6th World Congress on

FOOD SCIENCE & TECHNOLOGY

JUNE 24-25, 2024 | VALENCIA, SPAIN

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Scientific Program

Day 1

June 20, 2024 | Manises

Scientific Program

08:00-08:45 @ **Registration**

08:45-09:00 @ **Opening Ceremony**

Keynote Forum

09:00-09:40

Title : Valorisation of by-products from fruit industry: isolating carotenoids from mango peel, evaluation of process, efficiency and stability

Jenny Ruales, Department of Food Science and Biotechnology, Escuela Politécnica Nacional, Ecuador

09:40-10:20

Title : The concentration of potentially toxic elements in milk fortified with minerals and Young Child Formula in Brazil: A child health risk assessment

Tatiana Dillenburg Saint Pierrea, Pontifical Catholic University of Rio de Janeiro (PUC-Rio), Brazil

Session Introduction

Food science & technology | Food processing and technology | Food safety, quality control and management systems | Food chemistry and biochemistry | Fermented foods and beverages technology

Session Chair: Jenny Ruales, Department of Food Science and Biotechnology, Escuela Politécnica Nacional, Ecuador

10:20-10:45

Title : Eco-sustainable formulations based on biosurfactants and biopolymers for agriculture and food processing

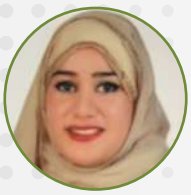
Irene Russo Krauss, University of Naples Federico II, Naples, Italy

Group Photo | Networking & Refreshments10:45-11:05 @ Foyer

11:05-11:30

Title :Navigating Short Food Supply Chains for Urban Food System Transformation

Laura Fernández Casal, Fundación CARTIF, Parque Tecnológico de Boecillo, Spain



11:30-11:55

Title : Mitigating extreme environment in poultry houses

Hanan Al-Khalaifah, Kuwait Institute for Scientific Research, Kuwait

11:55-12:20

Title : Effect of water activity on quality deterioration in thermal processing roasted peanut at different particle sizes

Shahriar Islam, Sichuan Agricultural University, China

12:20-12:45

Title : The Impact of Artificial Intelligence on Molecular Pest Detection Software for Quarantine

Niloufar Mahmoudi, Agriculture biotechnology from RUDN university .Moscow, Russia

Lunch Break 12:45-13:45 @Restaurant

Poster Presentations @ 13:45-16:20

13:45-14:05

Title : Microencapsulation of sulforaphane with gum arabic as wall material for incorporation into a blackberry yogurt

Yipsy Arozarena Sariol, Doctorate Program Student in Food Science and Technology, University of Santiago Chile, Chile

14:05-14:25

Title : Antioxidant and iron-chelating properties of protein hydrolysates from Sacha inchi (Plukenetia volubilis) concentrates obtained via alkaline solubilization isoelectric precipitation and assisted by ultrasound

Rosana Chirinos, Instituto de Biotecnología, Universidad Nacional Agraria La Molina (UNALM), Peru

14:25-14:45

Title : Characterization of the essential oil of Cedroncillo (Aloysia herrerae Moldenke) and Pampa muña (Hedeoma mandoniana Wedd.) obtained by microwave heating technology

Ana Aguilar-Galvez, Instituto de Biotecnología, Universidad Nacional Agraria La Molina, Peru

14:45-15:05

Title : Huauzontle (Chenopodium nuttalliae Saff.) Starch: Physicochemical Properties and In Vitro Digestibility

Consuelo Lobato-Calleros, Departamento de Preparatoria Agrícola, Universidad Autónoma Chapingo, México

15:05-15:25

Title : Cacahuacintle maize starch: Physicochemical, structural and techno-functional properties

E. Aguirre-Mandujano, Posgrado en Ciencia y Tecnología Agroalimentaria, Departamento de Ingeniería Agroindustrial, Universidad Autónoma Chapingo, México

Networking & Refreshments 15:25-15:35 @ Foyer

15:35-15:55

Title : Effect of some parameters influencing phenolic content of peel from Algerian purple skinned sweet potato (Ipomea batatas L.)

Meriem Bensmira, State Key Laboratory of Food Science and Technology, Jiangnan University, China

15:55-16:15

Title : Distributed groundwater recharge potentials assessment based on GIS model and its dynamics: Qatar case study

Adel Zghibi, Hamad Bin Khalifa University, Qatar

16:15-16:35

Title : The Impact of Artificial Intelligence on Molecular Pest Detection Software for Quarantine

Yousef Naserzadeh, Agriculture biotechnology from RUDN university .Moscow, Russia

Panel Discussion & Certificate Falicitation

Day -1 Ends

Day 2

June 25, 2024

Virtual mode zoom meeting | (GMT+2) | Time in Valencia, Spain

09:00-09:20

Title : The Impact Of Nutrition Education On The Dietary Habits Of Female

Rupali yadav, Bundelkhand University Jhansi UP, India

09:20-09:40

Title : Development of cellulose microfiber from Guinea grass seed to reinforce starch-based biodegradable film

Dharmesh Chandra Saxena, Sant Longowal Institute of Engg. & Technology, Longowal, India

09:40-10:00

Title : OmanFunctionality Of Edible Coating in food product

Maryam Mohammed Al-Ghazali, Food Science specialist /Sultan Qaboos University, Oman

10:00-10:20

Title : Optimization Of The Extraction Of Bioactive Compounds From Prunus Fruit

KANTAOUI Aicha, Faculty of Natural and Life Sciences, University of Bejaia, Algeria

10:20-10:40

Title : A novel microbiological approach to impact the aromatic composition of sour loquat beer

Antonella Porrell, Department of Biological, Chemical and Pharmaceutical Sciences and Technologies, University of Palermo, Italy

10:40-11:00

Title : Effect Of Different Storage Conditions On The Stability And Functionality Of Dairy Powders: A Case Study With Labneh Production

Dilara GURKAYNAK, Pinar Arabia, Abu Dhabi, United Arab Emirates

11:00-11:20

Title : Food Safety and sustainability

Iman ElBorolos, Mansoura University, Egypt

11:20-11:40

Title : Evaluation of the seed oil quality properties of rapeseed contributed to drought stress

Maryam Salami, Department of Plant Production and Genetics, School of Agriculture, Shiraz University, Iran

11:40-12:00

Title : Optimization Of Conditions For Bacterial And Stepped Fermentation Of Bee Pollen

Vaida Damulienė, Instrumental Analysis Open Access Centre, Vytautas Magnus University, Lithuania

12:00-12:20

Title : Species and temperature-dependent fermentative aptitudes of Mrakia genus for innovative brewing

Vincenzo Alfeo, Italian Brewing Research Centre, University of Perugia, Italy

12:20-12:40

Title : Agrifoodtech Investment Landscape and Innovations to Combat Climate Change and Global Food Insecurity

Balaji Vasudevan, Venture Partner at Loading Fund, USA

Panel Discussion

Awards, Thanks giving & Closing Ceremony

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Scientific Meetings

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HYBRID EVENT

KEYNOTE PRESENTATIONS
DAY 1

Jenny Ruales
Department of Food Science and Biotechnology,
Escuela Politécnica Nacional, Quito, Ecuador

Valorisation of by-products from fruit industry: isolating carotenoids from mango peel, evaluation of process, efficiency and stability

Mango (Mangifera Indica L.) peel is discarded as a by-product of food after processing the fruit, but is rich in carotenoids. These compounds are potential antioxidants and also as pro-vitamin A, but are susceptible to degradation due to oxygen temperature and UV-light. Encapsulation technologies protect them against deterioration. This study aimed to encapsulate these carotenoids with different wall material as blends of maltodextrin (MD), gum arabic, (GA), and fructooligosaccharides or inulin. The mixtures MD:GA (1:1) dried at 140 °C showed a high encapsulation efficiency (68%). The addition of prebiotics did not influence the efficiency and yield of the encapsulation process by spray drying. The activation energy required for the degradation of encapsulated carotenoids was more than twice as high as that needed for non-encapsulated carotenoids. It was possible to maintain 80% of the antioxidant activity of the carotenoids, after the drying process. Encapsulation enhances carotenoids' thermal stability, making them a potential natural additive with functional properties for food products.

