



International Society for Nutraceuticals and Functional Foods

ISNFF Newsletter

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December, 2025

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MESSAGE FROM THE ISNFF

As the close of 2025, we reflect on a year marked by both significant successes and challenges. We have seen an exciting surge in interest—both scientifically and publicly—regarding the vital role of food for health. ISNFF is proud to remain your respected international forum for knowledge and technology transfer in the functional foods, nutraceuticals and dietary supplements. Our success in navigating this year's challenges is entirely thanks to the unwavering dedication of our members, volunteers, partners, and sponsors. As we look ahead, we extend our warmest best wishes to you and your loved ones for a prosperous and fulfilling 2026, filled with new opportunities for collaboration, good health, and continued success.



The **17th International Conference and Exhibition on Nutraceuticals and Functional Foods** was successfully convened in Ho Chi Minh City, Vietnam, on September 14-17, 2025, co-organized with International University and Vietnam National University. The conference attracted over 250 participants from 27 countries and regions giving 3 plenaries, 93 orals (in 18 concurrent sessions) and 94 poster presentations with a focus on how to use cutting-edge technology and innovative thinking to build a healthy, safe and sustainable food system to meet future needs. We had many interesting discussions and made new friends. Please read further to see ISNFF awardees, and photos from the conference.

Many thanks to conference sponsors and exhibitors. We sincerely appreciate all those who helped with meeting organization and logistics including the volunteers.

Stay tuned, and be sure to renew your membership, as the 2026 conference, the 18th International Conference and Exhibition on Nutraceuticals and Functional Foods has been planned for August 2-6th, 2026, Kuching, Sarawak, Malaysia.

Sincerely,

Dr. Fereidoon Shahidi (Principal Founder and Executive Board Member of ISNFF)
Dr. Jianping Wu (ISNFF Chair)

SCIENTIFIC ARTICLE

Crop domestication and nutritional trade-offs: what are the next steps?

Kaustav Majumder,

Associate Professor, Department of Food Science and Technology
University of Nebraska-Lincoln

If you are in your late thirties or older, you may remember eating a banana full of hard seeds or a watermelon where you spent half the time spitting seeds out. Those seed-heavy fruits are now just stories; in merely three decades, we transitioned to seedless, sweeter, more uniform fruit that is easier to eat, transport, and sell. This small change tells a much bigger story: thousands of years of crop domestication, in which humans selected plants for yield, convenience, and taste, often without realizing what was being traded away within the grain, fruit, or seed.

Crop domestication is the long-term evolutionary and cultural process through which humans have transformed wild plant species into the cultivated crops that support modern agriculture. Over generations, this intentional and unintentional selection has created many domesticated crop varieties with distinctive changes that set them apart from their wild ancestors. Genomic studies of maize, rice, wheat, tomato, and other crops have shown that domestication involved strong selection of a relatively small number of key genes, reshaping plant architecture, reproductive biology, and chemical composition (1, 2). As a result, domestication not only made food production more stable but also supported population growth and established the foundation for complex societies. This development was driven by the urgent needs of the last century, which were particularly pressing at the time. However, this process also reduced genetic diversity and introduced trade-offs, particularly in the chemical composition of food and in levels of macro- and micronutrients and phytochemicals, which can be termed as 'nutritional trade-offs'. These food-derived compounds are critical in modulating beneficial effects on human health. Thus, understanding the patterns of these nutritional trade-offs is vital today to guide next-generation breeding and conservation efforts, as global food systems face new environmental challenges and human society grapples with a burden of chronic diseases.

Traditional germplasm, including landraces and heritage varieties, often appears nutritionally richer than some elite, high-yield cultivars of today's world. For example, pigmented rice landrace varieties are high in protein, fibre, and micronutrients, and have substantially higher concentrations of anthocyanins and other flavonoids than widely grown white rice varieties (3). Similar trends are seen in ancient wheats and some vegetables, where older or less intensively bred types can contain higher levels of minerals and phytochemicals, even if their yields are lower (4–6).

These contrasts suggest that the genetic potential for nutrient-dense crops remains in the broader gene pool; however, those varieties have not been prioritized during breeding efforts in the last century or so. Thus, one school of thought suggests that bringing back these older traits is essential, but it is also argued that not all the compounds lost in varieties are useful or will not remain bioavailable after modern food preparation, processing, and consumption.

