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ABSTRACT BOOK

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North Eastern Mindanao State University-Cantilan Campus

Detoxification Approaches and Nutraceutical Attributes of Bamboo Shoots

Abstract

Bamboo shoots are widely consumed as vegetables due to their nutritional richness and bioactive compounds, yet their utilization is limited by the presence of cyanogenic glycosides that release toxic hydrogen cyanide. This study evaluated both the detoxification efficiency and nutraceutical potential of Bambusa blumeana (“Kajawan”) and Gigantochloa atter (“Kajali”) bamboo shoots. Two processing methods: soaking and boiling were tested at different durations (6, 12, and 24 hours), and detoxification effects were assessed using the brine shrimp lethality assay at concentrations of 5 μL, 50 μL, and 100 μL. Findings indicated that soaking was more effective than boiling in reducing cyanogenic toxicity, with longer soaking times resulting in significantly lower mortality rates of nauplii, suggesting decreased levels of cyanogenic compounds. In addition, proximate and phytochemical analyses demonstrated that bamboo shoots possess considerable nutraceutical value. The proximate composition revealed high moisture content (63.45%), ash (2.99%), crude protein (5.33%), low total fat (0.42%), and appreciable fiber. Phytochemical screening confirmed the presence of bioactive metabolites such as saponins, flavonoids, alkaloids, and anthraquinones, which contribute to antioxidant, antimicrobial, and potential pharmacological properties. Among the tested varieties, Gigantochloa atter (“Kajali”) exhibited a greater abundance of secondary metabolites compared to Bambusa blumeana (“Kajawan”). Overall, the study highlights bamboo shoots as nutrient-dense, pollution-free foods with promising functional properties. Moreover, prolonged soaking proved to be the most effective technique in mitigating cyanogenic glycosides while preserving nutraceutical benefits. These results support

the potential of bamboo shoots as safe, functional food resources with applications in nutrition and health promotion.

Keywords: Bamboo shoots, Cyanogenic glycosides, Detoxification, Soaking and boiling, Nutraceutical potential.

Jaksuma Pongsetkul
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Biomarker exploration of texture and yield quality changes in marinated Nile tilapia (Oreochromis niloticus) through label-free proteomics

Abstract

Tilapia fillets marinated in a solution containing 6% (w/v) NaCl and 1% (v/v) acetic acid for 36 h demonstrated optimal physicochemical properties, including favorable pH and acidity, enhanced water-holding capacity, reduced drip and cooking losses, and the highest sensory acceptability ($p < 0.05$). This condition was therefore selected for comparative label-free proteomic analysis against non-marinated samples to elucidate proteins associated with improvements in yield and texture. Proteomic profiling revealed fifty differentially abundant proteins (DAPs), comprising 23 proteins with increased abundance and 27 with decreased abundance ($p < 0.05$, $|FC| > 1.5$ or < 0.67), predominantly involving muscle structural components and metabolic-related enzymes. Gene ontology analysis highlighted protein binding as the dominant molecular function, with enrichment in biological processes related to stress responses, including abiotic and thermal stimuli, muscle contraction, system-level processes, and protein refolding. Pathway analysis identified ten significantly enriched pathways ($P < 0.05$, FDR < 0.01, impact > 0.05) associated with texture development, among which glycolysis/gluconeogenesis showed the highest pathway impact. Network analysis further identified several highly connected proteins—ACTA1B, PYGMA, RPSA, ACTN3, VCL, HSPA8, and RPS7—as potential biomarkers capable of discriminating marinated tilapia with superior textural attributes from fresh counterparts.

Biography

Jaksuma Pongsetkul received her Ph.D. at the age of 28 from Prince of Songkla University, Thailand. She is currently a lecturer at the School of Animal Technology and Innovation, Institute of Agricultural Technology, Suranaree University of Technology, Thailand. Her research expertise lies in post-harvest science and technology of fishery products, with a strong emphasis on aquatic and seafood chemistry, biochemistry, and the valorization of fishery by-products. She has a particular interest in applying advanced analytical approaches, including omics technologies and infrared (IR) spectroscopy, to elucidate molecular mechanisms underlying aquatic meat quality. Her current research focuses on flavor development and textural properties of seafood, aiming to translate fundamental scientific insights into practical applications for food technology and industry. To date, she has authored more than 66 peer-reviewed publications in these research areas.

Mumsy Evidence Chibe
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Nutritional Knowledge, Sustainable Food Practices and Food Safety, in Child and Youth Care Facilities in KwaZulu-Natal, South Africa

Abstract

Objective: This study explores the nutritional knowledge, sustainable food practices, and hygiene behaviours of food handlers in Child and Youth Care Centres (CYCCs) in KwaZulu-Natal, South Africa.

Method: Using a qualitative design guided by the Knowledge, Attitude and Practices (KAP) model and the Social Ecological Model (SEM), three online focus group discussions were conducted with 18 food handlers across two registered CYCCs in eThekwini Municipality.

Results: Thematic analysis revealed three overarching themes: nutrition-related knowledge, food production practices, and food safety and hygiene. Findings indicated limited awareness of the South African Food-Based Dietary Guidelines, inadequate nutrition training, and strong reliance on personal experience rather than formal guidance. Despite a good understanding of basic hygiene and storage, financial and infrastructural constraints hindered effective practice, including access to nutritious foods, protective equipment, and sanitation supplies.

Conclusion: The study concludes that systemic barriers limit the ability of CYCCs to meet children's nutritional needs. It recommends strengthened training, sustainable funding, and context-specific menus and recipe guides to improve nutritional care

and food safety in residential settings, thereby contributing to multiple Sustainable Development Goals.

Keywords: Food safety, Meal planning, child nutrition, Institutional care, Sanitation practices.

Peña-Vázquez

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Development of a functional yogurt enriched with functional lipids from Mexican Opuntia ficus-indica seeds: food quality and in vitro functionality

Abstract

Incorporation of bioactive lipids into commercial food represents a promising strategy to improve dietary fat quality while enhancing functional properties. Subcritical CO_2-seed oil obtained from Opuntia ficus-indica (OFI) has shown antioxidant and anti-inflammatory activities and is involved in lipid metabolism pathways. In this study, an OFI seed oil-enriched yogurt was formulated and evaluated for technological quality, lipid profile, oxidative stability, and its potential biological effects. A control yogurt (CY) and an enriched yogurt containing 0.7% (v/v) OFI seed oil (OFI-Y) were produced using skimmed milk, Streptococcus salivarius ssp. thermophilus, Lactobacillus delbrueckii ssp. bulgaricus, and sugar under standardized fermentation conditions at 45°C for 6 hours. Physicochemical characterization, texture profile, fatty acid composition, and proximate composition were evaluated over 21 days of storage (4°C). After simulated digestion, malondialdehyde (MDA) levels and biological effects on oxidative stress and lipid metabolism were assessed on a steatosis-induced HepG2 cellular model. OFI-Y maintained pH (4.4 - 4.6) and titratable acidity (0.65 - 0.85%) within acceptable ranges throughout storage. Syneresis was reduced by 31% in OFI-Y compared to the CY ($p=0.0043$) after 21 days of storage. Regarding texture analysis, firmness, consistency, and cohesiveness were significantly higher in OFI-Y (21-39% higher, $p<0.001$) than in CY. Although texture parameters decreased during storage in both yogurts (19-49%, $p<0.05$), no significant differences were observed between formulations at day 21. Proximate composition analysis showed that OFI-Y was significantly lower in moisture