Biography:

Jenny Ruales, is Chemical engineer and has completed her Ph.D. at Lund University, Sweden. She is the director of de Ph.D. programme in Food Science and Technology at Escuela Politécnica Nacional, Quito-Ecuador. She has published more than 90 papers in reputed journals and has been serving as an editorial board member of repute. Her research area of working is biorefinery, extraction of bioactives, development of functional foods, food safety and security

Tatiana Dillenburg Saint Pierrea
Pontifical Catholic University of Rio de Janeiro (PUC-Rio), Brazil.

The concentration of potentially toxic elements in milk fortified with minerals and Young Child Formula in Brazil: A child health risk assessment.

Exposure to potentially toxic elements above certain limits can cause adverse effects on human health, with young children being the most vulnerable. Then, the study aim was to determine the concentration of potentially toxic elements (Al, As, Cd, Hg, Ni, Pb, Sn, Ti, and U) in milk fortified with minerals (MFM) and young child formula (YCF), by inductively coupled plasma mass spectrometry (ICP-MS), after acid decomposition. High concentrations (mg kg-1) were found in MFM and YCF for Al (0.6 to 4.7 and 0.2 to 4.9) and Ti (21.1 to 23.7 and 8.6 to 25.7), respectively, while Pb, Sn, Cd, and U were present at the lowest concentrations. Targets of hazard quotient (THQ) and of carcinogenic risk (TCR) were also determined, and almost all the THQ values were found below 1, except for As and Ni, indicating potential risk to children in most of the brands analyzed. The TCR was significant for Al and As, representing a possible carcinogenic risk since children consume these dairy products daily. Thus, controlling the processing of these products is essential to avoid adverse effects on children's health in the short and long term.

Biography:

Tatiana Dillenburg Saint Pierre has completed her Ph.D. in Analytical Chemistry and postdoctoral studies at the Federal University of Santa Catarina in south Brazil. She is now a Professor at the Department of Chemistry at the Pontifical Catholic University of Rio de Janeiro (PUC-Rio), where she coordinates the Laboratory of Atomic Spectrometry (Labspectro). She has published more than 125 papers in reputed journals.

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HYBRID EVENT

SPEAKER PRESENTATIONS
DAY 1

Eco-sustainable formulations based on biosurfactants and biopolymers for agriculture and food processing

Gerardino D'Errico, Luigi Paduano, Irene Russo Krauss
Department of Chemical Sciences, University of Naples Federico II, Naples, Italy
CSGI, Consorzio Interuniversitario per lo Sviluppo dei Sistemi a Grande Interfase, Sesto Fiorentino, Florence, Italy

The use of non-toxic natural substances in the place of synthetic ones is an urgent need in the agriculture and food industries. New technologies for precision farming are being developed with the goals of preserving biodiversity, respecting the environment, and providing healthy foods by reducing the use of chemicals;1 however, the processing of foods prior to reach the consumer requires numerous steps and the use of different reagents even in the case of the so-called minimally processed fruits and vegetables (MPFV).2 In both cases a successful approach relies on the replacement of synthetic and poorly eco- and biocompatible molecules, with fertilizing, stimulating, and/or pesticide-active molecules, as well carriers, that are natural-derived, eco- sustainable, biodegradable, and biocompatible. In this framework, we prepared, characterized, and tested hydrogels of sodium alginate,3 a natural polysaccharide obtained from brown algae, with millimetric and nanometric dimensions, as carriers of several natural active molecules to be used in precision farming. At the same time, we prepared formulations as disinfection media for MPFV, composed of rhamnolipids and two antibacterial phytochemicals derived from plants of the Amaryllidaceae species.4 Rhamnolipids are biosurfactants, i.e. surface-active molecules produced by microorganisms characterized by biological properties such as antimicrobial and antibiofilm ones.5,6 We tested the ecotoxicity of both rhamnolipids and phytochemicals7,8 and determined the antimicrobial activity of complete formulations and single components as well as their effects on two examples of MPFV.8 Overall, we will present the potential of eco-sustainable formulations based on biosurfactants and biopolymers as carriers of natural active molecules for use in agriculture and food processing.

Funding

Agritech National Research Center and received funding from the European Union Next-Generation EU (PIANO NAZIONALE DI RIPRESA E RESILIENZA (PNRR)—MISSIONE 4 COMPONENTE 2, INVESTIMENTO 1.4—D.D. 1032 17/06/2022, CN00000022); PON Ricerca e Innovazione 2014–2020, project title "Prodotti e processi innovativi per la filiera ortofrutticola della IV gamma—ProFood IV",

References

[1] Machado, T.O., et al., Adv Col Interf Sci, 2022, 303, 102645; [2] Silveira Alexandre, A.C., et al., J Food Proc and Preservation, 2022, 46(8), e16757; [3] Xing, L., et al., J Agr Food Chem, 2021, 69, 4992-5002; [4] Nair, J.J., et al., Bioorg Med Chem Lett, 2017, 27(22), 4943–4951; [5] Esposito, R., et al., Int J Mol Sci, 2023, 24(6): 5395; [6] Russo Krauss, I., et al., Curr Op Coll Interf Sci 2024; [7] Esposito, R., et al., J Mol Liq, 2022, 367: 120547; [8] Russo Krauss, I, et al., Food Contr, 2024, in preparation

Biography:

Irene Russo Krauss took her degree in Chemistry and PhD in Physical Chemistry. Currently, she is associate professor of physical chemistry at the University of Naples Federico II. Her latest research interests are the design and physico-chemical and functional characterization of eco- sustainable formulations based on biosurfactants and biopolymers, such as proteins and polysaccharides, for use in different applications. She has published more than 60 papers in reputed journals and is involved as principal investigator or participant in several funded research projects.

Navigating Short Food Supply Chains for Urban Food System Transformation

Laura Fernández Casal, Julia Pinedo Gil
Fundación CARTIF, Parque Tecnológico de Boecillo, 47151, Valladolid, Spain

Contemporary capitalism transforms rural areas into agro-industrial zones, diverting from local agricultural production. This contradicts global food trade, demanding a shift to make rural areas hubs for sustainable practices and local food production, ensuring short food supply chains (SFSCs). SFSCs resist globalization's long-distance, multi-actor supply chains, benefiting organic and sustainable production[1]. SFSCs prioritize geographical, social, and economic proximity, facilitating direct procurement from producers to consumers[2]. European discussions call for a framework to strengthen SFSCs, emphasizing local innovation[3]. SFSCs gain policy attention amid crises like COVID-19 and Ukraine war[4] highlighting the need for sustainable and localized food systems.

FUSILLI project drives SFSCs and local product promotion in 12 cities through 57 actions. Progress has been tracked over three years by nine indicators extracted from MUFPP guidelines measuring producer involvement in alternative sales and municipal efforts in policy creation, infrastructure provision, and supportive services. Findings show that, on average, 5.1% of producers sell in municipal markets while 4.7% sell directly on their farms. Local producers have five types of market opportunities, with local food festivals and markets being the most common. At the municipal level, 5.3 food processing, distribution and warehouse infrastructures and three types of support services are available for SFSC. Additionally, municipalities are developing policies (50% of progress) addressing the reduction of GHG emissions, strengthening efficiency and resilience along the supply chain. These results highlight a growing commitment to promote SFSC, indicating progress toward sustainable and resilient local food systems.

