

Doctor of Sciences eng. tech. Nedyalka Valcheva

Teacher at Vocational High School Prof. Dr. Asen Zlatarov", Town Dimitrovgrad, Haskovo District, Bulgaria

Characterization of isolated strains of microorganisms from mineral, mountain and spring waters from France, Italy, England, South Korea, Japan, Netherlands, Austria, Spain and Bulgaria

The aim of the present work is to isolate, identify and investigate the species of bacteria from healing, mountain and spring waters in the area of Paris, France, Rome, Italy, London, England, Busan, South Korea, Tokyo, Japan, Amsterdam, Holland, Vienna and in Bulgaria. 127 bacterial strains were isolated and their colonial and morphological characteristics were determined and the study strains were identified. The data show that the isolated 9 strains from the hypothermal healing spring waters in the Paris area, France were identified as N. Valcheva-Lisinibacillus pakistanensis, Serratia marcescens (four strains), Staphylococcus hominis, Staphylococcus haemoliticus, Bacillus pumilus and Bacillus cereus. The isolated strains from thermal healing springs in Saturnia, Tuscany region and Fontana di Trevi in Rome, Italy were identified as N. Valcheva-Tiobacillus Ferrooxidans, Staphylococcus cohnii, from a hypothermal spring in the London area as N. Valcheva-Aeromonas caviae, Pseudomonas chlororaphis, from a mountain spring in the area of Busan, South Korea, was identified as N. Valcheva-Bacillus safensis, Staphylococcus cohnii, Pseudomonas chlororaphis, Staphylococcus cohnii. From a mountain geothermal spring in the area of Tokyo, Japan, strains were identified as N. Valcheva-Bacillus safensis, Phellodendron chinense, Aeromonas caviae, Pseudomonas japonica. The strains identified in the Amsterdam, Netherlands area were identified as N.Valcheva & A.Atanasova-Aeromonas viridans, N.Valcheva & V.P.Panteleev-P. japonica, N.Valcheva & V.V. Panteleev-Aeromonas salmonicida, N.Valcheva & A.V. Panteleev-Aeromonas caviae, N.Valcheva & L.A.V. Panteleeva-Phellodendrom chinense. Sulfur bacteria of the species N. Valcheva-Chlorobium chlorochromatii were identified from the healing springs in the region of Baden and Vienna, Austria. The strains from Bulgaria were identified from 100 hypothermal, thermal and common springs from 11 regions and belong to the following 14 genera: N. Valcheva-Bacillus, Brevibacillus, Geobacillus, Aeromonas, Klebsiella, Pseudomonas, Staphylococcus, Stenotrophomonas, Serratia, Nocardia, Trichosporon, Azoarens, Lisinbacillus, Rhodococci. The difference in the type of strains identified can be explained by the influence of the composition of the water, the type of soil and rocks through which it passes, the temperature, the pH of the environment and the different geographical location.

Biography

Nedyalka Valcheva has an extensive background in food technologies and microbiology, with a career spanning several decades. She began her academic journey in 1990, completing a Master's degree program in Technology of Vegetable, Food, and Flavor Products at the University of Food Technologies in Plovdiv, Bulgaria. From 1990 to 2016, she served as a teacher at the Vocational High School of Chemical and Food Technologies "Prof. Asen Zlatarov" in Dimitrovgrad, Bulgaria. In 2014, Valcheva earned a Ph.D. from the University of Food Technologies in Plovdiv, based on her dissertation titled "Microflora of Healing and Spring Waters in the Haskovo and Stara Zagora Regions." Subsequently, in 2016, she took on the role of a senior expert and organizer in the Department of Biochemistry, Microbiology, and Physics at Trakia University in Stara Zagora, Bulgaria. Her research pursuits continued, culminating in 2023 with a D.Sc. degree from the Institute of Cryobiology and Food Technologies, Agricultural Academy, Sofia, Bulgaria. Her dissertation focused on "Physical, Chemical, and Microbiological Characteristics of Mineral, Mountain, and Spring Waters from Bulgaria, and the Biological Properties of Identified Microorganisms." In 2024, Valcheva returned to teaching at the Vocational High School "Prof. Asen Zlatarov, PhD." in Dimitrovgrad, Bulgaria, demonstrating her ongoing dedication to education and scientific advancement.

Olivier Mankondo

Mankondo Global Ltd, United Kingdom

The plant-based nutrition: How it's going to help you lose weight and live a disease-free life

Health and wellness education has become vital for many organizations that are trying to help optimize their members' working lives.

I am a speaker and have a presentation called "The Plant- based Nutrition: How It's Going To Help You Lose Weight and Live a disease-free life". In this presentation, I discuss the benefits of wholefood plant-based nutrition to improve productivity and reduce sick days off. 8 years ago, I changed my lifestyle by adopting a plant-based nutrition and I have been able to cure myself of all the chronic diseases I was suffering from (High blood pressure, severe headaches, dandruff, chest pain, back pain, abscesses, heartburns, and a lot of dental problems) and I have not been sick a single day. And on top of that, I have been able to slow down my aging process quite dramatically. 70% of the world population is sick and in my presentation, I share tips and tricks that have helped me live a disease-free life and I think this topic could be a great fit for your audience.

I will present a high-energy, thought-provoking talk to encourage your audience to adopt new concepts and conquer new challenges. They will be empowered with this powerful knowledge and tools that they can instantly put into practice to enhance their lives. An extremely thought-provoking presentation, that everybody can benefit from.

Biography

Olivier Mankondo is a speaker, author, and weight loss and wellness coach passionate about helping people achieve optimal health. Olivier has been able to lose 35Kgs (5 ½ stone or 77 pounds) in 9 months, reverse all his chronic diseases, and slow down quite dramatically his aging process after adopting a plant-based nutrition. Since 2016, Olivier has not been sick a day and has helped hundreds of people create an amazing level of health and vitality through his talk and health coaching. He has completed the training program for weight loss coaching accredited by the International Association of Therapists. He is also the creator of the"3-Step Weight Loss & Wellness Program" and the author of the book: "The Plant-based Nutrition: How It's Going to Change Your Life" which has been translated into French as well. On a side note, Olivier can speak 4 languages including French.

Ping-Ping Zhang[1*], Hui Wang[2], Li Li[3]

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The associations of diet quality and cardiometabolic health in children and the mediation role of cardiorespiratory fitness

Background: The mechanisms linking diet quality to cardiometabolic health in children and adolescents remain inadequately understood. This study aimed to investigate the associations between diet quality and cardiometabolic health in Chinese youth, with a specific focus on the mediating role of Cardiorespiratory Fitness (CRF) in these associations.

Methods: A total of 1,389 children aged 8 to 10 years were recruited for this cross-sectional study in September 2022 in Ningbo, China. Anthropometric measurements, including waist circumference, were collected, and overnight fasting blood samples were obtained to assess metabolic indices such as fasting insulin, triglycerides, and the ratio of total cholesterol to High-Density Lipoprotein Cholesterol (HDL-C). The Cardiometabolic Risk (CMR) score was calculated as the sum of age- and sex-specific Z-scores of waist circumference, systolic blood pressure, triglycerides, the total cholesterol to HDL-C ratio, and Homeostatic Model Assessment for Insulin Resistance (HOMA-IR). CRF was evaluated using the 20-meter shuttle run test, a well-established measure of aerobic endurance. Diet quality was assessed via the Diet Quality Questionnaire (DDQ), and a Global Dietary Recommendations (GDR) score was derived from the DDQ responses. Generalized linear mixed models were employed to explore associations between the GDR score and various cardiometabolic indicators. Mediation analyses were conducted to assess the extent to which CRF mediated the relationships between diet quality and cardiometabolic risk.