(24%) and higher in fat content (3.27 to 3.57-fold higher) ($p<0.05$) compared to CY. OFI-Y revealed 3.5- and 30-fold higher levels of unsaturated fatty acids, oleic and linoleic, and remained elevated after in vitro gastrointestinal digestion. The OFI-Y also exhibited a 1.5-fold higher inhibition of lipid peroxidation ($p<0.05$). In the steatosis-induced HepG2 model, the digested OFI-Y reduced intracellular ROS in a dose-dependent manner, achieving up to a 34% reduction compared to the positive control. Regarding effects on lipid metabolism, all treatments reduced glycerol release by 9-12% and lipid accumulation by 52-61% compared with the positive control. Triglyceride content decreased by 28-38% across all the treatments. Overall, the addition of OFI seed oil (0.7 % v/v) to a yogurt formulation (OFI-Y) improved the lipid profile and oxidative stability, and showed potential to modulate steatosis-related disturbances, including oxidative stress and lipid accumulation. These results demonstrate that yogurt can serve as an effective delivery matrix for OFI seed bioactive lipids, preserving technological quality and physiological stability while exerting metabolic and biological effects.

Biography

Gloria is currently a PhD candidate inBiotechnology and holds a Master of Science degree in Nutrition. Her academic and research background focuses on functional food lipids and their role as bioactive compounds in metabolic and immune regulation, particularly in the context of obesity. Her doctoral work centers on the development and characterization of functional yogurt enriched with bioactive lipids from Mexican Opuntia ficus-indica seeds, evaluating physicochemical properties, lipid profile and stability, and in vitro biological activity after in vitro digestion, using cellular models. She has contributed to research projects in the areas of plant-derived compounds, functional foods and metabolic health.

Oloniyo, Rebecca Olajumoke
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Production and quality assessment of antioxidant-rich biscuit produced from pearl millet and orange peel flour blends

Abstract

The unstable free radicals' molecules oxidize cells throughout the body to cause oxidative stress, which has been implicated in the pathogenesis of many chronic diseases. Thus, consuming antioxidant-rich snacks could help reduce the production of these free radicals in the body. This study aimed to produce antioxidant–rich biscuit from an underutilized pearl millet and agricultural waste from orange peel flour (PMF and OPF, respectively) blends. Biscuits were produced from PMF and OPF blends using various proportions (95:05; 90:10; 85:15; 80:20 with 100% PMF as control. The functional properties of the flours, antioxidant properties, physical evaluation, and consumer acceptability of the biscuits were evaluated. The functional properties of the composite flour showed an increase in oil absorption capacity (7.73-8.80 g/ml), water absorption capacity (6.82-7.21 g/ml), foaming (3.91-5.88 g/ml), and emulsification (52.85-58.82 g/ml) properties. The increased addition of OPF significantly ($p<0.05$) increased the antioxidant properties of the biscuits produced from the composite flour. For instance, the ferric-reducing properties (0.10-0.4 mgAAE/g), total flavonoid (1.20-8.12 mg QE/g) and ABTS radical scavenging (1.17-2.19 mmol/TEAC/g) of the composite flours were increasingly comparable to those of 100% PMF. The physical parameters of the biscuit were significantly different ($p<0.05$) from one another The addition of OPF into PMF reduced the weight, diameter, and spread ratio of biscuits produced while contrarily increasing the height of the biscuit. The incorporation of OPF at 5% (95:05) substitution yielded a consumedly acceptable biscuit product. The significant increase in antioxidant properties with an increase in OPF during the production of biscuit would therefore increase the nutritional value and potential health benefits.

Keywords: Orange peel; biscuit; antioxidant; pearl millet.

Biography

Dr. Oloniyo, Rebecca Olajumoke obtained her PhD from the Department of Food Science and Technology, Federal University of Technology, Akure, Nigeria with specialization in Food Processing and Product Development of Functional Food and Nutraceuticals. She works with Prince Abubakar Audu University, Nigeria as a Lecturer in the Department of Food, Nutrition and Home Science. In quest of her academic pursuit, she has attended Academic Training, Workshops, and International Conferences where most of her research findings were presented. She has over seventeen (17) published research articles in international peer-reviewed Journals while some are under review. She is a professional member of Nigerian Institute of Food Science and Technology (NIFST); Member of the Organization for Women in Science for the Developing World (OWSD); and Member of Functional Foods and Nutraceuticals Association of Nigeria (FF&NAN). I aim to be a future career leader, notable researcher, and zealous about solving health-related issues.

Isah L.Rashidi

Department of Food, Nutrition and Home Sciences, Prince Abubakar Audu University Anyigba, Kogi State, Nigeria

Development And Evaluation Of Dough Meal From Unripe Plantain, Finger Millet And Wild Melon Flour And Its Glycemic Index Control

Abstract

High fibre diet intakes are associated with lower risk of coronary heart disease, enhanced weight control, better glycemic control, reduced risk of certain forms of cancer, and improved gastrointestinal function. The study investigates the chemical composition, antioxidant properties and glycemic index potentials of the dough meal produced from finger millet (FM), unripe plantain (UP) and wild melon (WM) flour. FM, UP and WM were Coded as AAA (100% FM), BBB (80% FM +20% UP), CCC (80% FM + 10% UP + 10% WM) and DDD (80% FM + 15% UP + 5% WM). The moisture content of the dough meal ranged from 31.69 to 33.74%, Ash content from 0.25 to 1.07%, crude fibre from 0.67 to 1.20%, fat content ranged from 0.86 to 5.35%, protein content ranged from 6.20 to 12.05%, carbohydrate content from 48.02 to 58.38% and energy value of dough meal ranged from 265.59 to 288.430 kcal. Sodium content ranged from 12.70 to 18.10 mg/kg, Potassium content ranged from 13.30 to 31.50 mg/kg, Calcium content ranged from 96.80 to 123.60 mg/kg, Magnesium content ranged from 36.40 to 47.20 mg/kg, Iron content ranged from 16.47 to 22.77 mg/kg, and Zinc content ranged from 2.02 to 6.98 mg/kg. Iron chelation ranged from 68.97 to 84.98 mg/mL, total phenol content ranged from 54.64 to 73.07 mg GAE/g, flavonoid content ranged from 6.44 to 8.44 mg QE/g, ferric reducing antioxidant power (FRAP) ranged from 50.77 to 98.23 mg/AAE/g and OH scavenging capacity ranged from 63.07 to 91.17 mg QE/g. The glycemic index dough meal ranged from 38.00 to 49.25 and the Glycemic load ranged from 21.24 to 31.53. The scores of the appearance of the dough mean ranged from 5.20 to 8.15, aroma

ranged from 5.35 to 7.85, texture ranged from 5.25 to 7.20, gumminess ranged from 5.75 to 7.90, taste ranged from 5.75 to 7.40 and overall acceptability ranged from 5.89 to 8.65 show that all dough meal samples were accepted for organoleptic properties. Dough meal with code BBB (80% finger millet+20% unripe plantain flour) had the highest overall acceptability and compared favourably with sample AAA (100 % finger millet flour- the control sample).