[1]Van der Ploeg,2002;Augère-Granier,2016;[2]Karakaya,2016;[3]European Committee of the Regions,2020;[4]Enthoven, Skambracks,&Van den Broeck,2023.

Biography:

Laura Fernández Casal. BSc in Food Science and MSc in Innovation and Food Development. Currently, researcher in the Food Area at CARTIF (2018) involved in the development of European and national projects (extrusion technology and food system). 13 years' experience in the pharmaceutical and food industry fields.

Julia Pinedo Gil has completed his PhD at the age of 32 years from Polythecnic University of Valencia PhD in Animal Production Science and Technology. Currently, researcher in the Food Area of the Agri-Food and Processes Division of CARTIF (2021) as coordinator of the European project FUSILLI (Urban Food System Transformation). Previous professional experience as Hatchery manager and Quality manager in Gamba Natural SL.. During my research career I have published 11 papers in reputed journals.

Mitigating extreme environment in poultry houses

Hanan Al-Khalaifah, Yahya Al-Hadban, and Sreekanth K. J.
Environment and Life Sciences Research Center, Kuwait Institute for Scientific Research, P.O. Box: 24885, 13109 Safat, Kuwait.

The environmental conditions affect the performance of chickens, hence the birds can only tolerate low temperature ranges to stable their production. It was reported that as the ambient temperature increased to 34°C, the mortality due to heat would be higher in broilers by 8.4%. In addition, as the feed consumption of the chicken decreased at 37.9°C, the egg production also will be reduced by 6.4%. Accordingly, it is essential to use a cooling system that is able to mitigate the effect of the extreme environmental conditions on the poultry production. The new thermal spinning system for the poultry rooms is claimed to be with better efficiency than the old traditional system. It is an isolation system that preserves the surrounding atmosphere of the poultry research rooms for a long period of time, which improves the quality of the scientific results. The current review paper sheds light on the advantages of the new cooling system against the traditional one, this will definitely ensure optimum poultry performance and production.

Keywords: chickens; cooling; environment; poultry; temperature

Fans on the opposite wall generate a negative pressure zone inside the building, allowing air to be drawn in through the pad. Contact between air and water causes evaporation. The water pumps are controlled by a control system, which also regulates the number of fans in use. The moisture content of the atmosphere remains almost constant on a hot sunny day, which means that relative humidity is lowest in the afternoon when the temperature is highest. The better the evaporative cooling effect, the lower the relative humidity (Chung et al., 2010).

The New Versus the Old Cooling System: Pros and Cons

The cooling system in the poultry houses at KSRI depends on the pad and fans concept discussed above. However, the new poultry broiler and layer houses will be equipped with a new cooling system that is claimed to be better than the old cooling system by improving the poultry production performance and reducing the consumption of electricity and water. The new thermal spinning system for the poultry rooms is claimed to be with better efficiency than the old traditional system. It is an isolation system that preserves the surrounding atmosphere of the poultry research rooms for a long period of time, which improves the quality of the scientific data obtained from research studies that are conducted in KSRI.

In the old traditional desert system, the air of the cooling panels is withdrawn from the outside desert atmosphere and pushed outside the building again. In the new cooling system, the double-filtered air of the cooling panels is withdrawn from inside the building and pushed out of the building.

The main features of the new cooling system are the following:

- Maintaining and protecting the cooling panels from weather factors such as dust, high heat, sun, extreme humidity

- Controlling/maintaining the humidity and temperature by preserving the inside environment of the poultry research rooms for a long period time.
- The air is double-filtered before it reaches the poultry cages, whereas in the old system it is filtered only once.

Illustrative diagrams 1 and 2 for the old and the new cooling are shown as follows:

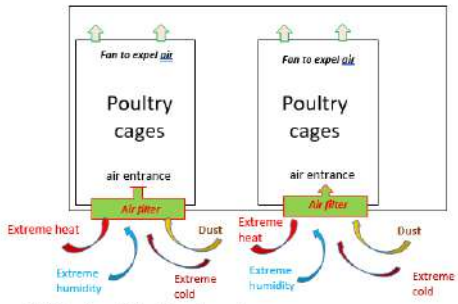

Diagram 1. Illustration of the old cooling system

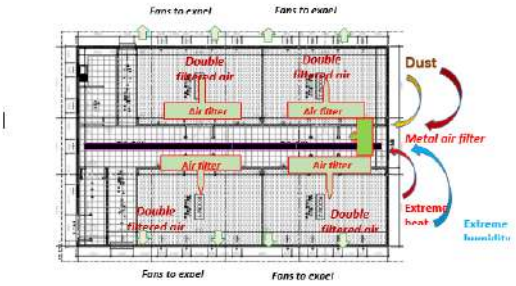

Diagram 2. Illustration of the new cooling system

Effect of water activity on quality deterioration in thermal processing roasted peanut at different particle sizes

Shahriar Islam[1], Shuxiang Liu[1*]
[1]Food Science College, Sichuan Agricultural University, 62500, China

This study examines how water activity (aw) degrades roasted peanuts' quality during thermal processing, focusing on particle size. Water activity affects food stability and shelf life, making it crucial to food processing. The study examined how particle sizes react to water activity to improve roasted peanut processing. Lower water activities (aw of 0.1) slowed oxidation, especially in smaller peanut particles. Fatty acids and other quality indicators degraded slower. The 5–10 mash particle size had the highest monounsaturated fatty acid (MUFA) levels in untreated samples. Smaller particles were more resistant to oxidative changes, so they increased acid value less over time. The acid value, which indicates peanut fat freshness and quality, was consistent at lower water activity levels for all particle sizes. This suggests that lower-water activities protect the product during storage and processing. Peanuts with lower water activity (aw) and smaller particle sizes had a crisper texture and scored higher in consumer tests. Water activity must be regulated to maintain roasted peanut quality during thermal processing. Peanut products benefit from water reduction. It maintains fatty acid profiles and reduces oxidative damage. It also improves sensory qualities, extending shelf life and quality. This study emphasizes the importance of particle size-specific aW management for peanut thermal treatment optimization.

Biography:

I am Shahriar Islam, a graduate research assistant at the Food Science College at Sichuan Agricultural University, China. Professor Dr. Shuxiang Liu is supervising me in my master's program. I have published more than six research articles and am currently working on the quality of low-moisture foods. Now my main research target is to find out how water activity affects LMF quality during thermal treatment.

The Impact of Artificial Intelligence on Molecular Pest Detection Software for Quarantine

Niloufar Mahmoudi
Agriculture biotechnology from RUDN university .Moscow, Russia

The integration of Artificial Intelligence (AI) into molecular pest detection software represents a significant advancement in the field of agricultural biosecurity. This paper explores the transformative effects of AI technologies on the identification and management of quarantine pests. By leveraging machine learning algorithms and advanced data analytics, AI enhances the accuracy, speed, and reliability of molecular diagnostics. These improvements facilitate early detection and rapid response to pest outbreaks, thereby mitigating the economic and ecological impacts associated with invasive species. Furthermore, AI-driven software can process vast datasets and recognize complex patterns that are beyond human capabilities, enabling more precise and comprehensive pest identification. The study underscores the potential of AI to revolutionize pest management practices and highlights the importance of ongoing research and development to fully harness its capabilities.

Keywords: Artificial Intelligence, Molecular Pest Detection, Quarantine, Machine Learning, Agricultural Biosecurity.

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HYBRID EVENT

POSTER PRESENTATIONS
DAY 1

Microencapsulation of sulforaphane with gum arabic as wall material for incorporation into a blackberry yogurt

Yipsy Arozarena Sariol[1*], Claudia de Paula[2], Andrea Mahn Osses[3]

[1]Doctorate Program Student in Food Science and Technology, University of Santiago Chile, Alameda n° 3363, Estación Central, Santiago de Chile, Chile.