Results: Our analysis revealed that, after adjusting for age, sex, and physical activity, a higher GDR score, indicative of better diet quality, was significantly associated with improved cardiometabolic outcomes, including lower fasting insulin (β=-0.013; 95% CI: -0.024, -0.002; P=0.023), lower HOMA-IR (β=-0.014; 95% CI: -0.026, 0.002; P=0.019), and a reduced CMR score (β=-0.074; 95% CI: -0.139, -0.006; P=0.030). Mediation analyses demonstrated that CRF partially mediated the associations between diet quality and cardiometabolic risk. Specifically, CRF explained 26.1% of the relationship between GDR score and fasting insulin, 25.3% of the relationship with HOMA-IR, and 32.9% of the relationship with CMR score (all P<0.05).

Conclusion: Our findings suggest that in Chinese children, poor diet quality is associated with

increased cardiometabolic risk. Moreover, cardiorespiratory fitness plays a crucial mediating role in these associations, emphasizing the importance of both dietary improvements and physical fitness in promoting cardiometabolic health in youth.

Biography

Dr. Zhang earned her Master of Science in Public Health from Wuhan University in 2019. She subsequently joined the research group of Prof. Hai-Jun Wang at Peking University's School of Public Health, where she completed her second master's degree in 2022. Following her studies, she became a fellow at the Ningbo Center for Healthy Lifestyle Research, within the Chronic Disease Management Office at The First Affiliated Hospital of Ningbo University. Dr. Zhang has authored over 10 research articles in SCI (E)-indexed journals and is an active member of the Chinese Association for Student Nutrition and Health Promotion.

Ping Dong

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Regulation of aquatic characteristic matrix on metabolism of uric acid

Abnormal Uric Acid (UA) metabolism leads to the increase of serum UA level and causes Hyperuricemia (HUA), which seriously threatens human well-being. Presently, dietary adjustments have become a crucial strategy in managing serum UA levels among individuals grappling with hyperuricemia and gout. Given its unique ecosystem, the ocean hosts a plethora of organisms boasting distinct structures and active components. The marine bioactive substances, such as bioactive peptides, polysaccharides, lipids and small molecules, have garnered attention in the research and development of modern functional foods and biomedicine due to their profound efficacy and distinctive compositions. Notably, the functional components of marine foods have been studied for their potential in regulating UA metabolism. Current studies have shown that the processes through which marine compounds demonstrate their anti-HUA effects likely involve several mechanisms:

I. Inhibition of purine metabolic enzyme activity, leading to a decrease in UA production.

II. Regulation of renal UA transporter expression, which helps maintain intestinal balance, facilitating UA excretion while impeding reabsorption.

III. Restoration of gut microbial, addressing inflammatory reactions and oxidative harm induced by UA. This aids in safeguarding the body's normal functioning.

Given the diverse and highly abundant bioactive compounds found in seafood that may help regulate UA metabolism and prevent hyperuricemia, it is essential to reconsider the idea that all seafood, particularly those with low purine content, should be strictly avoided by individuals with HUA. This perspective highlights the importance of exploring the potential therapeutic benefits of marine foods in managing HUA condition. By identifying and understanding these bioactive compounds, we can better tailor dietary recommendations and promote the consumption of marine foods as part of a balanced and healthy diet for general population and individuals with HUA conditions.

Biography

Dr. Dong Ping graduated from Ocean University of China with a doctoral degree in Aquatic Product Processing and Storage Engineering in 2008. Subsequently, she obtained a professorship at the School of Food Science and Engineering, and now serves as Vice Dean at Hyde College in Ocean University of China. Her research direction is the nutrition and utilization of marine biological resources, and she has published over 70 research articles in SCI journals.

Pooja Yadav[1*], Ashok Kumar Yadav[2]

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Extracellular vesicles from indigenous *Lactobacillus Plantarum*: A novel approach to combat skin pathogens *S. aureus* and *P. acnes*

The skin microbiota, comprising a diverse community of bacteria, fungi, and viruses, plays a crucial role in maintaining skin health. This complex ecosystem serves as a protective barrier and influences the immune response. Dysbiosis within the skin microbiome has been associated with altered immune responses, contributing to various conditions, including skin cancer. As the global shift towards health-conscious living continues, probiotics have emerged as valuable therapeutic agents. Probiotics, particularly the genus *Lactobacillus*, are recognized for their health- promoting properties when administered in adequate doses. This study focuses on Extracellular Vesicles (EVs) derived from indigenous *Lactobacillus* probiotic isolates, exploring their potential in combating skin pathogens associated with acne vulgaris and atopic dermatitis. A total of 40 *Lactobacillus* strains were isolated from fecal samples collected in the Jammu region, India. These isolates were screened for their probiotic potential following ICMR guidelines, including tolerance to lysozyme (81–99%), bile salts (81–92%), acidic conditions, auto-aggregation (39–50%), and hydrophobicity (6–53%). Twenty positive isolates of L. plantarum were further evaluated for antibacterial activity against Staphylococcus aureus and Propionibacterium acnes using the agar well diffusion assay. two isolates, LpJ5 and LpJ15, exhibited significant antibacterial activity, with 24 mm and 26 mm inhibition zones, respectively. To investigate the therapeutic potential of EVs, we isolated vesicles from the two most promising isolates using ultracentrifugation. The EVs were characterized for their nanosized shape and structure using Transmission Electron Microscopy (TEM) and Nanoparticle Tracking Analysis (NTA). Functional analysis of these EVs revealed antibacterial activity against S. aureus and P. acnes, indicating the presence of bioactive substances within the vesicles. These findings highlight the potential of EVs from L. plantarum isolates as an innovative, alternative treatment for skin-related disorders. These vesicles could pave the way for novel therapeutic approaches, leveraging the benefits of probiotics in dermatological applications. This research underscores the significance of indigenous probiotic-derived EVs in addressing unmet needs in skin health.

Keywords: *Lactobacillus*, TEM, NTA, Extracellular Vesicles, S. aureus, P. acnes.

Biography

Ms. Pooja Yadav is a dedicated researcher pursuing her Ph.D. and serving as a Senior Research Fellow under the Council of Scientific and Industrial Research (CSIR) at the Centre for Molecular Biology, Central University of Jammu, India. She holds an M. Tech from Anna University, Chennai, India, showcasing her strong academic background. Her research focuses on the therapeutic potential of extracellular vesicles from indigenous probiotic isolates in mitigating skin inflammations like acne vulgaris and atopic dermatitis. Ms. Pooja's work has been presented and awarded at esteemed scientific forums including the Best Poster Award (ETGMB-2022), the Young Scientist Award (ICABSSD-2024), and the First Prize in a Three-Minute Thesis Presentation.

Rachana B Urs[1,2*], Shristi Ram[2], Maneesh Paul Satyaseela[1]

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Comprehensive evaluation of probiotics in topical applications through standardized in-vitro methodologies

Probiotics are being rapidly established as the next frontier in skin health, promising to provide the same revolutionary effects to the skin as they do for the gut. While research into the gut microbiome is widely recognized, a growing amount of research and studies indicating probiotics' potential advantages for skin health and standardized methodologies for assessing their efficacy in topical applications are currently being explored. The current research landscape, though promising, is fragmented, with inconsistent protocols that complicate comparisons across studies. Addressing these gaps is crucial to the advancement of probiotic- based skincare as it will ensure that the formulations are reliable and scientifically verifiable.

This study aims to develop a comprehensive, in-vitro framework for assessing the efficacy of probiotics in topical applications. The research involves a broad screening of multiple probiotic strains to evaluate their ability to function effectively when applied topically. Given the skin's distinct habitat—an acidic and dehydrated environment having microbial biomass, with a high bioburden, and frequent cell renewal—probiotic strains must overcome competing and synergistic microbe-microbe and microbe-host interactions. Following this initial screening, a probiotic cocktail can be developed, expecting an optimal concentration for efficacy.

Further in-vitro assays will assess how it responds to external and environmental stressors, along with biotic variables that significantly impact the skin microbiome in everyday life. These findings are critical in understanding probiotics' efficacy in the skin's natural environment and their potential to remain stable in real-world situations.