Keywords: Dough meal, Finger millet, unripe plantain, wild melon flour.

Monserrat Toloza Mora
Universidad Católica del Maule, Chile

Nutri-Move Project: Integrated Nutritional Approach And Capacity Building For Children With Cerebral Infirmity In Cameroon

Abstract

Cerebral infirmity in Cameroon is frequently associated with severe malnutrition due to swallowing disorders, which significantly worsens the life prognosis of children. The main objective of the Nutri-Move project is to improve the survival and growth of one hundred children by reducing the rate of severe malnutrition within the cohort followed by forty percent. The methodology consists of setting up a local production pilot unit capable of providing five hundred kilograms per month of enriched flours and high energy density purees whose textures are adapted to the physiological needs of the beneficiaries. At the same time, therapeutic education workshops train mothers and caregivers in nutrition techniques and safe eating postures. The expected results relate to a measurable improvement in the brachial perimeter and a significant reduction in respiratory infections related to false food pathways. Thanks to a subsidized economic model and the strengthening of local capacities, this initiative guarantees autonomy from imports and sustainability of care. In conclusion, the integration of local nutritional production and social advocacy offers a sustainable solution to break the cycle of malnutrition in disabled children, while making families fully involved in their children's health.

Daguman, Almira T
The Graduate School, University of Santo Tomas

Effect of Abelmoschus esculentus (L.) Moench Powder in the Postprandial Blood Glucose Levels of Prediabetics with Early Phase Type 2 Diabetes Mellitus

Abstract

INTRODUCTION: Prediabetes is one of the strongest risk factors for developing full-blown diabetes. Every year, 11% of the pre-diabetic population converts to Type 2 diabetes. In the Philippines alone, 1.8 million Filipinos have Impaired Fasting Glucose (IFG) and 4.3 million have Impaired Glucose Tolerance (IGT). Globally, 488 million adults (20-79 y/o) are living with IFG, and 635 million adults (20-79 y/o) have IGT; this is 1 in 11 and 1 in 8, respectively.

METHODOLOGY: A randomized, balanced, placebo-controlled, double-blind, two-treatment, eight-day clinical trial was conducted to investigate the safe and efficacious α-glucosidase inhibition effect between groups internally-administered with my self-formulated A. esculentus Okra fruit powder (experimental) in lowering the Postprandial (PP) blood glucose (BG) levels of 20 clinically-diagnosed untreated prediabetics through comparison in the change in fasting BG (FBG), 1-hour PP BG, and 2-hour PP BG versus self-formulated placebo powder (control). Screening was done after undergoing the informed consent process documented by a written, signed, and dated informed consent form. Fasted daily for 8 hours, a drop of blood sample from the finger placed on a test strip was read by the glucometer machine. On Day 0 and Day 7, blood sampling time points based on the specified ISO Standard were 0.00 [baseline], 0.25 [15 minutes], 0.50 [30 minutes], 0.75 [45 minutes], 1.00 [60 minutes], 1.50 [90 minutes], and 2.00 hours [120 minutes]. Standardized meal per Philippine Food and Nutrition Research Institute

(Phil FNRI) referral was given every 0.00 for 8 days.

RESULTS: Mean Fasting Blood Glucose (FBG) at Day 1 to Day 7 were lower in A. esculentus fruit powder group than the mean FBG values of placebo powder group relative to baseline: 7 out of 8 days including baseline, the mean 1-hr PP was lower in A. esculentus group than the placebo group. 2-hr PP exhibited a significant decrease of 6 mg/dL (5.61%) for A. esculentus fruit powder group. P value is 0.0141. Product sensorial was 7 for A. esculentus fruit powder group --- the highest in the scale in the range of 1-7; higher rating indicates stronger agreement. Clinical global assessment for effectiveness is significantly higher in A. esculentus fruit powder group than the placebo powder group (5 vs 4.5; p=0.0433). No AEs observed in both groups. Participants were clinically assessed; all are well.

CONCLUSION: Current evidence suggests that A. esculentus fruit powder performed better and is more effective than placebo powder in decreasing BG levels.

Keywords: Abelmoschus, glucosidase, hyperglycemia, postprandial, prediabetes.

Biography

BS Pharmacy, University of Santo Tomas (UST) – Full Academic Scholar 1993-1997 MS Pharmacy, UST – Thesis, Meritus Latin honors 2019-2025 PhD in Education, Major in Educational Leadership and Management (forthcoming) Technical Research Adviser (1st to 3rd Year Medical Students, Junior Interns, Post-Grad Interns) and Faculty Instructor 3 – Clinical Epidemiology Dept., UST Faculty of Medicine & Surgery (since 2017, coming back 2026) Clinical Investigation Department, Medical & Regulatory Affairs, Unilab, Inc. (since 2006) 2-term Chairman, Ways and Means, Board of Director, Philippine Clinical Research Professionals, Inc. (2011-2015), PCRP GA Chair (2016), Co-chair (2017) ICH-GCP Training Workshop Speaker, Rapporteur, Facilitator (since 2012) Philippine Society of Experimental & Clinical Pharmacology (Asst. Secretariat, 2025) GCP Training Director, Department of Medical Education and Research, UST Hospital (2026).

Adrián Gonzalez

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Bioactive Peptides from Quinoa Promote Myoblast Activity and Protein Anabolism: An In Vitro Study

Abstract

Sarcopenia is a major age-related condition characterized by the progressive decline in skeletal muscle mass and function, contributing to frailty and reduced quality of life. Nutritional strategies targeting molecular pathways involved in muscle metabolism have gained increasing interest, particularly those based on bioactive peptides. Quinoa (Chenopodium quinoa), a protein-rich pseudocereal (~14% protein), represents a sustainable source of peptides with potential anti-sarcopenic effects. This study aimed to evaluate the capacity of quinoa-derived peptides to modulate muscle-related cellular processes (C2C12).

Quinoa proteins were extracted, enzymatically hydrolyzed (Alcalase), and fractionated based on physicochemical properties (hydrophobicity and ultrafiltration with electric charge). Peptide fractions were characterized by molecular size (LC-MS/MS) and amino acid composition (RP-HPLC). Selected fractions were assessed in muscle-related in vitro models to evaluate their effects on cellular activity and protein metabolism (C2C12 cell line from murine myoblasts).