[2]Department of Food Engineering, Faculty of Engineering, University de Cordoba, Córdoba, Cra. 6 #77-305, Neiva, Montería, Córdoba, Colombia.

[3]Department of Chemical Engineering, Faculty of Engineering, University of Santiago Chile, Las Sophoras n°165, Estación Central, Santiago de Chile, Chile.

Sulforaphane (SFN) is an isothiocyanate considered to be health-promoting. However, its instability and sensitivity to oxygen, heat, and alkaline conditions confine the utilization of SFN in Industry. Several SFN stabilization strategies have been investigated. The O/W emulsion method as an SFN microencapsulation process could be a solution to the low encapsulation efficiencies obtained by other authors using drying methods different from lyophilization1. The purpose of this study was to investigate the microencapsulation of SFN using the O/W emulsion system with gum arabic (GA) as wall material, for its application in yogurt. The components of the system were Vaseline, Tween80, ethanolic extract of SFN obtained from broccoli seed, and GA. The mixture was dried in a vacuum oven. The microcapsules were characterized and evaluated in yogurt through sensory and microbiological analyzes. The microencapsulation efficiency and yield were 90±3% and 86±5%, respectively, a value higher than that obtained by other authors4. The microcapsules had a spherical shape, uniform and without cracks, and the size was between 2 and 4 µm. The physicochemical and microbiological parameters of the yogurt were within those established by the Codex Alimentarium. The color, flavor, smell, aroma, texture, and overall impression were between the terms “I moderately like it”, “I slightly like it” and Indifferent.”. The purchase intention was between “Possibly I would buy it” and “Possibly I would not buy it” with the sample with washed microcapsules being the preferred one. These microcapsules can be incorporated into yogurt, with a result heartening to continue researching.

Biography:

Yipsy Arozarena Sariol graduated in Food Sciences from the University of Havana, Cuba. He is completing his last years of doctorate at the University of Santiago de Chile, Chile, with great progress. She has obtained a patent that has been published on her research.

Antioxidant and iron-chelating properties of protein hydrolysates from Sacha inchi (Plukenetia volubilis) concentrates obtained via alkaline solubilization-isoelectric precipitation and assisted by ultrasound

Rosana Chirinos[1], Victoria Rodriguez-Díaz[1], Romina Scharff-Salinas[1], Andrés Figueroa- Merma[1], Ana Aguilar-Galvez[1], Romina Pedreschi[2,3], David Campos[1]

[1]Instituto de Biotecnología, Universidad Nacional Agraria La Molina (UNALM), Av. La Molina s/n, La Molina, Lima 12056, Peru

[2]Escuela de Agronomía, Pontificia Universidad Católica de Valparaíso (PUCV), Calle San Francisco s/n, La Palma, Quillota 2260000, Chile

[3]Millennium Institute Center for Genome Regulation, Santiago, Chile

One of the by-products from the sacha inchi (SI) oil extraction process is the cake, which contains a high protein content (~50%), representing a substantial source for obtaining protein concentrates and functional hydrolysates. The aim of this research was to assess SI protein concentrates (PC) obtained through two extraction techniques: alkaline solubilization-isoelectric precipitation (ASIP) and ultrasound-assisted extraction (US), as inputs for obtaining hydrolysates using the enzyme trypsin for up to 240 minutes of reaction. The hydrolysates were evaluated for their antioxidant capacities (TEAC and ORAC), as well as their ability to chelate Fe+2. The PC obtained by alkaline solubilization (pH 10.5, 50°C for 1 hour of extraction)-isoelectric precipitation (pH 4.8) had a protein content of 77.5% (dw), while the PC obtained by US (pH 10.5, amplitude of 48%, 5 s on and 5 s off, time 15 min) had a protein content of 64.8% (dw). The hydrolysates obtained with trypsin (750,000 U/g) from the ASIP PC, between times of 120 and 240 minutes, stood out for the highest TEAC and ORAC values, ranging from 0.94-1.02 and 0.68-0.69 µmol of Trolox equivalent (TE)/mg, respectively. Similarly, for the US PC, the best results were obtained between 120-240 minutes with TEAC and ORAC values of 0.54-0.58 and 0.64-0.68 µmol of TE/mg, respectively. Regarding the chelating capacity of Fe+2, this was prominent in the hydrolysis treatments performed with the ASIP PC between 180-240 minutes, offering values of 20.8-21.06 mg Fe+2/g, while for the US PC, the highest values of 18.09-19.3 mg Fe+2/g corresponded to hydrolysis times between 60-120 minutes. The results indicate that sacha inchi cake is a product that can be given added value as a protein concentrate or as a hydrolysate with antioxidant and Fe+2-chelating properties.

Biography:

Rosana Chirinos holds a Ph.D. in Agronomic Sciences and Biological Engineering from the Université Catholique de Louvain (Belgium). Currently, she is a Full Professor in the Faculty of Food Industries and a Researcher at the Institute of Biotechnology - Industrial Biotechnology & Bioprocesses Area of UNALM. She has authored over 70 publications in high-impact Scopus/Web of Science journals. She is a member of the Functional Foods and Nutraceuticals Research Group at UNALM, with an H-index of 29.

Characterization of the essential oil of Cedroncillo (Aloysia herrerae Moldenke) and Pampa muña (Hedeoma mandoniana Wedd.) obtained by microwave heating technology

Ana Aguilar-Galvez[1]; Carla Rivadeneira[1]; Andrés Figueroa-Merma[1]; Diego García- Ríos[2]; Rosana Chirinos[1]; Romina Pedreschi[2,3]; David Campos[1]

[1]Instituto de Biotecnología, Universidad Nacional Agraria La Molina, La Molina, Lima, Peru
[2]Escuela de Agronomía, Pontificia Universidad Católica de Valparaíso, Calle San Francisco s/n, La Palma, Quillota, Chile
[3]Millennium Institute Center for Genome Regulation, Santiago, Chile

The essential oils (EO) of medicinal plants contain numerous bioactive compounds with antimicrobial, antioxidant, and bioactive properties. The objective was to characterize the use of Cedroncillo leaves (C, Aloysia herrerae Moldenke) and Pampa muña (PM, Hedeoma mandoniana Wedd.) by obtaining the essential oil through microwave heating technology. The results showed a higher antioxidant capacity (AC-ORAC) for the PM EO with 1,801 µmol TE/mL and AC-ABTS of 38.91 µmol TE/mL. The PM EO exhibited the best lipase inhibitory activity, IC50 = 1.50 µL/mL, and higher α-glucosidase inhibitory activity, IC50 = 0.69 µL/mL. The EOs did not show significant α-amylase inhibitory activity. Both EOs demonstrated antimicrobial activity against 17 strains out of a total of 20 strains evaluated. The minimum inhibitory concentration (MIC) ranges for the CEO were 0.450 µL for Klebsiella pneumoniae INS and 0.025 µL for Candida albicans NRRL Y- 27088, while for the PMEO, they were 0.167 µL for Staphylococcus aureus ATCC 6538 and 0.050 µL for Escherichia coli NRRL B-4226. Identification by GC-MS revealed, in order of importance for the CEO, the monoterpenes: D-Limonene (27%), (R)-(+)-Citronellal (26.7%), sabinene (12.4%), and (-)-Carvone (7.4%), out of a total of 31 terpenic compounds. Meanwhile, in the PMEO, the monoterpenes were (R)-(+)-Pulegone (93.50%) and D-isomenthone (2.01%), and the sesquiterpenes were γ-Amorphene (0.93%) and β-Gurjunene (0.92%), with a total of 14 identified terpenic compounds. In this regard, we can conclude that given the antimicrobial potential of CEO and PMEO, they are of importance and have promising potential for use in the food and/or pharmaceutical industry.