The study is also aimed at analyzing the interaction between probiotics and skincare bioactives, assessing their combined effects on skin health. Furthermore, the efficacy of the probiotic cocktail will be evaluated to understand its potential synergetic properties to improve skin health. By studying these interactions holistically, the study aims to provide a robust, adaptable framework that can guide future research and product development.

Biography

Rachana completed her postgraduate studies in Microbiology from Manasagangotri, India, in 2021. Intrigued by the transformative potential of probiotics, she began her career at Microvioma Pvt. Ltd. under Dr. Maneesh Paul, focusing on alleviating gut microbiome dysbiosis to promote healthy aging and a holistic lifestyle. Currently, as a Research Associate at Cymbiotics Biopharma, her work explores innovative skincare solutions that leverage probiotics, prebiotics, and postbiotics to maintain and revive the skin microbiome, enhancing overall skin health. Alongside, she is pursuing her PhD at Dayananda Sagar University, under Dr. Shristi Ram and Dr. Maneesh Paul, she is exploring the evaluation of probiotics in topical applications through standardized in-vitro methodologies.

Rajesh Pal[1*], Prabhakar Pandit[1], Rahul Warke[2], Hemant Purohit[1], GM Warke[2]

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Metagenomic microbiota composition of anaerobically enriched fecal samples from diabetic and healthy volunteers

With a pool of more than 100 trillion cells and diversity of thousands of different bacterial genera and millions of functional genes, the gut microbiome works almost like an organ in the human body. Not surprisingly, the dysfunction of this essential entity termed as “gut dysbiosis” is linked with almost every human disease or disorder including diabetes. In turn, Gut dysbiosis relates to an imbalance in composition of microbial communities wherein abundance of signature microbes invariably differs from that in normal healthy condition. Over 99% of gut bacteria are reported to be anaerobic thus it is very important to process fecal samples before studying its microbiota composition. Therefore, in this study fecal samples were collected from healthy and diabetic (fasting sugar>150 mg/dl) volunteers, followed by anaerobic incubation in ANOXOMAT machine having an environment of (N2, H2 and CO2). The samples were enriched anaerobically for over a month with weekly additions of anaerobic growth media. This time series studies has been planned wherein, samples from the same volunteers will be taken for a one year period to develop a baseline data. After enrichment, full-length 16S rRNA amplicon sequencing was performed using MinION sequencer (ONT) to study complete microbial diversity of fecal samples. Parallelly, anaerobic cultivable microbial isolates from fecal samples were identified by MALDI-TOF Mass Spectrometer.

Metagenomic study involving 16S rRNA amplicon data revealed prominent differences between healthy and diabetic fecal samples with respect to anaerobic microbiome composition. As compared to healthy condition the gut microbiome composition varies significantly in diabetic condition as indicated by differential taxa abundance at every level of taxonomic hierarchy viz. Phylum, Class, Order, Family, Genus and Species. Remarkably, Anaerostipes genus was statistically most dominant in normal healthy samples. Anaerostipes along with other SCFA producing bacteria were found to be under-represented in diabetic conditions suggesting dysbiosis with respect to beneficial bacteria.

In contrast to 16S rRNA amplicon data, we found very less diversity in cultivable anaerobic bacteria when identified using MALDI-TOF. This implies that the majority of anaerobic gut microbes remains to be cultivated and characterized. This study aims to create a baseline of gut microbiota composition corresponding to different health conditions in humans including diabetes. The presentation will cover the comparative results for anaerobically enriched fecal samples from healthy and diabetic volunteers. Furthermore, the importance of anaerobic gut microbiota composition will be presented in view of its role in maintaining gut eubiosis.

Biography

Dr. Rajesh Pal studied Biochemistry from University of Pune and graduated as M.Sc in 2009. He then joined CSIR-National Environmental Engineering Research Institute for his PhD in Environmental Microbiology & Genomics and graduated in 2015. With about 9 years of industrial experience, he has worked in different domains such as development of agri-products, Viz. biofertilizers, biopesticides and biostimulants. In his previous industrial collaboration, he also led the development of human gut microbiome test based on fecal sample microbiota leading to personalised food & diet recommendations. He has published his research work in national and international journals. Currently, as Lab Manager with HiMedia Laboratories, his research is focused on the study of gut microbiomes from humans and animals. Understanding of human gut microbiota and its relationship with overall host physiology and different clinical conditions, are some of his current R&D projects at HiMedia Microbiome Research Center.

Dr. Roberto Grau

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Bacillus subtilis natto: A next-generation probiotic with positive implications in immunological, metabolic, and neurological health

Spore-forming probiotic bacteria offer interesting properties as they have an intrinsic high shelf stability, and when consumed, they are able to survive to the harsh conditions imposed during the transit thorough the host Gastrointestinal (GI) tract. One of these probiotic is *Bacillus subtilis* natto DG101 isolated from the traditional Japanize food Natto. This probiotic is linked to many beneficial health effects, including the prevention of high blood pressure, osteoporosis, and cardiovascular-associated disease. *B. subtilis* DG101 was non-hemolytic, showed high tolerance to lysozyme, low pH and bile salts, and strong adherence ability to extracellular matrix proteins (i.e., fibronectin and collagen), pointing out its proficiency for competitive exclusion of pathogen adherence. *B. subtilis* DG101 forms robust liquid and solid biofilms and express several extracellular enzymes with activity against food diet-associated macromolecules (i.e., proteins, lipids, and polysaccharides) that are important to improve food diet digestion and metabolism by host. *B. subtilis* DG101 was able to grow in the presence of toxic metals (i.e., chromium, cadmium, and arsenic) and decreased their bioavailability, a feature that points to this probiotic as an interesting agent for bioremediation in cases of food and water poisoning with metals. In addition, *B. subtilis* DG101 was sensitive to antibiotics commonly used to treat infections in medical setting, and at the same time shows a potent antimicrobial effect against pathogenic bacteria and fungi. In mammalians (i.e., rats and mice), *B. subtilis* DG101 colonized the GI tract, and improve the lipid and protein serum homeostasis of animals fed on the base of a normal-, a high fat-(obesity model) or deficient-diet regime (dietary restriction). In the animal model for longevity and neuroprotective studies, Caenorhabditis elegans, *B. subtilis* DG101 significantly increased the animal healthy lifespan in ∼35% to ∼55%, and prevent its age-related behavioral neuro decay. In the case of Parkinson's Disease (PD) a hallmark of the disease is oxidative injury to dopaminergic neurons in the substantia nigra pars compacta. C. elegans colonized by *B. subtilis* DG101 was resistant to oxidative injury of dopaminergic neurons caused by treatment with the neurotoxin 6-Hydroxydopamine (6-OHDA). Life expectancy was longer and dopaminergic neurons were more strongly protected in *B. subtilis* DG101-colonized C. elegans dat-1p:CAT-2 worms, which exhibit early dopaminergic decay because of accelerated oxidative damage. In the case of Alzherimer's Disease (AD), *B. subtilis* DG101 alleviated the AD-related paralysis phenotype of the transgenic C. elegans strains that express the toxic Aβ3-42 and Aβ1-42 peptides. *B. subtilis* DG101-colonized worms were protected from the behavioural deficits produced by pan-neuronal Aβ1-42 expression. The neuroprotective effects of *B. subtilis* DG101 were produced by downregulation and activation

of the aging-related insulin-ILS/IGF1/FOXO and stress response-related p38MAPK/Nrf2 signalling routes, respectively. Importantly, in human beings the consume of *B. subtilis* DG101, incorporated in different types of foods and beverages, significantly improved the levels of glycemia, glycosylated haemoglobin, insulin, serum lipids, body weight, body mass index and intestinal wellness.