Quinoa-derived peptide fractions (3–21 amino acids) exhibited bioactivity associated with skeletal muscle regulation at concentrations between 0.1 to 0.5 mg/ml. Selected fractions promoted cellular responses linked to muscle maintenance, including stimulation of myoblast activity and activation of anabolic signaling pathways, particularly those associated with the mTOR axis. In addition, these peptides may contribute to the modulation of protein turnover by enhancing protein synthesis–related mechanisms.

The presence of key amino acids, such as leucine, and specific bioactive sequences likely underlies their interaction with molecular targets involved in muscle metabolism. These findings suggest a role for quinoa peptides in supporting muscle cell function and promoting anabolic processes relevant to sarcopenia prevention.
Quinoa-derived bioactive peptides show potential as modulators of muscle metabolism through the activation of key anabolic pathways. Their capacity to influence cellular mechanisms associated with muscle maintenance supports their development as innovative, plant-based functional ingredients for the prevention of sarcopenia and promotion of healthy aging.

Biography

Adrián González is Chilean PhD in Food Science and Technology, specializing in bioactive peptides and functional foods. His work focuses on the extraction, fractionation, and characterization of protein-derived peptides from plant-based sources, particularly quinoa, and their potential health applications. He has experience in enzymatic hydrolysis and membrane-based separation technologies to obtain peptide fractions with specific biological activities.

His research explores the role of food-derived peptides in modulating metabolic pathways, with antidiabetic and antihypertensive potential, and emerging relevance in conditions such as sarcopenia. Additionally, his work investigates the relationship between dietary patterns, nutritional status, and hearing loss, contributing to the development of preventive strategies in public health.

He has participated in Chilean research projects and has contributed to 10 scientific publications and conference presentations in the field of bioactive compounds and functional nutrition.

Aqsa Iqbal
Institute of Food Science and Nutrition, University of Sargodha, Pakistan1, Institute of Zoology, Punjab University Lahore, Pakistan

Nutraceutical Potential of Medicinal Plants in Food Applications-A Systematic Review

Abstract

The rising consumer need to healthier and functional foods has heightened interest in the use of medicinal plants as nutraceutical compounds in food applications. Medicinal plants are abundant sources of bioactive compounds including polyphenols, flavonoids, alkaloids, terpeoinds, vitamins and antioxidants that have significant health-promoting properties. These compounds help in the prevention and management of various chronic diseases such as diabetes, cardiovascular disorders, obesity, inflammation and some cancers. Adding medicinal plant extracts to food products increases nutritional value and improves the functional and therapeutic properties. Recent developments in the food technology sector have made possible the development of plant-based functional foods, beverages, dairy products, bakery products and dietary supplements fortified with medicinal herbs and natural extracts. Tumeric, ginger, garlic, moringa, green tea, aloe vera, and fenugreek are some of the commonly used medicinal plants that have been demonstrated to be very strong antioxidants, antimicrobials, anti-inflammatory and immune-boosting agents. Nevertheless, issues of stability, sensory properties, bioavailability, and consumer acceptance are still critical factors to consider when developing a product. This paper brings out the nutraceutical significance of medicinal plants and the ways that they can be used in the contemporary food systems. The incorporation of medicinal plants in the food preparations has a promising potential in the development of sustainable, health-oriented functional foods that contribute to human well-being. The research in the future will involve maximizing extraction techniques, enhancing bioavailability, and providing safety and compliance in regulations to enhance commercial usage.

Biography

I am a dedicated Food Scientist and Food Safety professional with strong academic and practical expertise in food quality management, food safety regulations, and product development. I hold an M.Sc. (Hons.) in Food Science and Technology from the University of Sargodha, Pakistan, with an outstanding academic record. Currently serving as a Food Safety Trainee Officer at the Punjab Food Authority, I have gained hands-on experience in food inspections, HACCP implementation, regulatory compliance, food labeling, and quality assurance systems.

I have worked as a Visiting Lecturer at the University of Sargodha, where I contributed to teaching and student development in food science disciplines. My research interests focus on food preservation technologies, functional foods, nutraceuticals, and value-added food products. She has authored and co-authored several research publications in internationally recognized journals, particularly in the areas of ozonation, antioxidant properties, dairy and beverage development, and food processing technologies. I am passionate about improving food safety standards and contributing to innovative, sustainable food systems through research, training, and industry collaboration.

Muhammad Noman Safdar

Institute of Zoology, Punjab University Lahore, Pakistan1, Institute of Food Science and Nutrition, University of Sargodha, Pakistan

Developing Trends And Technology In Functional Foods And Bioactive Ingredients To Improve Health And Well-Being

Abstract

The market of functional foods and bioactive ingredients has experienced an impressive development as the number of consumers who seek healthy and disease-preventing foods grows. In this review, the emerging trends and technological innovations that are defining the future of functional foods are discussed with the emphases on the innovations in ingredient discovery, bioavailability improvement, and sustainable production technologies. The bioactive compounds polyphenols, peptides, probiotics and omega-3 fatty acids are addressed in terms of their support of human health with specific reference to their use in immune modulation, gut health, cognitive performance, and metabolic health. Such technologies as precision fermentation, AI-based personalized nutrition, and advanced encapsulation methods are already taken advantage of to optimize the efficacy and stability of these bio-actives to make them more accessible and effectual to consumers. Besides, the emergence of plant-based proteins, clean-label formulations, and customized nutrition shows the change towards more sustainable and customized food products. The challenges associated with bioactive absorption, regulatory approval and consumer education are also addressed in the review and provide insight into the future research and commercialization opportunities in this field of rapid change.

Biography

Muhammad Noman Safdar is a Zoology graduate (MS) and dedicated Biology lecturer with expertise in genetics, evolutionary biology, and genomic research. I have experience in teaching, curriculum development, and student mentorship, and is passionate about studying host genetic responses to infectious diseases and advancing research in palaeogenomics.

Monthana Weerawatanakorn

Department of Agro-Industry, Faculty of Agriculture, Natural Resources and Environment, Naresuan University, Phitsanulok 65000, Thailand

Superior Hypocholesterolemic Effects of Fatty Acid-Esterified Octacosanols over Rice Bran and Coconut Oils