Biography:

PhD in Agronomic Sciences and Biological Engineering from the Université de Liège, Gembloux Agro-Bio Tech (Belgium). Researcher at the Institute of Biotechnology of the National Agrarian University La Molina (Peru) and Professor at this institution. Engaged in research focused on the valorization of biodiversity through the identification and quantification of bioactive compounds, extraction and purification of bioactive metabolites, and assessment of their functionality; as well as the study of interactions between bioactive compounds and microorganisms in food preservation.

Huauzontle (Chenopodium nuttalliae Saff.) Starch: Physicochemical Properties and In Vitro Digestibility

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Huauzontle is a pseudocereal of Mexican origin consumed since pre-Hispanic times due to its high protein, antioxidant and starch content. However, studies regarding this crop are scarce. Huauzontle starch was modified with citric acid (CA) and octenyl succinic anhydride (OSA) in different degrees of substitution. The total starch content was 93.50 %, indicating that a high degree of purity was achieved. The apparent amylose content of the modified starch was lower than that of the native starch. The deconvoluted FTIR spectra showed that the 1047/1022 ratio decreases in the modified starch, which can be attributed to the fact that both treatments altered the chain packing and generated more amorphous regions. The starch granule has an irregular, angular and polygonal shape, with smooth surfaces. The average diameter of the starch granule increased with both modifications. The modified starch presented better techno-functional properties than the native starch (solubility, swelling power and water retention capacity). On the other hand, the content of rapidly digestible starch in native and modified starch was less than 7%, while the fraction of resistant starch was extremely high (more than 90%). The techno-functional properties of modified starch make it ideal for use in food applications, in addition to this, the presence of a high content of resistant starch makes it ideal for the development of low-calorie food products.

Biography:

Consuelo Lobato-Calleros is professor of Agro-Food Science and Technology and Chemistry at Universidad Autónoma Chapingo, México, since more than 30 years. She received his PhD in Biological Sciences from Universidad Autónoma Metropolitana, México in 1997. Dr. Lobato- Calleros has more than 15 years of experience in Food Science and Technology research and is author of more than 50 scientific publications. One of its main areas of research is the evaluation of novel nontraditional biopolymers sources.

Cacahuacintle maize starch: Physicochemical, structural and techno-functional properties

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Cacahuacintle corn has great sociocultural and economic importance in Mexico. It has a starch content of ~70%, which has fueled interest in exploring its techno-functional properties, seeking to diversify its use in different applications. Two cacahuacintle maize varieties MA1 and MA2, endogenous to the State of Mexico but from different locations, were used for obtaining maize starch (MS1 and MS2), and compared to a commercial normal maize starch (CS). The amylose content was significantly higher in MS1 and MS2 compared to CS. Scanning electron microscopy revealed that CS granules were polyhedral in shape, while those of MS1 and MS2 were hemispherical in nature. The average diameter of all granules ranged from 9 to 24 µm, approximately. The transition temperatures of all starches presented mostly significant differences, with CS presenting the the highest values for To, Tp and Tc. X-ray analysis revealed that all the starches had Type A pattern, but had different crystallinities, ranging from 21.07 to 25.37%. Starches MS1 and MS2 showed better techno-functional properties than CS (swelling power, solubility and water absorption capacity). The findings of this research highlighted the promising characteristics of corn starch obtained from little-explored cacahuacinte genotypes. Unique morphological and structural traits were observed, as well as techno-functional properties that suggest considerable potential to be used in the creation of innovative foods.

Biography:

Eleazar Aguirre-Mandujano is professor of Agro-Food and Technology and Chemistry at Universidad Autónoma Chapingo, México, since more than 40 years. He received his PhD in Biotechnology from Universidad Autónoma Metropolitana, México in 2009. Dr. Aguirre-Mandujano has more 15 years of experience in Food Science research and is author of 20 scientific publications.

Effect of some parameters influencing phenolic content of peel from Algerian purple skinned sweet potato (Ipomea batatas L.)

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Due to their unique nutritional and functional properties, sweet potatoes are becoming a research focus in recent years. It was reported that sweet potatoes have high carbohydrate content as an energy source and contain nutrients such as anthocyanins, beta-carotene, vitamin A, vitamin C, minerals, fiber, antioxidants, proteins, and fats. In addition to nutrition, sweet potatoes also have a high water content. Different parts of sweet potato contain various phenolic activities. The sweet potato peel had the highest antioxidant activity as compared to other parts. Moreover, sweet potato contains bioactive compounds such as Flavonoids, Polyphenols. The present study was executed to find out the chemical composition of purple (Ipomoea batatas) cultivated in Mascara; Algeria . The aim of this study was also to determine the effect of some operating variables (sample size, solvent type and concentration (%), extraction time and liquid/solid ratio (mL/g)) on polyphenols, flavonoides as well as tannins content issued. Folin-Ciocalteu and AlCl3 methods were used to quantify polyphenols including total phenolic (TPC), total flavonoid (TFC) respectively. The result of this investigation revealed that sweet potato cultivated in Mascara has high content of carbohydrate and proteins. However, low content of ash and fat was noted. sweet potato cultivated in Mascara is a good source of energy. In addition, results from this study showed high polyphenols content from the sweet potato peels were founds when samples of 200 µm were well macerated with ethanol at a concentration of 70% (v/v) for 28 h with a ratio of 1 g/30 mL.

Keywords: Sweet Potato Peels, Chemical Composition, Phenolic Compounds, Sample Size, Solvent Type, Solvent Concentration (%), Extraction Time.

Biography:

BENSMIRA Meriem completed her PhD at the age of 32 years from Jiangnan University Wuxi; China. She is enrolled in university of Mascara Algeria in 2014. She has published several articles in reputed journals and has been serving as an editorial board member of some journal.

Distributed groundwater recharge potentials assessment based on GIS model and its dynamics: Qatar case study

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Qatar faces significant challenges with its water resources, as they have been extensively exploited, resulting in severe depletion of groundwater aquifers and water quality degradation due to human-induced contamination and saline intrusions. To address these issues and safeguard Qatar's groundwater, artificial recharge emerges as a viable prevention and control method. In this work, favorable GW recharge zones (GWRZs) were identified using the Analytical Hierarchy Process (AHP), approache. Lithology (LI), land use/land cover (LU/LC), slope (SLO), topography (TO), lineament density (LD), rainfall (RN), drainage density (DD), and soil type (SL) maps were collected, prepared, and integrated within a GIS environment. Weighted linear combination and GIS-based multi-criteria decision making (MCDM) were used to incorporate the eight thematic layers for class normalization. GWRZs map was elaborated by using the overlay weighted sum method. The map was further classified into poor, moderate, good and very good potential GW recharge zones covering 18.60 %, 70%, 2%, and 9.40 of the study area. The areas best suited for recharge intervention are the northern and coastal regions of the peninsula, while the urban areas and southwestern area are less suitable. This study provides decision-makers with spatially explicit information on areas in Qatar that can be targeted for aquifer recharge projects as well as recommendations on technical, economic, and regulatory considerations that require additional investigation. The approach employed can be effectively applied in similar arid regions and is adaptable to diverse contexts.

Biography:

Dr. Adel ZGHIBI has obtained his PhD degree in Rural Engineering, Water and Forest in 2013 from the National Agronomic Institute of Tunisia in conjunction with the University LaSalle Beauvais, France and the University Habilitation of Geology in 2021 from the Faculty of Sciences of Tunis, Tunisia. He is an Associate-professor of Hydro(geo)logy at the Faculty of Sciences of Tunis, Department of Geology, University Tunis El-Manar since May 2022. From August 2, 2022, he is recruited as a post-doc Research Fellow at the College of Science and Engineering - Hamad Bin Khalifa University (HBKU - Qatar). His research is mainly focused on modelling flow and mass transport processes in heterogeneous porous and fractured media. Dr. A. Zghibi has a broad experience in teaching groundwater hydrology, groundwater modelling, catchment hydrology and process understanding for hydrological applications. He is author of several scientific papers refereed in international journals and articles on journals, book chapters, specialized monographs and proceedings about hydrology and water engineering and is reviewer of several international journals. He has lead a large international project on the groundwater resources management, funded by the international organisations (QNRF, NAS, USAID, EU, Erasmus…).