Biography

Dr. Roberto Grau is a biochemist who began his studies in the School of Biochemistry and Pharmacy of Rosario National University (UNR), Rosario-Argentina. He completed his PhD in the UNR studying the regulation of lipid synthesis during cold-shock response and sporulation in the model bacterium Bacillus subtilis. He performed his postdoctoral studies in molecular biology of bacterial sporulation in The Scripps Research Institute (TSRI), Department of Experimental and Molecular Medicine at San Diego, California, USA. Roberto has obtained many national and international awards, and financial funding from government agencies and private companies, during his 39 years of research on Bacillus subtilis and other spore-formers. He has published more than 45 original papers in reputed journals, directed dozens of graduate and PhD thesis, formed more than fifty professional groups in science, visited many universities and research institutes around the globe (France, Spain, Germany, India, Japan, Brazil, Cuba, Chile, U.S.A., U.K.), founded and/or catalyzed the creation of half-dozen biotechnological companies, including Kyojin S.A. He was professor of Microbiology in the UNR during 41 years, Pew Latin American Fellow (San Francisco, USA), a Fulbright International Scholar (Washington DC, USA), and head of the Molecular Biology Laboratory on Spore-Forming Bacteria in Rosario-Argentina until March 2024. Now he is CEO and head of R & D of Kyojin S.A. (www.kyojin.com.ar).

Dr. Sharifa AlBlooshi

Zayed University, College of Natural and Health Sciences, Dubai, UAE

Dietary patterns, physical activity, and health challenges among autistic children aged 3–17 years in the United Arab Emirates

Background: Autism Spectrum Disorder (ASD) affects a significant number of children worldwide. However, its prevalence and impact remain underexplored in the United Arab Emirates (UAE).

Objective: This study aims to investigate the eating habits, physical activity levels, and health challenges of autistic children in the UAE.

Methods: A cross-sectional study used a structured questionnaire to collect data from private autism and special needs centers.

Results: Commonalities between the participants included having mild autism (46.7%), the onset of symptoms around the age of three (41.7%), and attending an autism center (82.3%). The majority had a normal BMI (44.7%), although a significant proportion (80%) were selective eaters, with 22% not consuming any vegetables. A factor significantly correlated with BMI was the effect of feeling upset on eating habits (p=0.019), with 28.3% of participants over-eating and 48.3% under-eating when feeling upset. Gastrointestinal issues (24.3%) and sleep disturbances (45.9%) were also reported, though these did not significantly affect BMI, but they still present other health concerns. Regarding nutritional deficiencies, 40% of participants were reported to have no deficiencies. In comparison, 31.7% reported that they did not know whether their child had deficiencies or not, and 28.3% indicated that their child did have weaknesses. Additionally, only 40% of the children were reported to be receiving vitamin and mineral supplements. Additionally, we found that the majority of participants engaged in physical activity chose swimming (37%).

Conclusions: Nutritional deficiencies are prevalent among autistic children, highlighting the need for further research in this area. Key topics for future investigation include food selectivity, sleep disturbances, gastrointestinal issues, emotional eating, and nutrient deficiencies. Since swimming is known to benefit motor skills and emotional regulation, we recommend continued encouragement of swimming as an effective activity for autistic children.

Biography

Dr. Sharifa Alblooshi is an Assistant Public Health and Nutrition Professor at Zayed University, UAE. She received her Ph.D. in Public Health from UAE University, College of Medicine and Health Sciences in 2017. She has around 20 years of leadership experience and 6 years of academic experience in public health and nutrition in the UAE. Her research areas are in Public Health and Nutrition: Vitamin D, Physical Activity, Diabetes Mellitus, Obesity, and Women's and Children's Health. She is a member of the Emirates Society for Public Health, the American Society for Nutrition (ASN), and the Royal Society for Public Health (RSPH) - UK.

Sutapa Biswas Majee

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Emulsion systems in augmenting stability and bioavailability of nutrients in nutraceuticals: A step towards achieving nutritional efficiency

With an ever-increasing demand for stable, bioavailable, healthy, safe, and sustainable alternatives, the evolving landscape of nutraceuticals is visualizing cutting-edge developments. Bioaccessibility and bioavailability of nutrients from nutraceuticals involve release of nutrients from the delivery platform, solubilization, dispersion, absorption, distribution, metabolism, and elimination. Nutrient-associated physicochemical and physiological factors affecting the functional, nutritional, and therapeutic outcomes include varying gastrointestinal pH, poor solubility, dispersibility, digestibility, enzymatic degradability, difficulties in transport and penetration across the mucosal wall, presence of P-glycoprotein efflux transporters, hepatic first-pass metabolism, and inter-individual variation in gut physiology, microbiome, and digestion parameters. Certain extrinsic variables such as the composition and nature of delivery platform, exposure to environmental stresses during processing, manufacturing, and shelf-life may have adverse effects on quality attributes, stability, bioavailability, and nutritional efficiency. Advancements in emulsion systems and state-of-the-art technologies are revolutionizing nutraceutical delivery and maximizing nutrient bioavailability. Among several approaches that are being investigated, nanoemulsions, double emulsions, multilayer emulsions, pickering emulsions, nanoemulsions with structured lipids, self-emulsifying liquid, and solid preparations, low-fat viscous and semisolid emulsions are gaining popularity. Not only do these novel emulsion systems open up new avenues in augmenting stability, bioavailability, and nutritional qualities, but they have also improved textural properties, and protection against gastric irritation, and are being regarded as healthy options for diabetic and obese persons with restricted calorie-intake. However, successful novel formulations can be developed only after consideration of the influence of droplet size, droplet size distribution, and extent of interfacial engineering by emulsifiers. Further studies need to be done to gain a complete understanding of gastrointestinal fate of the systems, scale-up challenges, benefit-cost ratio, in vitro-in vivo correlation, and regulatory perspectives. The presentation will discuss strategies for the protection of nutraceutical stability, quality, promotion of efficiency, and potential health benefits of emulsion-based nutraceuticals.

Biography

Dr. Biswas Majee studied Pharmacy at Jadavpur University, India, and completed her PhD in 2001. She did her post-doctoral stints at Bose Institute, Kolkata, and Jadavpur University from 2001-2005. She started her teaching career at the NSHM College of Pharmaceutical Technology, NSHM Knowledge Campus, Kolkata, India in 2005. She has published around 80 peer-reviewed research articles and reviews in various national and international journals. She has authored/co-authored books, edited books and authored book chapters on various topics. She is empanelled as an Associate Editor and Reviewer in several international journals of high impact factor.

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Prevalence and associated factors of complementary feeding practices of mothers having children 6-23 months in rural disadvantaged areas, Ben Tre province, Vietnam: A cross-sectional study

Background: Appropriate complementary feeding practices (CFPs) play a key role for ensuring optimal health, growth and development for children 6-23 months. The purpose of this study was to determine the prevalence and associated factors of CFPs of mothers or primary caregivers having children 6-23 months in Thanh Phu rural district of Ben Tre province, Vietnam.

Methods: 358 child-mother pairs participated in a cross-sectional study. Weight and height of children were measured by trained nutritionists using standard measurement tools and procedure. Mothers or primary caregivers were interviewed about maternal, child and household characteristics, awareness of the food environment, household food insecurity (HFI) and CFPs using a structured questionnaire. Chi square test, Fisher exact test, t-test, and multivariate logistic regression were used to evaluate associations between CFPs and independent variables.

Results: Percentages of children having appropriate minimum dietary diversity (MDD), minimum meal frequency (MMF), and minimum acceptable diet (MAD) were 71.5%, 40.8%, and 31.6%, respectively. MDD was negatively associated with younger child, the child's sickness in the last two weeks, caregivers being fathers, not breastfeeding, lower monthly household income, and use of untreated drinking water after controlling for covariates ($p<0.05$). Associated factors of poorer MMF included older child, not breastfeeding, and maternal biological status, whereas purchasing foods at the street vendors and MDD was positively associated with better MMF ($p<0.05$). Maternal biological status, marital status of mothers, breastfeeding, and HFI were all associated with MAD ($p<0.05$).

Conclusions: This results revealed that inappropriate complementary feeding practices among children aged 6-23 months in rural disadvantaged areas of Southern region remained a significant challenge for nutrition improvement of young children in Vietnam. Child age, HFI, use of untreated drinking water, lower monthly income, mother's marital status, breastfeeding, and source of purchased foods were associated with poor CFPs. Solutions for improving CFPs for children should address these underlying causes.