Abstract

Octacosanol, a prominent nutraceutical within the policosanol group found abundantly in rice bran wax, sugarcane wax, and cereal grains, possesses significant cholesterol-lowering properties. While agro-industrial by-products are rich sources of policosanols, this study aimed to enhance the hypocholesterolemic efficacy of octacosanol through structural modification via esterification with fatty acids. Two novel compounds were synthesized: lauric acid-esterified octacosanol (LEO) and oleic acid-esterified octacosanol (OEO). The lipid-regulating activities of these esterified derivatives were evaluated and compared against unesterified octacosanol, rice bran oil (predominantly composed of oleic acid), and coconut oil (predominantly composed of lauric acid). The underlying molecular mechanisms were investigated in C57BL/6J mice models induced with obesity via a high-fat diet (HFD). The experimental results demonstrated that all supplemented groups exhibited a statistically significant inhibition of HFD-induced body weight gain, with the esterified octacosanol (OEO and LEO) groups showing the most pronounced anti-obesity effect. Furthermore, HFD-fed mice administered with the supplements manifested a significant reduction in total cholesterol (T-CHO) and low-density lipoprotein cholesterol (LDL-C) levels, concurrent with a significant elevation in high-density lipoprotein cholesterol (HDL-C). Notably, OEO and LEO exhibited the highest therapeutic efficacy compared to unesterified octacosanol, coconut oil, and rice bran oil. Although no statistically significant difference in cholesterol-lowering capacity was observed between rice bran oil and coconut oil, rice bran oil contained a significantly higher concentration of nutraceutical components ($p < 0.05$) and demonstrated superior protection against HFD-induced obesity. In comparison to LEO and other treatment

groups, OEO exerted a more profound positive regulatory effect on fatty acid and cholesterol metabolism. Mechanistically, the lipid-lowering effects of the esterified octacosanols were associated with the suppression of fatty acid synthesis via the SIRT1/AMPK/SREBP-1c signaling pathway. This was evidenced by the down-regulation of fatty acid synthase (FASN) expression and a modulatory effect on the phospho-acetyl-CoA carboxylase to acetyl-CoA carboxylase (p-ACC/ACC) ratio. Additionally, cholesterol synthesis was markedly inhibited through the down-regulation of sterol regulatory element-binding protein 2 (SREBP2) expression ($p < 0.05$), accompanied by a 1.24-fold modulation of the low-density lipoprotein receptor (LDL-R), which is critically involved in cholesterol cellular uptake.

Keywords: Octacosanol; Esterification; Hypocholesterolemic effect; SIRT1/AMPK/SREBP-1c pathway; Rice bran oil; Coconut oil..

Biography

Weerawatanakorn M finished her PhD in 2009 from Rutgers, the State University of New Jersey, USA. She is an associate professor in Food Science and Technology, Faculty of Agro-industry at Naresuan University, Thailand. Her advanced research specializes in green extraction technologies, functional food ingredients, and the development of value-added nutraceuticals from agricultural by-products. Deeply engaged in academic leadership, she actively supervises doctoral research and collaborates on international research placements. She has Published in excess of 40 papers.

Photinam, R

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Characterization of Volatile Compounds, Aroma Profiles, and Quality Changes in Gamma-Irradiated Fruits Using GC–E-nose Technology

Abstract

Gamma irradiation is an effective non-thermal postharvest technology widely used to improve microbial safety and extend the shelf life of fresh fruits. However, concerns remain regarding its potential effects on aroma-related volatile compounds, which are critical determinants of fruit flavor, sensory quality, and consumer acceptance. This study investigated the effects of low-dose gamma irradiation (0, 0.5, and 1.0 kGy) on volatile compound profiles, physicochemical characteristics, and antioxidant properties of five commercially important fruits: blueberry, green kiwi, ruby red kiwi, guava, and lemon. Volatile profiles were characterized using an electronic nose (E-nose) system, while fruit quality was evaluated through measurements of total soluble solids (TSS), titratable acidity (TA), pH, total phenolic content (TPC), DPPH radical scavenging activity, and ferric reducing antioxidant power (FRAP). Multivariate statistical analyses, including principal component analysis (PCA) and hierarchical cluster analysis (HCA), were employed to assess variations among fruit species and irradiation treatments. The results demonstrated that gamma irradiation at doses up to 1.0 kGy caused only minor changes in volatile compound intensities and did not significantly alter the characteristic aroma profiles of the investigated fruits. PCA and HCA revealed that sample discrimination was primarily associated with fruit species rather than irradiation treatment, indicating that the intrinsic biochemical composition of each fruit had a greater influence on quality attributes than the applied radiation dose. Distinct clustering patterns according to fruit type further confirmed the limited impact of irradiation on overall fruit characteristics.

Moreover, low-dose gamma irradiation effectively preserved physicochemical quality and antioxidant capacity across all fruit samples. These findings indicate that low-dose gamma irradiation can be successfully applied as a postharvest intervention to enhance storage stability while maintaining aroma-related volatile compounds, nutritional quality, and antioxidant functionality. The study provides further evidence supporting the application of low-dose gamma irradiation as a reliable technology for preserving fruit quality and improving the marketability of fresh fruits.

Biography

Ms. Ratchaneeporn Photinam received her Ph.D. from Mahasarakham University, Thailand. She currently serves as a Nuclear Scientist in the Agriculture and Food Technology Section, Research and Development Center for Nuclear Technology, Thailand Institute of Nuclear Technology (Public Organization), Thailand. Her research focuses on the application of nuclear technology in agriculture and food science, particularly in food quality improvement, food safety, postharvest management, and food preservation. She is actively engaged in developing innovative nuclear science-based approaches to enhance agricultural productivity, strengthen food security, and promote sustainable food preservation systems.

Luis González-Cavieres
Nutrition and Dietetics, Faculty of Health Sciences, Universidad Católica del Maule, Chile

Influence of Different Cutting Orientations on Vacuum Microwave Drying of Potato Slices: Drying Kinetics, Sustainability Parameters, Structural and Bioactive

Abstract

Vacuum microwave drying is a promising approach for food drying; however, several limitations remain underexplored, including the effects of tissue anisotropy on mass-transfer mechanisms, microstructure, sustainability parameters, and drying time. This research evaluated the influence of cutting orientation (longitudinal and transverse) on the vacuum microwave drying of potato slices subjected to three microwave powers (460, 590, and 700 W: 40 kPa) until a final moisture content (1.05% w/w) was reached. Drying kinetics, structural integrity, retention of total polyphenol content, antioxidant capacity, and process sustainability parameters were evaluated. The drying kinetics were best described by the two-term model for samples treated at 700 W ($R^2 > 0.99$). The results showed that the cutting orientation significantly affects moisture removal and the occurrence of structural damage during drying. Longitudinally cut samples showed higher diffusivity ($1.48–3.10 \times 10^{-8}$ m²/s), less structural deformation, and greater preservation of total polyphenols (> 91.72 mg GAE/g d.w.) than cross-cut samples, especially at power levels ≥ 590 W. Texture analysis showed no significant differences in hardness between treatments (< 20 N). The energy parameters revealed that samples processed with a longitudinal cut at 700 W achieved a favorable thermal efficiency (88.95 %), and samples processed at 460 W achieved a favorable energy efficiency (73.11 %), resulting in lower energy consumption and reduced CO_2 emissions. These findings support a promising approach to methodological development based on microwave vacuum drying of potatoes, aimed at preserving product quality and improving energy efficiency.

Biography

Dr. Luis Alberto González Cavieres obtained his PhD in Food Engineering from Universidad del Bío-Bío, Chile, and completed a research stay at the University of Alberta, Canada. He currently serves as an Academic at Universidad Católica del Maule and Universidad del Bío-Bío. Dr. González Cavieres is the Director of the FONDEF innovation project (VIU23P0009) focused on advanced food technologies and was recognized as an Outstanding Entrepreneur in 2025. He has published more than 10 papers in high-impact, reputed scientific journals such as Food Chemistry and Trends in Food Science & Technology and has actively served as an international speaker at major food science conferences worldwide.