On the same note, we also need to keep in mind the potential toxicity or unwanted effects of some of these compounds. In legumes, domestication and improvement tend to reduce diversity and levels of secondary metabolites, such as polyphenols, alkaloids, and saponins, many of which contribute to bitterness or astringency and also have documented bioactivities (7). Therefore, a more tailored approach is necessary for the next agricultural revolution.

Maize offers a clear example of how these trade-offs can play out. Genetic and archaeological evidence indicate that modern maize was domesticated from the wild grass teosinte in Mexico roughly 9,000 years ago, followed by diversification and global spread (1, 8). A small suite of key loci transformed teosinte's many-branched architecture and small, hard-cased seeds into plants with large ears and exposed kernels that are easy to harvest and process (1, 2). Recent work comparing teosinte to modern inbred and hybrid maize lines shows that teosinte can have roughly three times the seed protein content of typical elite maize (9). An ongoing study in our laboratory has found that teosinte kernels contain a higher variety of bioactive metabolites that act as potential antioxidant precursors. In contrast, modern maize and landraces have high levels of digestible sugars. It was also observed that teosinte kernels have an average protein content higher than that of modern maize and landrace kernels. Teosinte lines were enriched with peptides containing hydrophobic and charged amino acids after gastrointestinal digestion, suggesting potential bioactivity. In an in vitro cellular study, teosinte lines demonstrated greater health-beneficial biological effects, and subsequently identified specific genetic loci that may be responsible for the synthesis of certain compounds with observed biological effects. Thus, by uncovering the connections between genetic variation and health-beneficial traits, our research uniquely opens new avenues for breeding strategies that optimize this globally important crop's nutritional value and yield, as well as promote sustainable agriculture. However, further studies involving collaboration among food scientists, plant scientists, quantitative geneticists, and breeders are essential to understand the nutritional trade-offs of these crops.

Acknowledgement: The study on the maize line is supported by a grant from the USDA Agriculture and Food Research Initiative to Drs. Obata T, Majumder K, and Yang J. Project No: NEB-30-135; Title: Elucidating the Health Beneficial Traits of Kernels of Maize Relatives Digested in the Human Gastrointestinal Tract.

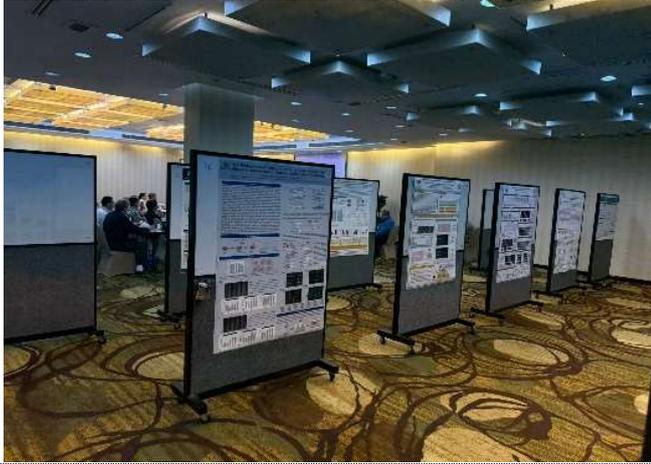
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5. Davis, D. R. (2009). Declining fruit and vegetable nutrient composition: What is the evidence? *HortScience*, 44(1), 15–19.
6. Marles, R. J. (2017). Mineral nutrient composition of vegetables, fruits and grains: The context of reports of apparent historical declines. *Journal of Food Composition and Analysis*, 56, 93–103.
7. Ku, Y.-S., et al. (2020). The effects of domestication on secondary metabolite composition in legumes. *Frontiers in Genetics*, 11, 581357.
8. Haliński, Ł. P., et al. (2019). Impact of plant domestication on selected nutrient and anti-nutrient compounds in Solanaceae with edible leaves. *Genetic Resources and Crop Evolution*, 66, 1235–1249.
9. Huang, Y., et al. (2022). THP9 enhances seed protein content and nitrogen-use efficiency in maize. *Nature*, 612, 123–129.