Keywords: Complementary Feeding Practices, Children 6-23 Months, Breastfeeding, Disadvantaged Areas, WASH, Household Food Insecurity, Vietnam.

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Challenges faced in addisons disease with comorbidities: A long term follow up (>2years) lifestyle modification

Modify Lifestyle as medicine with the right combination of nutrients to reduce many medications and drug nutrient interaction, improve quality of life. A challenging nutrition therapy for Addison disease. In 2004, 34 years old male patient was admitted and on ventilator for three months, causing DVT and pulmonary embolism thus leading him to total parental nutrition. In 2009, operated for appendix, again developed incisional hernia, 2015 gallbladder removal, 2017 developed chronic constipation and high uric acid. After 20 years at 54 years current age BMI 23.87/hypothyroidism, developed Steroid induced myopathy, dyspnea on exertion, unable to do routine work was hospitalized again in 2022. On and off having acidity, chronic constipation, potassium fluctuations, hyperlipidemia. A strict dietary management as doctor advised to take high protein diet inspite of high creatinine level. MNT steroids and many other medication was going on. Disease specific high calorie high protein immune modifier formula used. High sodium with MCT and soluble insoluble fibre added as had hard stool. A doctor advised Renal diet Patient unable to eat planned calorie and protein, added scientific oral nutritional supplement with curds, custard, blend khichadi and soft pureed rice. Weight was constant with right diet. Added nutritional formula to increase calorie and protein intake and better nutritional compliance. Recent advances suggest that lifestyle modifications with yoga, physiotherapy, gym, right nutrition is the key to reduce many medicine. Along with medical diagnosis nutritional diagnosis very important when the body is under stress (e.g. fighting an infection), this deficiency of cortisol can result in a life threatening Addisonian crisis characterized by low blood pressure. This patient who is taking more than 15 tablets a day prior 2004 no medicine, no steroid. Today now bring it down to 4-5 medication with customized diet and NLP session as patients was suffering with anxiety too.

Advised Nutrition high iron foods to get normal iron level. Since 2022 under my observation, taking right Diet, & Nutrition for Adrenal Insufficiency & High doses of corticosteroids are linked to a higher risk of osteoporosis—so dietary calcium and vitamin D rich diet advised by me. Diuretics were replaced by high potassium foods drinks.

Keywords: Addison's Disease, Hypothyroidism, Uric Acid Osteoporosis, Nutritional Diagnosis, TPN.

Biography

Ushakiran Sisodia is an esteemed International Clinical Nutritionist, holding credentials as a Registered Dietitian (R.D.), Certified Diabetes Educator (CDE), and a gold medalist in her MSc in Foods & Nutrition. She serves as the Head of Dietetics at JHRC and works as a consultant for a pharmaceutical company. As the author of "Road Towards a Healthy Heart," Ushakiran has been practicing lifestyle medicine for 28 years, specializing as an obesity consultant and treating patients with various lifestyle-related diseases. She provides medical nutrition therapy for post-surgery and malnourished patients. With 23 years of experience as the Head of the Diet and Nutrition Department at Nanavati Hospital, she has also upgraded her skills as a Neuro-Linguistic Programming (NLP) coach to enhance her counseling abilities. Recently, she has completed all three levels of Reiki training and is also recognized as an expert in numerology.

Dr. Vandana Gulati

Biomedical Science, School of Science and Technology, University of New England, Armidale, New South Wales, Australia

The role of traditional plants: "Bridging ancient wisdom and modern medicine"

It is important to embrace the traditions, traditional foods are not just the reflection of culture but also source of vital nutrients that are rich in vitamins, minerals, fibers and antioxidants. They have been rooted in centuries old culinary traditions and are deeply embedded in various cultures, rituals, communities and are passed down from one generation to another. Traditional diets across the cultures and regions have been linked with reduced risks of health issues and therefore, can be utilised as preventive health foods and medicines.

The native plants of Australia are rich in macro-nutrients and micro-nutrients but have not been investigated much for their nutritional and health benefits. Few species of Acacia, Santalum and Syzigium were explored and have been extensively used by Aboriginal Australians as native foods or bush food culture. These plants were scientifically explored using in vitro assays and were found be effective in managing metabolic disorders and the biological activities are due to the presence of flavonoids and polyphenolic compounds that further linked with antioxidant activities of these plants and native foods. These plants were also tested for their cytotoxicity profiles and were found to be non-toxic and were able to regulate blood glucose levels using cell-based assays. These plants also demonstrated anti-microbial activities against some Gram-positive and Gram-negative bacterial strains. Therefore, these plants can be used in the management of obesity and type 2 diabetes.

Biography

Dr. Gulati completed her PhD from Swinburne University of Technology in 2013 and investigated Indigenous Australian plants for the management of type 2 diabetes and obesity and was the first one to explore the native plants of Australia scientifically for metabolic disorders. Prior to joining PhD, she worked in Indian Pharmaceutical Research sector in natural products chemistry. Dr. Gulati received several awards for excellence in education in Australia and is also a recipient of an appreciation award from Government of India for analysis and standardization of Indian medicinal plants and for the contribution of her work in Indian Pharmacopoeia.

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Potential for detecting food adulteration using spectral techniques

Increase in food prices and rapid developments in food science have affected food industry both positively and negatively. The negative effect is that some bad producers now engage in food adulteration practices that are harder to detect. They can deceive consumers and make unfair profits. There is a dramatic increase in publications about food fraud after 2010. For example, while in 2005, there were 40 publications published on this subject in Scopus, this number reached 250 in 2020. Some types of foods are vulnerable to adulteration because their original specific characteristics cannot be easily identified. Hence, the economically motivated adulteration of some foods especially high price foods such as honey, olive oil, meat product and molasses are rather possibly to be practiced. This study aimed to assess the potential of spectral based detecting of adulteration for some foods. For this aim, researches on detecting food adulteration by using spectral methods have been compiled. Using potential of spectral techniques in industry or inspections have been evaluated.

In order to detect food adulteration using spectral methods, the spectral technique must first be able to detect food with a high success rate of 99%. Foods may differ depending on agricultural production conditions and this difference may cause errors in determining adulteration. The spectral technique should not give misleading results due to effects such as climate, growing conditions, processing method and seasonal differences. When necessary, applications such as using spectral techniques by integrating them with classical methods or verifying with classical methods will make it possible to make more accurate decisions about adulteration in audits. Detecting adulteration with spectral data is always attractive as it is a cheap and practical method, but it is important that the detection success rate is always high. In order to have high detection success, it can be recommended to apply different modelling.

There is a high possibility of adulteration in products such as honey, grape molasses, olive oil, minced meat and dairy products. It has been reported that if grape molasses is mixed with fructose, sucrose or glucose syrup in different proportions, adulteration can be clearly detected by spectral methods. Specific to the sensor, it has been reported that the spectroscopic data obtained has a significant potential for detecting adulteration in ground meat and determining the amount of adulteration. Spectral techniques have been shown to be effective in cheese authentication and geographic origin determination, especially when associated with chemometrics. It has been stated that the information obtained from mid-infrared and Raman spectroscopy offers descriptive advantages in honey and that mid-infrared spectroscopy can detect adulteration in honey with a 95% success rate. It seems that the spectral technique

is promising in research on the detection of adulteration in different foods. In the future, it is recommended to determine the potential for use of spectral techniques in legal controls and to increase their widespread use.

Biography

Yasin Ozdemir studied Food Engineering at Ege University, Türkiye, and graduated with an MS in 2004. He received her Ph.D. degree in 2011 at Namık Kemal University. During Ph.D. studies he started to work at Ataturk Horticultural Central Research Institute. He has 3 processes patents and 2 national awards in his scientific study area. He has taken part in 22 national research projects, 4 international projects and 5 private sector-supported projects. He published more than 100 articles in international journals and congress proceedings.