Monserrat Toloza Mora
Universidad Católica del Maule

Determination of Optimal conditions for blends of oils rich in bioactive compounds derived from maqui (Aristotelia Chilensis) and país grape (Vitis Vinífera L.), pretreated with ultrasound and solvent extracted

Abstract

The recovery of agro-industrial waste is a key strategy for sustainable development and the circular economy. Grape and maqui pomace are byproducts of the food industry, consisting of skins and seeds, and are rich sources of bioactive compounds and functional vegetable oils; their extraction helps reduce food waste. The objective of this study was to determine the optimal conditions for ultrasonic pretreatment of oil mixtures derived from maqui (Aristotelia chilensis) and País grape (Vitis vinifera L.) pomace through solvent extraction, based on their physicochemical composition, yield, and antioxidant capacity. A simplex-lattice mixture design was used for grape pomace (GP) and maqui pomace (MP) residues in the following proportions: GP 100%, GP 75%:MP 25%, GP 50%:MP 50%, GP 25%:MP 75%, MP 100%. Ultrasonic pretreatment was applied at an effective power of 160–330 W, a frequency of 37 kHz, for 30 minutes at a temperature of 40°C. The solid-to-liquid ratio was 1:10 (g/mL), using water as the sonication medium. Solvent extraction with hexane was then performed. Variables such as yield, total polyphenol content, antioxidant capacity (DPPH, ORAC), color, and quality indices (iodine, acidity, and peroxides) were analyzed in the obtained oils. The mixtures GP 75%:MP 25% and GP 50%: MP 50%, at 330 W/37 kHz, yielded the highest yields (20% and 23%) and best-preserved antioxidant activity, showing DPPH values of (454.56 ± 11.3 and 443.79 ± 11.6 μg TE/mL) compared to the control. Likewise, they exhibited better stability (lower acidity and peroxide indices) and a better colorimetric profile. The

50% GP:50% MP oil blend was the most efficient for obtaining high-quality functional oils with superior antioxidant properties, greater oxidative stability, and potential for application in the food and nutraceutical industries, promoting the sustainable use of food waste.

Biography

Ph.D. candidate at the University of Bío-Bío. Faculty member at the School of Nutrition and Dietetics at the Catholic University of Maule for the past 11 years. With 15 years of professional experience in nutrition and food science. Her research focuses on functional and bioactive foods and the application of emerging technologies in various food matrices.

Khadija Ramzan

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Investigation of the antifungal activity of phenolic compounds extracted from plant sources against Botrytis cinerea on fresh table grapes

Abstract

To manage postharvest disease, it is necessary to develop alternative effective and safe methods. Bioactive compounds extracted from different fruit and vegetables are good sources of phenolic compounds that can effectively inhibit phytopathogenic fungi responsible for postharvest decay. For this reason, the biological activity of phenolic compounds and their application on controlling gray mold caused by Botrytis cinerea on table grapes was studies. The effectiveness of ashberry, white carrots, beetroot, shadbush and pumpkins extracts, extracted from vegetable waste and a commercial formulation of chitosan were tested against B. cinerea on table grape berries cultivar “Italia”. Twenty µl of each substance was applied on artificially wounded berries. Twenty-four h later, wounds were inoculated with twenty µl of a conidial suspension (104 spores per ml) of B. cinerea. The incidence and severity of the disease were analyzed and compared with untreated control. All treatments reduced the disease severity. These findings highlight the potential of the tested substances as a promising natural approach in the prevention of gray mold on table grapes. Further large-scale experiments are needed to confirm the first results.

Biography

My name is Khadija Ramzan, and I am a third-year PhD researcher in Lithuania. Originally from Pakistan, my research focuses on the extraction of natural pigments from

fruit and vegetable by-products and their industrial applications. My work aims to develop sustainable approaches for recovering valuable natural colorants from agricultural waste, contributing to the circular economy and promoting environmentally friendly solutions for the food and related industries. I have actively participated in research and scientific publishing and am committed to advancing sustainable innovations through interdisciplinary research.

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Unlocking the potential of Tilia cordata by modifying it with silver nanoparticles; An insight study into antimicrobial and antioxidant activity

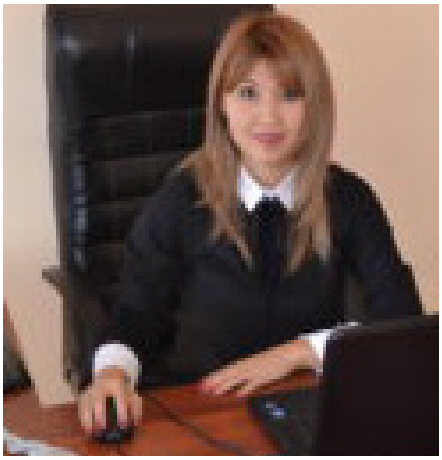
Abstract

This work presents the green synthesis of silver nanoparticles using crude, fermented, and enzymatically modified linden (Tilia cordata) flower and leaf extracts, and thoroughly evaluates their functional properties. Experimental procedures included UV-Vis spectroscopy for nanoparticle confirmation, colorimetric analysis, SEM, TEM, XRD, and FTIR for morphological and chemical characterization, and assessment of total phenolic content. Antibacterial activity was tested against a panel of Gram-positive, Gram-negative bacteria and fungal strains using the agar diffusion method, demonstrating significant enhancement of antimicrobial properties in all AgNPs preparations versus unmodified extracts. Antioxidant capacity for all variants was quantified by CUPRAC, ABTS, and DPPH assays, revealing matrix-dependent changes after processing and nanoparticle formation.

Biography

I am Syeda Hijab Zehra, currently pursuing my Ph.D. at the Lithuanian Research Centre for Agriculture and Forestry (LAMMC), Lithuania. My research interests encompass Chemistry, Materials Science, and Nanotechnology, with a primary focus on the green synthesis of metal nanoparticles and their incorporation into sustainable biopolymer-based nanocomposites for advanced functional applications. My work emphasizes the development and characterization of biodegradable materials with enhanced

physicochemical, mechanical, antioxidant, and antimicrobial properties for sustainable food packaging. Uptill now I have around 15 publication. My researchgate page link is https://www.researchgate.net/profile/Syeda-Hijab-Zehra-2/research. I completed my Master's degree in Environmental Chemistry, which established a strong foundation in analytical and environmental sciences. I am currently in the third year of my doctoral studies. I graduated cum laude with a Bachelor's degree in Environmental Sciences from Bahria University Islamabad Campus (BUIC), Islamabad, Pakistan, reflecting my dedication, perseverance, and commitment to academic excellence and interdisciplinary scientific research.