The Impact of Artificial Intelligence on Molecular Pest Detection Software for Quarantine

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Agriculture biotechnology from RUDN university .Moscow, Russia

The integration of Artificial Intelligence (AI) into molecular pest detection software represents a significant advancement in the field of agricultural biosecurity. This paper explores the transformative effects of AI technologies on the identification and management of quarantine pests. By leveraging machine learning algorithms and advanced data analytics, AI enhances the accuracy, speed, and reliability of molecular diagnostics. These improvements facilitate early detection and rapid response to pest outbreaks, thereby mitigating the economic and ecological impacts associated with invasive species. Furthermore, AI-driven software can process vast datasets and recognize complex patterns that are beyond human capabilities, enabling more precise and comprehensive pest identification. The study underscores the potential of AI to revolutionize pest management practices and highlights the importance of ongoing research and development to fully harness its capabilities.

Keywords: Artificial Intelligence, Molecular Pest Detection, Quarantine, Machine Learning, Agricultural Biosecurity.

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The Impact Of Nutrition Education On The Dietary Habits Of Female

Rupali yadav
Bundelkhand University Jhansi UP, India

The objective of this study was to explore the impact of nutrition education on the dietary habits of female secondary school students, sixty adolescent girls in the age group of 12-18 years were selected randomly from two (a private and a public) secondary schools. Nutrition education improved their mean nutrition knowledge scores significant ($p<0.01$) from 11.17=1.42 to 19.16 =1.8 significant increase in average daily intake of all the nutrients was found among all the adolescent subjects. The average contribution of carbohydrate, protein and fat to total energy also increased after imparting nutrition education. The dietary habits were improved as the practice of meal skipping was found to significantly reduce after imparting nutrition education. Thus, nutrition education is an effective measure to bring about the favourable and significant change in adolescent nutrient intake.

Biography:

Bundelkhand Rupali yadav has completed his Msc (Food science and technology) at the age of 25 years from University jhansi and persuing postdoctoral studies from Bundelkhand University Jhansi ..

Development of cellulose microfiber from Guinea grass seed to reinforce starch-based biodegradable film

Dharmesh Chandra Saxena
Sant Longowal Institute of Engg. & Technology, Longowal, Punjab (India)

Cellulose microfibers (CMF) were extracted from Guinea grass seed, isolated starch from grain, and modified it using octenyl succinic anhydride (OSA) and sodium trimetaphosphate (STMP) under suitable conditions. Biodegradable films were developed from native and modified starch with the incorporation of CMF as a reinforcing agent. The thermal stability of CMF was found to be superior to that of raw fiber, with a maximum degradation temperature of 340°C. The functional, pasting, rheological, morphological, and structural properties of both native and chemically modified starches with OSA and STMP were analyzed. In comparison to OSA-modified starch, the native starch exhibited lower solubility (6.5 to 13.92%) and swelling power (3.09 to 13.71%), whereas STMP-modified starch displayed lower solubility and swelling power than the native starch. Both OSA and STMP chemical modifications resulted in a considerable reduction in pasting properties. A shear thinning behavior was observed, while storage modulus and loss modulus decreased upon OSA esterification but increased upon crosslinking. The morphology of starch was transformed through OSA modification, resulting in fewer pores and dents and more round shapes, whereas STMP-modified starch displayed more polygonal shapes with negligible pores, and fewer dents were observed from SEM micrograms. Furthermore, major structural changes occurred in the amorphous region, confirmed by X-ray diffraction, as crystallinity decreased after STMP modification and increased after OSA modification. Films produced with chemically modified starch (OSA and STMP) and CMF incorporated have the potential to be used in different sectors as per the requirements of the applications.

Biography:

Dr.D.C. Saxena, presently Professor in the Department of Food Engineering & Technology is dedicated to the continuing development and practice of creative teaching, innovative research and high impact public service programs that have improved food safety, food quality and processing. He was a visiting Faculty of Asian Institute of Technology, Bangkok (Thailand). He was invited to many countries like Hungary, Germany (four times), Thailand (thrice), Switzerland, U.K., Australia, Japan (six times), The Netherlands, Spain, UAE and USA (twice) to present his research work in International Symposia. He has many awards to his credit.

Functionality Of Edible Coating in food product

Eng. Maryam Mohammed Al-Ghazali
Food Science specialist /Sultan Qaboos University, Oman

The edible coating is a solution to improve the quality and shelf life of fresh produce ranging from meat, poultry, fish, and dairy products to post-harvest fresh fruits and vegetables. Edible coating/s and film/s reduce packaging waste, prevent the incorporation of chemical preservatives, and result in a minimally-processed natural fresh product with an extended shelf life. The aim of this study is to check the quality of different type of coating in food product, fruits and vegetables, by novel method, samples were collected fruit, vegetables Result showed that gum Arabic and chistone the best type to be coated in fruit and vegetables because its help to improve the color Reduction of weight loss ,Maintenance of quality during distribution and storage condition, Reduction of storage condition Improvement of consumer demand, Extension of shelf life and Reduction of artificial packaging

Key words: Coating, Sheilf life

Biography:

Maryam has completed her Master Degree at the age of 26 years from Sultan Qaboos University, Oman. she is the head of Microbiology lab at Al Joudah Food Tech Lab, Oman. she has over 5 publications that have been cited over 2000 times, she has been participated in many conference, journal and others workshops 2013-2024

Optimization of the extraction of bioactive compounds from prunus fruit

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Prunus is a large genus of flowering plants that includes more than 300 species of trees and shrubs in the Rosaceae family, many of which are grown for their fruit (apricot, peach, plum), this genus of plant is widely cultivated for its delicious fruit (Ghorab, H et al., 2018) with very significant global and national production (Faostat 2019).

Most fruit is consumed fresh, but it is also processed into juice, jam, etc. Consequently, after processing in the agri-food industries, its large consumption leads to the production of a large quantity of by-products and waste. In terms of cost and time, managing by-products poses problems for the food sector. For this reason, there is growing interest in using these by-products as a source of valuable biological compounds, which could bring financial and environmental benefits to different types of industries (Górnaś, P. et al., 2015).

One of the essential steps in benefiting from bioactive substances is their recovery from the original matrix. Several modern methods have been used for the extraction of bioactive substances, including ultrasonic-assisted extraction (UAE), supercritical fluid extraction (SFE), microwave-assisted extraction (EMA), etc. Choosing an effective extraction method remains difficult because of the many factors that influence the extraction process. (Pasquet, V., 2011).

The use of response surface methodology (RSM) can be an effective way of optimizing extraction. This is a statistical technique used to study complex processes. (Liyanapathirana, C. and Shahidi, F. 2005).

The objectives of this study are focused on optimizing the conditions for extracting antioxidants from fruits of the genus prunus by studying the impact of several parameters such as the extraction method, the type of solvent and its concentration, the extraction temperature and time, etc., and on assaying the bioactive compounds (polyphenols, flavonoids…), as well as evaluating the various biological activities (antioxidant activity…).

Key words: prunus, antioxidants, optimization, antioxidant activity, polyphenols.