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A novel probiotic candidate strain, *Lactobacillus amylovorus* SLZX20-1, enhances intestinal function through enzyme production and modulation of the gut microbiota

The interaction between exogenous microorganisms and the host has received great attention, and finding new probiotics is always the way to improve the health of humans and animals. *Lactobacillus amylovorus (L. amylovorus)* is a kind of *Lactobacillus* that can efficiently utilize starch, as a food and feed additive, it has been widely used for mildew prevention and antibacterial, bacteriostasis, and enzyme production. Herein, a strain of *L.amylovorus* was isolated from the feces of Tibetan weaned piglets, named *L.amylovorus* SLZX20-1. Physiological and biochemical experiments *in vitro* confirmed that it had a fast growth rate and could produce a variety of enzymes, including a-galactosidase, b-galactosidase, a-glucosidase, b-glucosidase, and ferulic acid esterase. In addition, *L.amylovorus* SLZX20-1 exerted antibiotic effects on the growth of *Salmonella typhimurium (S. typhimurium)* SL1344, *Citrobacter rodentium (C. rodentium)* DBS100, *Salmonella pullorum (S. pullorum)* CVCC1791, *Staphylococcus aureus (S. aureus)* CVCC1882, *Escherichia coli (E. coli)* O157, *E. coli* K88, *E. coli* K99, and *E. coli* 987P, which are closely related to acid productivity, such as lactic acid and acetic acid. *In vitro* co-culture, *L.amylovorus* SLZX20-1 has shown the strong adhesion ability to intestinal porcine epithelial cells (IPEC-J2 cells) and activated IPEC-J2 cells with high expression of Host Defense Peptides (HDPs), such as *NK-Lysin, PEP2C*, and *PBD-1*. *In vivo* experiment, via intragastric administration, *L.amylovorus* SLZX20-1 significantly improved the feed intake of mice, declined the crypt depth of jejunum and ileum, *L.amylovorus* SLZX20-1 changed the composition of intestinal microbes, especially at the level of colonic genus, the dominant genus was changed from *Lactobacillus* to *S24-7*, which indicated the change of intestinal carbohydrate nutrition. In conclusion, *L.amylovorus* SLZX20-1 showed strong probiotic characteristics, which met with the standard of probiotics and is worth further exploring its impacts on host health and its potential as a candidate strain of probiotics.

Biography

Dr. Zhang Jie is a professor at Beijing Vocational College of Agriculture and studied pathogenesis and prevention of diseases at School of Public Health, North China University of Science and Technology. She has published 16 research articles in SCI journals and more than 350 citations, and she served as a reviewer for the journal of the Science of Food and Agrigulture, Journal of Current Peptide and Protein Science and Heliyon, and served as a guest editor of Frontiers in Microbiology.

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A novel dry-cured ham broth-derived peptide JHBp2 effectively inhibits *Salmonella typhimurium in vitro*: Integrated metabolomic, proteomic and molecular simulation analyses

JHBp2 is a peptide purified from Jinhua ham broth with antibacterial activity against *Salmonella typhimurium*. Untargeted-metabolomics and label-free-quantitative proteomics were used to analyze metabolic and protein expression changes in *S. typhimurium* after JHBp2 treatment. Based on the integrated nucleic acid and protein leakage result, and metabolomic and proteomic analysis, the growth-inhibitory mechanisms of JHBp2 against *S. typhimurium* could be summarized as follows:

1. JHBp2 destroyed the structure of the cell membrane and interfered with bacterial cell membrane-associated protein synthesis, thus disrupted cell membrane function. The scanning electron microscope indicates that the structure of bacterial cell walls and membranes was disrupted after JHBp2 treatment. Further, subcellular localization analysis revealed that more than 65% of the differential proteins in the AMPT group were localized to the cell membrane. KEGG analysis of the metabolome suggested that the levels of 14 metabolites involved in the ABC transporter pathway were significantly altered. Of these, 10 were significantly downregulated. YehZ (ABC Transporter Substrate-Binding Protein) expression was also significantly downregulated in RT-qPCR experiments. The JHBp2-mediated downregulation of ABC transporter-related metabolites indicated that the important functions of *S. typhimurium* membrane structural proteins were inhibited, preventing the development of drug resistance. Additionally, GO annotation analysis revealed a significant downregulation of proteins related to periplasmic space and outer membrane periplasmic space, which containing a large number of hydrolytic and synthetic enzymes associated with peptidoglycan synthesis, as well as binding proteins that aid in nutrient transport.

2. JHBp2 significantly downregulated energy metabolism-related enzyme and metabolites expression, which affected normal energy metabolism and cellular respiration in bacteria. KEGG analysis of the proteome revealed that 6 of the 12 significantly downregulated pathways were involved in energy metabolism, including pyruvate metabolism, carbon metabolism, glycolysis/gluconeogenesis, dicarboxylic acid metabolism, starch and sucrose metabolism, and TCA cycle with pyruvate metabolism being the most significantly downregulated pathway.

Of the five significant metabolic pathways, 2,3-diphosphoglycerate-dependent PGM (dPGM) linked four pathways. Energy metabolism-related enzymes, such as fumarate hydratase II, malate dehydrogenase, fructose diphosphate aldolase, and acetyl coenzyme A synthase,

were significantly downregulated in the AMPT group. Among the metabolomics, 24 differential metabolites were involved in the biosynthesis of cofactors pathway, which accounted for the highest number of differential metabolites among all pathways. Meanwhile, 18 differential proteins were involved in the biosynthesis of cofactors pathway in proteomics.

3. JHBp2 significantly downregulated the synthesis/metabolism of amino acids, nucleotides-related enzymes, and metabolites, thereby interfering with normal genetic material and protein synthesis. Differential metabolites of amino acids and nucleotide, such as glutamate and 5,6-Dihydrouracil, are important raw materials for protein and nucleic acid synthesis in *S. typhimurium.* Proteomic and RT-qPCR analysis revealed that structure-related enzymes associated with amino acid and nucleotide anabolism (such as carbamate cinase and 2',3'-Cyclic-Nucleotide-2'-Phosphodiesterase/3'-Nucleotidase) were significantly downregulated upon the JHBp2 treatment. Molecular docking results also demonstrated that JHBp2 can bind stably to both enzymes.

Consequently, JHBp2 destroyed the structure of the cell wall and membrane, inhibited the bacterial absorption of nutrients, affected normal energy metabolism, and interfered with regular genetic material and protein synthesis, thereby inhibiting bacterial growth

Biography

Yang ziyi attended Nanjing Agricultural University for his undergraduate, master's and PhD degrees, and is currently a PhD student in the class of 2023. He has has published 5 SCI academic papers. The first author's article published in Journal of Agricultural and Food Chemistry, JCR Zone 1, was selected as the cover of the current issue of the journal. Presented 1 conference paper and 1 poster at the 70th International Congress of Meat Science and Technolog. He is currently a student member of the American Meat Science Research Society, Chinese Chemical Society, and Chinese Association of Food Science and Technology.

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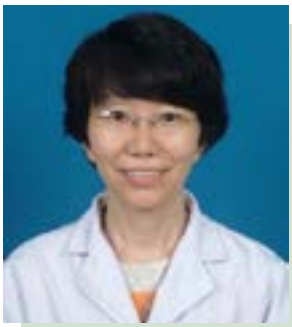

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Effects of nutrition intervention on weight loss in female patients with obesity

Objective: To study the effects of specific nutritional diet (SND) with low calorie, low glycemic index and high protein on body weight and composition changes in female patients with simple obesity.

Methods: A total of 65 simple female patients with simple obesity were divided into two groups voluntarily. The experiment group (n=35) received 45-day SND and the control group (n=30) received low energy diet intervention. Body weight and composition in two groups were compared before and after intervention and respective effects on weight loss were evaluated.