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Directing the sourdough microbiome with defined lactic acid bacteria–yeast consortia: aroma formation and dough rheology

Abstract

The development of defined microbial starters is a promising route to replace spontaneous fermentation and synthetic improvers in the baking industry. The purpose of our study was to assess the impact of consortia based on lactic acid bacteria (LAB) and yeast isolated from Kazakhstani raw materials on the sourdough microbiome, volatile compound profile, and dough rheology. Three LAB strains (Lacticaseibacillus paracasei LB-27, L. rhamnosus RH-5, L. paracasei LB-319) and two yeast strains (Saccharomyces cerevisiae LVg and A-28g) were studied. Volatile organic compounds (VOCs) were analysed by HS-SPME–GC-MS; the sourdough bacterial community was characterised by 16S rRNA gene amplicon sequencing; and dough rheology was evaluated on the ST-2 structurometer and the AlveoLab analyser. Two consortia were assembled, with optimal cultivation at 35 °C for 1–2 days and an equal inoculation ratio of 1:1:1. Both consortia inhibited bread-spoilage agents, producing the largest inhibition zones against the moulds Penicillium notatum and Aspergillus flavus (up to 30.3 and 19.0 mm, respectively) and against the causative agents of rope spoilage Bacillus mesentericus and B. subtilis. In the consortia the VOC profile combined the metabolites of both components - organic

acids and C4 carbonyl compounds (including diacetyl) contributed by LAB together with higher alcohols (3-methyl-1-butanol, 2-phenylethanol) and esters contributed by the yeast - yielding a complex aroma-forming profile. Metagenomic analysis sh owed that inoculation with the characterised consortia reproducibly directed community assembly toward dominance of the genus Lacticaseibacillus from 18 h of fermentation, bypassing the early Enterobacteriaceae phase typical of spontaneous fermentation. Rheological testing revealed dough softening - a decrease in tenacity (P), deformation energy (W), and the P/L ratio together with an increase in total deformation - more pronounced in wheat than in wheat–rye dough. .

Biography

Lazat B. Umiraliyeva is a Candidate of Technical Sciences and an Associate Professor. She graduated from the Almaty Technological Institute in 1998 and completed her postgraduate studies at the Kazakh Research Institute of Processing and Food Industry (KazRIPFI). She has undertaken international research placements at CIRAD (France), Mendel University (Czech Republic), and the University of Food Technologies in Plovdiv (Bulgaria). She currently serves as Acting Director of the KazRIPFI branch. Her research focuses on food biotechnology, food microbiology, and the processing and preservation of agricultural products. She is the author of 18 patents of the Republic of Kazakhstan, more than 100 scientific publications, and three monographs, and has led national grant-funded research projects since 2015.

Ivan Filatov is a Researcher at the Kazakh Research Institute of Processing and Food Industry (Almaty, Kazakhstan). He graduated in Technology of Processing Industries from the Kazakhstan Engineering and Technological University (2022) and obtained a Master's degree in Biotechnology from the International Engineering and Technological University, Almaty (2024). He is currently a PhD candidate at the International Engineering and Technological University. His research interests lie in food microbiology and biotechnology, including the development of biopreparations for the food industry. For now, he is the author of 15 scientific publications in national and international journals and of 5 patents of the Republic of Kazakhstan.

Soodabeh Einafshar, Parvin Sharayei

Agricultural Engineering Research Department, Khorasan Razavi Agricultural and Natural Resources Research and Education Center, AREEO, Mashhad/ IRAN

Sustainable Modification of Saffron Corm Starch: Assessing the Impact of Thermosonication on Functional and Structural Properties

Abstract

The valorization of agricultural waste, such as saffron corms, into functional food ingredients represents a critical pathway toward sustainable food innovation. This study investigated the efficacy of thermosonication—a clean-label physical modification technique—to enhance the physicochemical, structural, and optical properties of saffron corm starch (SCS). Native saffron corm starch (NSCS) was subjected to ultrasonic treatment using response surface methodology to determine optimal processing conditions. The study identified an optimal treatment protocol of 75% amplitude, 50°C, and 30 minutes.

The resulting thermosonicated saffron corm starch (UHSCS) demonstrated superior functional attributes compared to native starch and exhibited competitive properties when evaluated against commercial pregelatinized starch (CPGS). Specifically, UHSCS demonstrated a marked increase in water solubility, reaching 16.02% compared to the 3.99% observed in NSCS. The swelling power at 90°C was significantly enhanced, rising to 43.94 in UHSCS versus 14.84 in NSCS. Thermal analysis via DSC revealed that the treatment increased gelatinization onset and peak temperatures (67.62°C and 73.73°C, respectively), indicating enhanced thermal stability. Furthermore, UHSCS exhibited improved stability during cold storage, with syneresis values reduced to 5.81% after 120 hours compared to 6.11% for NSCS.

Microstructural analysis using SEM confirmed an increase in surface roughness and

erosion in UHSCS granules, while XRD analysis indicated the retention of a B-type crystalline pattern alongside the formation of a partial V-type crystalline structure, suggesting the development of amylose-lipid complexes. Optically, while lightness (L*) showed distinct changes, the whiteness index (20.24) and chromatic parameters (b* = 19.99) confirm its potential for specific food formulation requirements. These findings highlight that thermosonication effectively modulates the structural and functional properties of saffron corm starch without the need for chemical additives. By creating a starch with improved thermal resistance and solubility, this green technology positions saffron corm waste as a viable, sustainable alternative in the food industry, particularly suitable for applications where structural stability and clean-label status are paramount.

Biography

Dr. Soodabeh Einafshar is a Research Associate Professor at the Agricultural Engineering Research and Education Center in Razavi Khorasan Province, Iran. She holds a Ph.D. in Food Science and Technology from Ferdowsi University of Mashhad (2012). Her research expertise focuses on the processing of saffron and medicinal plants, the extraction and stabilization of natural bioactive compounds and colorants, active food packaging, and the valorization of agricultural and food-processing residues. With a prolific academic record, Dr. Einafshar has authored 62 research articles, 8 books, and holds 3 patents. Her work emphasizes the development of biodegradable active films and sustainable postharvest technologies. She has supervised numerous graduate research projects regarding food safety, phytochemical extraction, and rheological properties of plant-based materials. Currently, her research continues to bridge the gap between agricultural byproduct utilization and functional food innovation.

Parvin Sharayei, Soodabeh Einafshar

Khorasan Razavi Agricultural and Natural Resources Research and Education Center, AREEO, Mashhad/ , IRAN

Development and Application of Saffron Corm Extract and Lignin-Incorporated Starch-CMC Active Films for the Preservation of Pistachio Kernels

Abstract

This study evaluated the efficacy of active starch–carboxymethyl cellulose (CMC) films incorporated with saffron corm extract and lignin for enhancing the safety and shelf life of pistachio kernels. Given the significant post-harvest losses attributed to fungal contamination specifically by aflatoxin-producing species such as Aspergillus parasiticus and Aspergillus flavus and the rapid onset of lipid oxidation, the active films were tested under controlled storage conditions at 30°C for 30 days and compared against conventional polyethylene (PE) packaging. The results indicated that films incorporated with saffron corm extract and lignin significantly outperformed the polyethylene control in suppressing microbial proliferation and oxidative rancidity. Notably, the saffron-based films demonstrated sustained antimicrobial activity throughout the entire 30 day period, whereas the performance of lignin-based films declined after 20 days, a phenomenon attributed to structural surface irregularities. Furthermore, the active films successfully maintained aflatoxin concentrations and lipid oxidation markers specifically peroxide and anisidine values within acceptable safety thresholds, whereas the polyethylene-packaged samples exceeded these limits by the end of the storage period. These findings highlight the potential of saffron corm extract as a promising, eco-friendly natural additive for active packaging, offering a superior alternative to synthetic polymers for preserving the microbiological stability and oxidative quality of high-value nuts.