A novel microbiological approach to impact the aromatic composition of sour loquat beer

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Novel beers have been developed in response to the growing interest in using unconventional yeast isolated from novel ecological niches to create unexplored sensory profiles. Fruit-based beers have become an attractive topic in recent years. In this work, Lachancea thermotolerans MNF105 and Saccharomyces cerevisiae MN113, isolated from manna, were tested as starter cultures for processing loquat beer to improve the sensory profile for the first time. An innovative approach was used to investigate and produce sour fruit beer using L. thermotolerans MNF105 yeast species. Loquat beers produced with L. thermotolerans MNF105 were more balanced than the control, especially in terms of perceived acidity during sensory analysis. This could be due to the lower lactic acid production (0.49 g/L) compared to the control (1.74 g/L). S. cerevisiae MN113 (TF1) isolated from manna showed the best results in organoleptic analysis. Experimental tests performed with selected strains demonstrated the absence of off-flavors and off-odors, and enhanced flavor perception. Aldehydes and alcohols were the most prevalent VOCs in beers. Beers brewed with S. cerevisiae MN113 (TF1) are characterized by higher concentrations of alcohols, ketones, and carboxylic acids. In particular, ethyl acetate, a secondary metabolite of alcoholic fermentation responsible for the fruity aroma, was also higher. The presence of Lachancea strains in samples has resulted in a greater content of ethyl lactate, which is produced by this species.. S. cerevisiae MN113 and L. thermotolerans MNF105, manna-related yeasts, showed great technological properties and represent promising starters to produce fruit beer and sour fruit beer.

Biography:

Antonella Porrello completed her master's degree in chemistry in 2022, at the age of 25, at the University of Palermo, with a thesis on the flavour profile of gluten-free foods. She subsequently won a PhD scholarship at University of Palermo for a project related to the wine sector. She is currently in the second year of her PhD and is mainly involved in analyzing the volatile profile of wines and beers, the reuse of waste from the oenological process and the study of secondary metabolites from plants.

Effect Of Different Storage Conditions On The Stability And Functionality Of Dairy Powders: A Case Study With Labneh Production

Dilara GURKAYNAK
Pinar Arabia, Abu Dhabi, United Arab Emirates

Dairy powders are frequently used in the food industry owing to their distinctive nutritional profile and long shelf life. They are popular food ingredients thanks to their texturizing, emulsifying, and nutritional attributes. Nevertheless, each product exhibits distinct properties that confer unique functionalities to them. This study aims to understand the influence of storage temperature and duration on the functionality and stability of dairy powders, particularly in the context of their application in labneh production. The study employs four different dairy powders, namely Milk Protein Concentrate (MPC85), Skim Milk Powder (SMP), Whey Protein Concentrate 80 (WPC80), and Whey Protein Concentrate 80-S (WPC80S). The mentioned powders were stored in 1 kg double zipper bags and subjected to storage conditions of 10 °C, 25 °C, and 37 °C for 8 months. Before subjecting them to any temperature conditions, the day zero (D0) analysis was performed. The properties of dairy powders were assessed using color analysis by the L*, a*, b* system, particle size distribution, Fourier Transform Infrared Spectroscopy (FTIR), water activity, and turbidity analysis. In the beginning (D0), and after 4 and 8 months of storage, the powders were utilized in labneh recipes. For each resulting labneh sample, various analytical techniques were employed, including color analysis, Fourier Transform Infrared Spectroscopy (FTIR), texture analysis, rheology measurements, and sensory evaluations. The findings indicate that alterations in the functionality of dairy powders during shelf life have notable impacts on the quality of the final product in which they are utilized.

Biography:

Dilara Gürkaynak was born in Turkey in 1997. She studied at the Izmir Institute of Technology, earning her bachelor's and master's degrees in food engineering in 2020 and 2023, respectively. In 2021, she embarked on a thrilling adventure, moving to the vibrant city of Dubai. There, she joined the dynamic team at Pinar Arabia as an R&D Engineer, a role where she developed delicious, yet innovative dairy products. Beyond her career, she enjoys cycling and practicing yoga in her free time.

Food Safety and sustainability

Iman Mohamed Abdallah Moustafa ElBorolos
Mansoura university Egypt

In our bustling world where food is a central part of life, the connection between what's on our plates and broader concerns like food safety and sustainability is profound. Every aspect of our food, from its origin on the farm to its consumption, carries with it a responsibility to maintain both our health and the health of the planet.Guardians of food safety work tirelessly to ensure that the food we eat is free from any potential harm. Their dedication to stringent standards and practices protects us from the unseen dangers that may lurk within our meals.

At the same time, sustainability reminds us of the essential harmony between humanity and the earth. Each seed planted is a promise to nurture and preserve our environment. Practices like regenerative agriculture and ethical sourcing reflect our commitment to this shared stewardship of the planet, where each bite contributes to a more sustainable future.Innovation plays a crucial role in guiding us towards this future. From advancements in farming techniques to technological breakthroughs, the quest for safer, more sustainable practices lights our path towards resilience and progress.Let us not forget the hard work of those who cultivate our food—the farmers, scientists, and environmental stewards. Their dedication ensures that food safety and sustainability remain at the forefront of our collective efforts, laying the groundwork for a better tomorrow.

Biography:

Iman ElBorolos has completed his PhD in January 2024 from faculty of veterinary medicine Mansoura University . He is the director of XXXX, a premier Bio-Soft service organization. I am a food safety consultant and trainer at Egyptian Hotel Association delivering food safety training for staff in hotels and about more than 2000 staff at entry and managerial levels have been trained on HACCP implementation and food safety principles.I am also an approved tutor from Highfield international in UK and Certified leas auditor for ISO 9001:2015 and FSSC 22000 V.5.I have published international research in reputed journal"Scopus" and selected to be speaker for 17th DIFSC.

Evaluation of the seed oil quality properties of rapeseed contributed to drought stress

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Optimizing the profile of fatty acids in rapeseed (Brassica napus L.) is critical for maximizing the value of edible oil. Climate change and water scarcity are among the significant limited factors to constrain the production and development of oilseed crops, especially rapeseed (Brassica napus L.), in arid and semi-arid areas. Seeds of 121 accessions of Brassica napus were analyzed for seed oil content (SOC) and fatty acid composition through gas chromatography–mass spectrometry (GC–MS) analysis. Experimental design was a lattice by patterning 11 × 11 with three replicates under two irrigation regimes for two years (2017-2019) in Shiraz, Iran. The SOC and fatty acid composition of oil among the genotypes were significantly different (P-value <0.01). Among those fatty acids were detected, oleic acid (75.7-94.9%) was the predominant fatty acid followed by linoleic acid (0.2-1.8%), arachidic acid (0.1–0.6%), heneicosylic acid (0.1–0.6%), ecosadienoic acid (0.05–0.69%), and behenic acid (0.5–0.5%). The SOC of all rapeseed genotypes was rich in the omega-9 fatty acid (oleic acid) which makes the oil nutritionally beneficial on human health by preventing the onset of various disorders. The results showed that drought stress significantly decreased SOC by 6.08%. Variety G85 showed the highest SOC (38.62%) under drought stress and it had high quality of oil due to the high percentage of oleic acid (> 80%). Therefore, the G85 variety might be a promising genotype to starting a crop improvement program to achieve more drought-tolerant rapeseed genotype with high quality of seed oil content.

Biography:

Dr. Maryam Salami studied plant breeding at the Isfahan University of Technology as MS in 2012. She then joined the research group of Prof. Bahram Heidari at the Shiraz University, Department of Plant Production and Genetics. She received her PhD degree in 2022 at the Shiraz University. She has published 9 research articles in SCI(E) journals.