Results: Body weight, body mass index, body fat mass, body fat percentage, waist-hip ratio and visceral fat area were decreased in both groups after intervention; the decline in experiment group was significantly sharper than that of the control group, the difference the difference of which was statistically significant ($P<0.05$). Skeletal muscles, body protein mass, intracellular water, extra-cellular water and bone mineral content had no statistically significant difference before and after nutrition intervention ($P>0.05$).

Conclusion: SND with low calorie, low glycemic index and high protein diet intervention is a healthy nutrition intervention which can effectively lose weight, reduce body fat and visceral fat without affecting lean body mass, protein mass and water content in patients with simple obesity.

Keywords: Specific diet intervention; Simple obesity; Weight loss; Body composition

Biography

Dr. Aiwu Shi studied at the Nanjing Medical University major in cardiovascular internal medicine and received her PhD degree. She obtained the position of an Associate Professor at the Nanjing Medical University in 2015. She has published more than 30 research articles in SCI or other journals

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Antagonistic activity of bacteriocin-producing strain *streptococcus salivarius* K12

Introduction: One of the urgent problems of the modern healthcare is increasing resistance of pathogenic microorganisms to antibiotics and a further trend toward an increasing number of antibiotic-resistant strains. Therefore, it is necessary to introduce new ways to combat resistant microorganisms. In this regard, the use of probiotics in clinical practice becomes the most promising direction in the prevention of new cases of bacterial infections caused by resistant microbes. Probiotics are live microorganisms that when administered in adequate amounts confer a health benefit on the host by changing the properties of the normal microbiota. One is the most promising probiotic strain is *Streptococcus salivarius. Streptococcus salivarius* is a gram-positive streptococcus, which is one of the first colonizers of human oral and nasopharynx mucosa. Among *S. salivarius* there are two main well-studied strains: *S. salivarius* K12 (SsK12) and *S. salivarius* M18 (SsM18) which are currently used as oral probiotics.

Aim: To evaluate the antagonistic activity of *Streptococcus salivarius* K12 (SsK12) against ENT and oral cavity infections pathogens (*S. pneumoniae, S. pyogenes, S. aureus*), gram-negative bacteria (*E. coli, P. aeruginosa*) and *C. albicans*.

Materials and Methods: The probiotic strain SsK12 was isolated from dietary supplement, containing at least 1×109 CFU per tablet. The tablet was dissolved in the enrichment broth. The resulting suspension was seeded on 5% blood agar and incubated at 35°C in 4-6% CO2 for 48 hours. The raised culture was identified as Streptococcus salivarius with MALDI-TOF mass spectrometry method. The evaluation of SsK12 antagonistic activity was carried out using a perpendicular streak technique. The daily SsK12 culture was inoculated as heavy streaks with a loop at one side of Petri dish with the Muller-Hinton Agar (MHA) and incubated for 24 hours at 350 C in anaerobic conditions. It was supposed that bacteriocins would diffuse over the whole area of the agar media. On the next day *S. pneumoniae, S. pyogenes, S. aureus, E. coli, P. aeruginosa and C. albicans* clinical isolates were streaked at the clear side of MHA Petri dish. MHA Petri dish inoculated with SsK12 (one part) and with the respective clinical isolates (another part) streaked perpendicularly on the same day was used as the control.

Results: There was no growth of S. pyogenes on the Petri dish with SsK12 daily culture; the growth of a few colonies of *S. pneumonia* was noted. The growth of *S. aureus, E. coli, P. aeruginosa* and *C. albicans* was noted along the inoculated streak. On the control Petri dish with simultaneous inoculating of the SsK12 strain and the test cultures, the growth of all the testes isolates was noted.

Conclusions: 1. SsK12 possesses perfect antagonistic activity against *S. pyogenes* and good activity against *S. pneumoniae*
2. There was no antagonistic activity of SsK12 against *S. aureus, E. coli, P. aeruginosa* and *C. albicans*
3. SsK12 antagonistic properties make it possible to use this probiotic strain for prophylaxis of recurrent ENT infections

Keywords: Bacteriocins, Antagonistic Activity, Streptococcus Salivarius K12, Ssk12, ENT Infections.

Biography

Alexander Chernavin graduated from Volgograd State Medical University in 1998 with a specialization in pediatrics. Following his initial studies, he pursued further training and work in the fields of allergology-immunology, bacteriology, and clinical pharmacology, eventually earning a PhD. His career in the pharmaceutical industry began in 2003, during which he held positions at various Russian and international companies, including Materia Medica, Microgen, Sanofi-Aventis, and Sandoz.

Since April 2014, he has been associated with R-Pharm in Moscow, where he has held multiple roles. In October 2020, he assumed the position of Regional Medical Director, overseeing operations in Russia and CIS countries. His expertise spans a wide range of therapeutic areas, including infectious diseases (antibiotics, tuberculosis, antifungals, virology/vaccines), immunology, blood products, intensive care and anesthesiology, urology, pulmonology, cardiology, nephrology, rare diseases, radiology, nuclear medicine, laboratory diagnostics, and medical equipment. Additionally, his work extends to women's health, perinatal diagnostics, multiple sclerosis, endocrinology, ophthalmology, pre-wound healing drugs, and dietary supplements.

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Nutritional status of iron and vitamin D in postpartum women in Taiwan

This study investigates the nutritional status of iron and vitamin D in postpartum women and its association with dietary intake. The study period was from January 2016 to September 2017, during which dietary data were collected from women six weeks postpartum, and biochemical indicators of blood iron and vitamin D levels were measured. The results showed that among 120 participants, the average age was 32.4 years. Regarding iron status, 4.2% were iron deficient, and 6.7% had anemia. The iron intake of anemic women was only 46.5% of that of the normal group. The prevalence of iron deficiency was significantly lower in those who took iron supplements postpartum (1.7%) compared to those who did not (11.7%). Regarding vitamin D status, 24% of the participants had sufficient vitamin D levels, while 37.5% were insufficient, and 38.5% were deficient, indicating a generally poor nutritional status. Vitamin D intake was positively correlated with serum 25(OH)D concentration. Women who took vitamin D supplements postpartum had a significantly higher rate of sufficient vitamin D levels compared to those who did not (32.8% vs. 14.3%). This study highlights the widespread issue of iron and vitamin D deficiency in postpartum women and suggests that nutritional supplements can effectively improve the nutritional status of iron and vitamin D.

Biography

Dr. Chiao-Ming Chen served as a dietitian at Taipei Medical University Hospital from 1995 to 2009 and obtained her Ph.D. from the School of Pharmacy at Taipei Medical University in 2008. She is currently an Associate Professor in the Department of food Science, Nutrition, and Nutraceutical Biotechnology, Shih Chien University. Her research focuses primarily on women's and infant nutrition and health, with a secondary emphasis on diabetes management.

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Food supply and nutritional imbalance in Taiwan: Implications for dietary policy and sustainability

This study examines Taiwan's food supply and nutrient intake discrepancies from 2017 to 2020, using Food Balance Sheet (FBS) data, 24-hour dietary records, and the Plant-Based Diet framework. Results reveal an overabundance of fats, oils, and nuts (S-Nr = 2.76), while essential food groups such as dairy (S-Nr = 0.47), vegetables (S-Nr = 0.84), and fruits (S-Nr = 0.77) remain insufficient. Calcium intake is severely deficient (NSI= 0.56), particularly among adolescents and older adults, whereas fat (NSI = 2.19) and vitamin A (NSI = 17.23) exceed recommendations. Food Supply Index (FSI) data indicate that men aged 45–74 have the lowest dairy intake (FSI = 0.27), and both adolescents and the elderly consume inadequate fiber and vitamin D. Additionally, Planetary Health Diet (PHD) adherence varies by age and gender, peaking among women aged 19–44 (PHD Score = 64.68). Furthermore, global warming potential (CO_2/kg) analysis highlights the environmental burden of food consumption, with the U.S. leading in emissions (2703.21 kg CO_2), while India has the lowest (671.96 kg CO_2) due to its plant-based diet. These findings underscore the urgent need for policy interventions to optimize plant-based protein intake, enhance dairy and calcium availability, and promote sustainable dietary practices in Taiwan.