Biography

Dr. Parvin Sharayei is an Associate Research Professor at the Agricultural Research, Education and Extension Organization (AREEO), Razavi Khorasan Province, Iran. She holds a Ph.D. in Food Science and Technology with a specialization in Food Chemistry from Ferdowsi University of Mashhad, Iran. Her research interests include food chemistry, oils and fats, saffron, nanotechnology, active and biodegradable food packaging, natural antioxidants and antimicrobial compounds, extraction and stabilization of bioactive compounds, and the valorization of agricultural by-products. Dr. Sharayei has authored 78 scientific articles, 19 conference papers, 13 books, 61 research reports, and holds 3 patents. Her recent research has focused on the development of antimicrobial and nanocomposite biodegradable films based on saffron corm starch and natural additives, as well as the extraction, microencapsulation, and stabilization of bioactive compounds from plant sources and agricultural residues. She has contributed extensively to food preservation, oxidative stability of oils, and the development of functional and sustainable food systems.

Randah Miqbil Alqurashi

Department of Food Science and Nutrition, College of Agriculture and Food Sciences, King Faisal University, Al-Ahsa 31982, Saudi Arabia

An Evaluation Study of Consumer Acceptance of Cultured Meat in the Kingdom of Saudi Arabia

Abstract

Cultured meat, also known as lab-grown or cell-based meat, is produced by cultivating animal cells in controlled environments without the need to raise or slaughter animals. It presents a promising alternative to conventional meat, addressing key concerns related to environmental sustainability, animal welfare, and global food security. This study aims to evaluate consumer acceptance of cultured meat in the Kingdom of Saudi Arabia. A total of 466 responses were collected through an online survey targeting adults aged 18 and above residing in Saudi Arabia. The questionnaire consisted of four main sections: (1) Demographic Information, (2) Consumer Preferences, (3) Awareness and Perceptions, and (4) Religious Considerations. The findings revealed that awareness of cultured meat is moderate, with many respondents indicating they had heard of it but lacked a clear understanding of how it is produced. When asked about their willingness to purchase cultured meat—assuming it resembles traditional meat in taste, texture, and price—responses were mixed. While some participants expressed willingness or curiosity, others were hesitant or unwilling to consider it as a food choice. Religious concerns emerged as a significant factor influencing acceptance. A considerable portion of respondents indicated they would be more likely to accept cultured meat if it were certified as halal by official religious authorities. This highlights the critical role of religious validation in shaping consumer behavior in the region. Overall, the results suggest a cautiously open attitude toward cultured meat among Saudi consumers, tempered by concerns about health, naturalness, and religious permissibility. To improve acceptance, efforts should focus on increasing public education about cultured meat and engaging religious institutions to provide guidance on its halal status.

Biography

Dr. Randah Alqurashi is a dynamic academic leader and Associate Professor at King Faisal University. She serves as Vice Dean of the Department of Agriculture and Food Sciences and Head of the Food Sciences and Nutrition Department. With over a decade of experience, she is known for her visionary leadership, commitment to excellence, and ability to inspire teams toward ambitious goals. Dr. Alqurashi excels in fostering collaboration, driving innovation, and building strategic partnerships that connect research with real-world applications. Her leadership emphasizes empowerment, adaptability, and sustainable results. A passionate advocate for food security and sustainability, she uses her expertise to address global challenges through science and technology. Her achievements include a U.S. patent and more than 30 peer-reviewed research publications, underscoring her dedication to advancing knowledge and creating meaningful impact in her field.

Koichiro Watanabe
Network for Action against Malnutrition (NAM)

Impact study of multisectoral nutrition and livelihood interventions among children under the age of five in West Nile, Uganda

Abstract

Food assistance, both cash and in-kind, remains the main source of food and livelihoods for refugees in the settlements in northern Uganda. However, the food assistance has been significantly reduced whereas the current increase in market prices of food items have eroded the purchasing power to access nutritioous food, possing a risk of worsening the food security and nutrition situation among the refugees. Effective preventive multi-sectoral strategies are needed particularly in the area of behavior change for maximizing utilization of locally available foods and enhancing availability and accessibility of nutrition dense foods at household level. However, evidence of the effectiveness and impact of these interventions have been scarce. Most of the evaluation studies have not been with rigorous design. The study aimed to demonstrate the extent to which dietary diversity for women and young children are increased and undernutrition reduced among the intervention versus comparison areas through a 3-armed Randomised Cluster Trial.

The Nutrition Improvement & Livelihood Empowerment (NILE) Project was implemented in refugee settlements and surrounding host communities in Adjumani District to reduce malnutrition and empower communities through sustainable livelihood strategies. After the baseline survey, 50 clusters were assigned to the three project arms: 20 clusters for Arm 1, which received nutrition and SBCC interventions; 10 clusters for Arm 2, which received nutrition, SBCC, and livelihood interventions; and 20 clusters for Arm 3,

which received no intervention. The main data collection method used was a structured questionnaire survey conducted at baseline in January 2024 and at endline in January 2026. Caregivers of 1,167 and 1,163 children aged 0–5 years were sampled through the two-stage cluster sampling during the baseline and endline periods, respectively.

The project demonstrated high levels of effectiveness for target indicators related to IYCF knowledge and practices and access to nutrient-dense foods, with significant positive differences detected between the baseline and endline surveys. Difference-in-difference analysis found a positive and significant impact on household food security, access to women's group activities, and social capital and cohesion. Livelihood and agriculture interventions provided a statistically significant additional positive effect on households producing more than four food groups and on husband support for childcare. The impact on IYCF knowledge and practice was not conclusive, potentially because of the sample size and contamination effects resulting from spill-over. The findings of the study inform the government of Uganda and partners the effectiveness of the programme and to support learning.

Biography

Completed Rural Social Development (MA) at Reading University in the UK in 1994, and Master of Public Health (MPH) with public nutrition concentration at Emory University in the US in 2004. He is Chair of the Board of Network for Action against Malnutrition (NAM). He has consistently worked around the key themes of community-based nutrition in Asia and Africa under protracted emergency contexts. Under global climate change, conflict and insecurity coupled with reduced international aid, food and nutrition security has been facing threats. For most vulnerable population to survive, community engagement and social cohesion are increasingly important to minimize the negative impact of the aid cut and promote self-reliance. Therefore, his research interest is in evidence generation of effective community-based nutrition interventions under protracted emergency context.


THANK YOU!