Optimization of conditions for bacterial and stepped fermentation of bee pollen

Vaida Damulienė
Instrumental Analysis Open Access Centre, Vytautas Magnus University Vileikos str. 8, LT-44404, Kaunas, Lithuania

One of the most well-known apitherapeutic products valued for its antioxidant capabilities, extensive array of nutritional compounds and abundance of microelements is bee pollen. Complex product wall structure reduces bioavailability and potential to be used as a functional food, therefore it is advisable to treat it chemically or biologically. The aim of this research was to optimize bacterial and stepped fermentation conditions of bee pollen. Bee pollen from Lithuania was used. Bacterial fermentation with Bifidobacterium animalis, Lactobacillus reuteri, Lactobacillus acidophilus were performed for 2, 5, 8 and 12 days. Moreover, stepped fermentation was performed by mixing spontaneous or bacterial fermentation and enzymatic hydrolysis processes: previously mentioned bacteria's or Lactobacillus rhamnosus and cellulase, Clara-diastase or Viscozyme L enzymes were used. Total phenolic compound content, total flavonoid content, antioxidant and anti-inflammatory activities were evaluated by spectrophotometric methods. Chemometric analysis, incorporating differential equations and data approximation were used for optimal duration determination. According to the results, the optimal duration for bacterial fermentation with B. animalis or L. reuteri is 8 days, with L. acidophilus – 7 days. Stepped fermentation results show that when fermentation is performed first and then enzymatic hydrolysis, then an optimal process duration is 5-8 days, otherwise 4-6 days if enzymatic hydrolysis is carried out prior fermentation.

Biography:

Vaida Damulienė is final year PhD student in biology from Vytautas Magnus University in Lithuania. Vaida completed her bachelor's degree in biotechnology and a master's degree in biochemical analysis from the Vytautas Magnus University. Her research interests are in chemical profiling, therapeutic properties and pharmaceutical application of bee pollen. She is co-author of 5 papers on bee pollen and other bee products chemical composition and biological activity.

Species and temperature-dependent fermentative aptitudes of Mrakia genus for innovative brewing

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Using non-conventional brewing yeasts as an alternative to produce low-alcohol (LAB) and alcohol-free beer (AFB) is a promising approach that received increasing attention worldwide. Considering that Mrakia is one of the few basidiomycetous yeast genera showing fermentation aptitude and that Mrakia genus was proposed as potential candidates for use as alternative starters for obtaining reduced alcohol beer, and to extend the phenotypic diversity of basidiomycetous brewing yeasts the aim of this investigation was to check the fermentation aptitudes of thirteen Mrakia species. The volatile profile, ethanol content and sugar consumption were compared with that produced by a commercial starter for LAB, namely Saccharomycodes ludwigii WSL 17. Furthermore, a central composite design (CCD) structure was used to check the influence of temperature and total carbohydrates concentration on the fermentative aptitude of the top performing Mrakia strain. Mrakia genus showed three clusters that exhibited different fermentation aptitudes. Members of M. gelida cluster showed a superior aptitude to produce ethanol, higher alcohols, esters, and sugars conversion compared to the members of M. cryoconiti and M. aquatica clusters. The strain M. blollopis DBVPG 4974 exhibited a medium flocculation profile, a high tolerance to ethanol and to iso-α-acids, and a considerable production of lactic and acetic acids, and glycerol. M. blollopis CCD showed that only temperature affected all the responses with significant influence in ethanol and higher alcohols contents, showing a proportional inverse effect. The application of Mrakia species in beer as a natural tool for innovation is a promising strategy in the coming years. However, many important safety assessments still must be investigated and clarified to fully understand their use as food.

Biography:

Dr. Alfeo studied Agriculture, food, and forest sciences at the University of Palermo, Italy and graduated as MS in 2013. He then joined the research group of Prof. Aldo Todaro at the Food science and technologies lab, of the University of Palermo, Italy. In 2018, he received his Ph.D. in food science and technology at the same institution. After six months of postdoctoral fellowship supervised by Prof. Rosa Palmeri at the University of Catania, Italy, he joined the research group of Prof. Ombretta Marconi at the Italian Brewing Research Centre, University of Perugia. He has published 22 research articles in SCI(E) journals.

Agrifoodtech Investment Landscape and Innovations to Combat Climate Change and Global Food Insecurity

Balaji Vasudevan
Venture Partner at Loading Fund, USA

Global food and agricultural system are threatened at multiple fronts and facing major challenges including climate change (CC), drought, pests, diseases, salinity, decreasing arable land and water, increasing population, carbon emissions, achieving sustainability. CC is a long-term trend in the state of the climate, usually described as changes in the average and/or variability of properties such as temperature and precipitation. CC is very likely to affect global, regional, and local food security by disrupting food availability, decreasing access to food, and making utilization more difficult. CC has a direct and significant impact on food insecurity. As global temperatures rise, food production becomes more difficult and uncertain due to changes in weather patterns, extreme weather events, and other environmental disruptions. Agricultural production is governed in large part by climate conditions and is a central consideration for food availability. CC influence on global food-system activities, including food processing, packaging, transportation, storage, waste, and consumption. This raises an important question on how to mitigate the effects of CC on global food security. In order to tackle this global challenge, it is essential that all stakeholders in global food and agriculture sector take proactive steps to develop strategies for food production and access that can better withstand extreme weather events and climate variability. In my presentation, I will detail various approaches that are being developed and practiced globally to combat CC effect on food insecurity. These steps include increasing global investments in food & ag, novel technologies, diversification of food sources, adopt regenerative and sustainable farming, precision farming, climate resilient food crops and more. My presentation will focus more on current investment status in food and ag vertical, driving factor for agri-foodtech innovations and technologies to achieve global food security threatened by CC.

Biography:

Dr. Balaji Vasudevan is currently Venture Partner at Loading Fund based in India and USA. He is a globally recognized agtech thought leader. With over 20 years of agtech experience in industry academia, non-profits and investments combined, he is driven by a desire to help companies bring break-through agri-food technologies to market that create a better food and agriculture eco-system. At Loading Fund, he applies his academic and industry synthetic biology/agtech/agri-foodtech background, experience, global network of over 30K agtech/agrifoodtech connections in multiple agri-foodtech sectors to identify, source and support exceptional technology-focused future food and agtech start-ups. He is also an advisor/science consultant/SAB member for global agtech companies. His experience spans across multiple agri-foodtech domains that include:

1) AgTech/Agri-FoodTech StartUp & VC Experience Agtech Innovations, Technology and Global agtech/Agrifoodtech Startup Scouting | Sourcing | Due-diligence | Agtech Business Market Following | Competitive intelligence | AgTech Consulting | AgTech SAB advisor | Venture Investments | Startup Operations | Fund Raise | Venture Builder Support to Startups in Science and Business | Social Media Promotion | Agri-foodtech Business Development | Startup Seed Round Fund Raising | Impact Investing | AgTech Global Community Helper | StartUp Builder | Hatch and Nurture Startups

2) AgTech/Agri-FoodTech Sector Contributor & Collateral Development White Paper | Venture Builder Startup Use Cases | Blogs | Editor | Scientific Journal & Grant Reviewer | Judge in Agri-FoodTech Challenge Awards | Science Communications | Mentor | Panelist | Keynote Speaker | OCM Member | Moderator | Scientific & Technical Due-Diligence | Global Networking | Regulatory | Market & Competitive Research | Science Pitch Deck | Licensing IP & Technology | Product Development | Technology Sourcing & Commercialization

3) AgTech/Agri-FoodTech Domain Expertise & Experience Agrobacterium Biology | Agrobacterium-Plant Interactions | Crop Transformation/GMO | Genome Editing | Cell Biology | Plant Tissue Culture Synthetic Biology | Disease Diagnostics | Phytopathogen/ Plant-Microbial Assay Development | Molecular Plant-Microbe Interactions | Plant Pathology | Plant Disease Resistance | Plant Molecular Biology | Gene Silencing via HIGS/VIGS/SIGS| RNAi | Alt. Proteins | RNA-mediated crop protection| RNA Biopesticides | Ag-Biologicals | Plant Molecular Farming for Stable and Transient Expression of Value-Added Proteins in Plants as Bioreactors

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