Biography

Nguyen Dang Hien Ngan earned her medical degree in Vietnam in September 2022. She is currently pursuing a master's degree at the School of Nutrition and Health Sciences, Taipei Medical University (TMU), Taiwan. Her research interests focus on food and nutrient security indices and the planetary health diet, aiming to address global challenges in nutrition and sustainability.

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Comparison of effect of different starter cultures on fermentation properties of cow curd in Sri Lanka

Curd is an extensively consumed traditional fermented dairy product in Sri Lanka. The repeated usage of defined starter culture in commercial curd production leads to a constant host for bacteriophage proliferation. These bacteriophages cause the low rate of lactic acid production during fermentation process which causes undesirable product quality, thereby considerable economic losses. Rotation of the starter culture has been identified as a good solution to avoid this. Therefore, this study was conducted with the objective of identifying the suitable starter cultures/culture combination for cow curd preparation that can be used for culture rotation process. The physiochemical, microbiological and organoleptic properties were evaluated to identify the most suitable starter cultures for cow curd production. Four starter cultures; Delvo FVV 211 (T1), Chr Hansen YoFlex® SLB 3.0 (T2), Sacco KD2 (T3) and a combination of Delvo FVV 211+ Sacco KD2 (T4), as a control a culture of preprepared buffalo curd (PPBC) was used (T5). One way ANOVA and Friedman test were used to analyze data. The curd produced with Delvo FVV 211 showed the lowest ($P<0.05$) mean pH (3.64±0.00) compared to the control (3.94±0.02) toward 14th day of storage in refrigerator (4CO). The organoleptic properties were evaluated by twenty untrained panelists with 5-point hedonic scale. The curd produced using a combination of Delvo FVV 211+ Sacco KD2 (T4) received the highest rank for taste while other properties had no difference. The control showed a higher ($P<0.05$) mean yeast count (2.90±0.08 log cfu/g) during the fifteen days of storage in refrigerator. However there was no significant mold growth in any of the sample during storage. In conclusion, a combination of Delvo FVV 211 + Sacco KD2 cultures was identified as the best option for culture rotation practices in cow curd production.

Keywords: Cow Curd, Starter Cultures, Organoleptic Properties.

Biography

M.J Damsara is a final year research student in Animal Science and Fisheries degree program in University of Peradeniya. She will be majoring in dairy science and technology.

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2014 Taiwan food and nutrition status indicator evaluation

In 2015, the United Nations launched the Sustainable Development Goals (SDGs), with Goal 2 focusing on eradicating hunger, achieving food security, and improving nutrition. This project assesses Taiwan's food and nutrition status in response to global efforts addressing sustainable development and nutrition challenges. Using the latest data from the Nutrition and Health Survey in Taiwan, provided by the Health Promotion Administration, and the Food Balance Sheet from the Ministry of Agriculture, this study analyzed SDG 2.1.1 and 2.1.2 indicators. The results indicate that Taiwan's Prevalence of Undernourishment (PoU) between 2017 and 2020 was 0.005–0.009%, significantly lower than the 2.2–2.4% observed between 2013 and 2016. Additionally, the rate of severe or moderate food insecurity declined from 2.21–2.29% in 2019 to 1.08–1.18% in 2022–2023. High-risk groups include women, individuals aged 51–70, low-income households, and those facing economic difficulties. The analysis of food and nutrient security indices highlights deficiencies in dairy, calcium, and vitamin D supply and intake. Revising dietary guidelines is recommended to improve national nutrition and support the achievement of sustainable development goals.

Biography

Dr. Sing-Chung Li earned his Ph.D. in 2001 from the Institute of Agricultural Chemistry at National Taiwan University. He is currently an associate professor in the School of Nutrition and Health Sciences at Taipei Medical University (TMU), Taiwan. His research focuses on nutrition for chronic disease prevention, nutrigenomics, and food security. Dr. Li has published over 40 research articles in peer-reviewed journals and actively contributes to projects addressing sustainable development goals, including dietary assessments and food security indicators.

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The synergistic effect of compound dietary fiber and Parabacteroides distasonis on alleviating placental aging and improving GDM

The effects of dietary fiber vary depending on its type and the composition of an individual's gut microbiota. Certain microbes act as probiotics only when appropriate dietary fiber is present, and dietary fiber is also combined with specific microbes to maximize its efficacy. In our previous Randomized Controlled Trial (RCT) investigating the intervention of Compound Dietary Fiber (CDF) in Gestational Diabetes Mellitus (GDM), we found that pregnant women with a low baseline abundance of intestinal P. distasonis exhibited poor efficacy, suggesting that CDF may depend on this microbe to function as an anti-GDM agent. Animal experiments also demonstrated that the synergistic effect of CDF and P. distasonis on improving GDM was significantly stronger than that of a single intervention. Mechanistically, Retinoic Acid (RA) produced from the fermentation of CDF by P. distasonis inhibits pyroptosis in placental macrophages, alleviating senescence in trophoblast cells and thereby improving GDM. Our study offers new theoretical insights into probiotic-prebiotic interactions and their application for precise treatment of GDM through gut-flora-placenta axis.

Keywords: Dietary Fiber, Gestational Diabetes Mellitus, Gut Microbiota; P. Distasonis, Ricinoleic Acid.

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Novel effects of glucosamine on animal learning and memory functions

Learning and memory functions are closely linked and significantly influence quality of life. The degeneration or loss of these functions due to diseases or aging, such as Alzheimer's disease, has become a major health concern. Research has shown that Fibroblast Growth Factor 21 (FGF21) plays a vital role in both metabolism and cognitive functions. Glucosamine (GLN) is well known for its wide range of beneficial effects, and our previous studies have demonstrated its positive impact on cognitive performance in animals, accompanied by an increase in brain-derived neurotrophic factor (BDNF) levels. In our recent studies, which included both in vivo and in vitro experiments, we investigated the effects of GLN on mice fed either a normal or high- fat diet, as well as on mouse HT22 hippocampal cells, STHdhQ7/Q7 striatal cells, and rat primary cortical neurons. The findings clearly showed that GLN improves learning and memory in mice, and notably, it also induced FGF21 production in the hippocampus, cortex, and striatum, as well as in HT22 cells, STHdhQ7/Q7 cells, and cortical neurons. When animals were administered GLN together with an FGF21 receptor inhibitor (PD173074), the GLN-induced enhancement of learning and memory functions, as well as FGF21 production in the hippocampus, were significantly reduced. Given that Alzheimer's disease is a leading cause of dementia, characterized by age-related neurodegeneration and amyloid β (Aβ) protein aggregation, which leads to synaptic damage, protein loss, neurofibrillary tangles, neuroinflammation, and cell apoptosis, we also aimed to determine whether GLN affects the expression of genes related to neuroplasticity. In the hippocampus and cortex from GLN-injected mice, GLN increased the expression of neuroplasticity markers such as Synaptophysin (SYP), postsynaptic density 95 (PSD-95), Densin-180, and growth-associated protein 43 (GAP-43) at both the mRNA and protein levels, along with BDNF and FGF21. Similarly, in HT22 cells and rat primary cortical neurons treated with GLN, protein levels of SYP, PSD-95, Densin-180, and GAP-43 were also upregulated, along with BDNF and FGF21. Overall, our past and current studies on GLN have underscored its potential in enhancing learning and memory functions and may play a role in protecting against Aβ-induced cellular damage. The molecular mechanisms underlying these effects warrant further in-depth investigation.

Biography

Dr. Wu earned his PhD in Endocrinology from the University of Wisconsin-Madison in 2001. After completing three years of postdoctoral training in G-protein signaling at the University of North Carolina-Chapel Hill, he began his assistant professorship at National Yang-Ming University (now National Yang Ming Chiao Tung University) in Taiwan in 2004. He was promoted to professor in 2017 and served as the director of his institute from 2022 to 2025.

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