ISNFF 2025 RECAP

Recap of Scientific Sessions held at ISNFF 2025



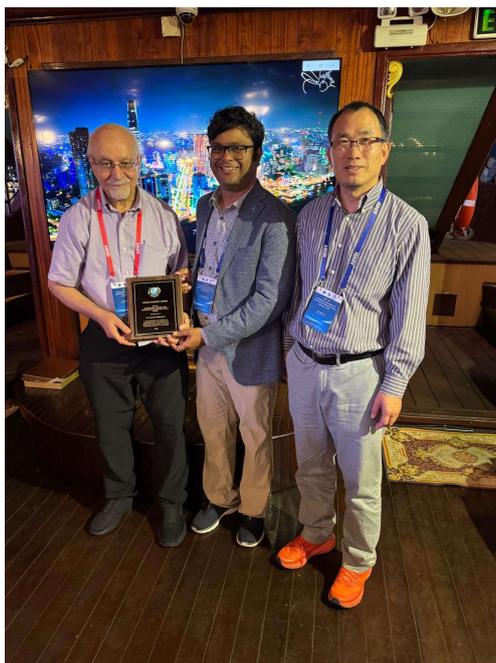


CONGRATULATIONS TO ISNFF 2025 AWARDEES

Dr. You-Jin Jeon received the **ISNFF Merit Award** for his outstanding contributions to the field of functional foods and service to the ISNFF.



Dr. Kaustav Majumder was the recipient of the **ISNFF Young Scientist Award**.



The **ISNFF Fellow Award** is a unique professional distinction conferred only on a living person with outstanding and extraordinary qualifications and experience for overall contributions in the field of functional foods and nutraceuticals. We congratulate the awardees of this year:

Dr. Jerzy Zawistowski



Dr. Hanny C. Wijaya



Industry/Institution Merit Award Recipient

Wilmar International, China



Fereidoon SHAHIDI Fellowship Award

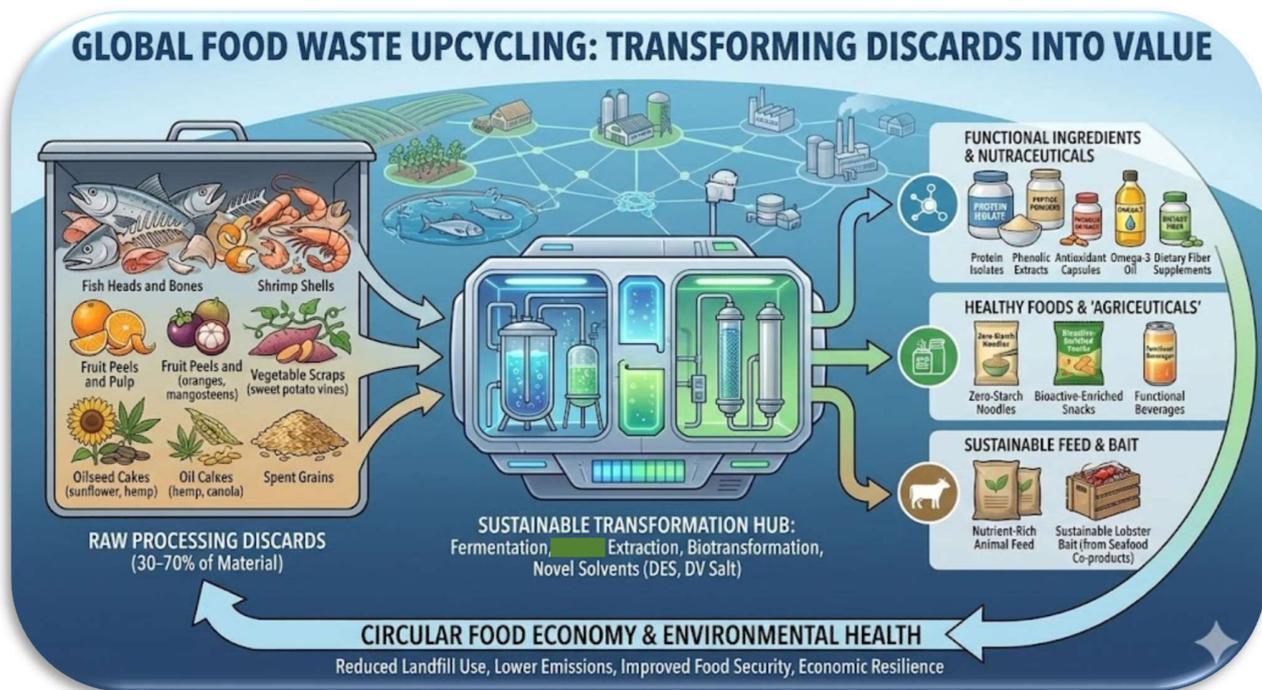
Sarusha Santhiravel



IAFoST AND ISNFF JOINT SESSION



The IAFoST and ISNFF Joint Session on “**Upcycling and Zero Waste Processing of Food**” was organized by Dr. Cesarettin Alasalvar and Dr. Fereidoon Shahidi. The event featured two sessions with 12 speakers. Experts from Australia, Canada, China, Japan, Singapore, the UK, and Türkiye presented global opportunities and challenges in advancing upcycling practices. Ranging from agricultural and food-processing coproducts to marine resources, the presentations highlighted how these approaches can drive sustainability and innovation across the food sector.



THANKS TO ISNFF 2025 SPONSORS

Many thanks to the sponsors and exhibitors at the 2025 ISNFF Conference & Exhibition.

Almond Board of California (USA)	
Amway	
IUFoST	
Food Production Processing and Nutrition Journal JAAS and FPPN	
Journal of Food Bioactives Official Journal of ISNFF and IUFoST	

ISNFF 2026 CONFERENCE INFORMATION

The 2026 (18th) International Conference and Exhibition on Nutraceuticals and Functional Foods will be held in KUCHING, SARAWAK, MALAYSIA, on **August 2-6, 2026**, co-organized by Congress on Sustainable Agriculture and Food Security (COSAFS).

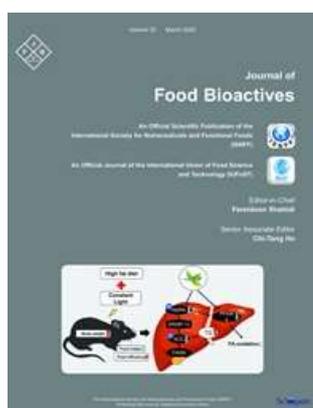
The organizing committee warmly invites participants from academia, industry, and regulatory agencies to join this exceptional opportunity for networking, collaboration, and scientific exchange.

For detailed information about the congress (important dates, registration, congress topics, organizers, committees, and how to get Kuching-Malaysia, etc.), please visit the ISNFF website (<https://www.isnff.org/en/>).



UPDATES ON SOCIETY JOURNALS

The Journal of Food Bioactives (JFB), a dedicated publication of ISNFF, was launched in 2018 and completed another successful year having published 3 volumes (29-31; please see isnff-jfb.com) in 2025. Please note that papers presented during ISNFF Conference and Exhibition may be submitted for publication consideration to the Journal of Food Bioactives <isnff-jfb.com>. To review the published manuscripts please refer to the journal website.



UPCOMING NUTRACEUTICALS AND FUNCTIONAL FOODS EVENTS

2026

March 2026

22-26; American Chemical Society Spring 2026; Atlanta, GA, USA

June 2026

1-5; 6th International Conference on Conference on Food Bioactives and Health, Murcia, Spain

July 2026

12-15; IFT FIRST Annual Meeting and Food Expo, Chicago, Illinois, USA

August 2025

2-6; the 2026 (18th) International Conference and Exhibition on Nutraceuticals and Functional Foods; Kuching, Sarawak, Malaysia

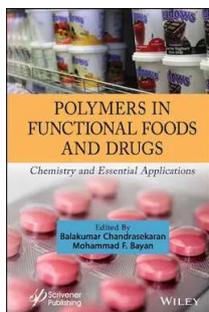
23-27; American Chemical Society Fall 2026 Meeting; Chicago, IL, USA

October 2026

13-17; the 12th International Conference on Polyphenols and health, ICPH and the 9th International Conference on Food Factors, ICoFF, PACIFICO Yokohama, Yohohama, Japan

25-29; 23rd World Congress of Food Science and Technology; Kaohsiung, Taiwan

NEW TITLES

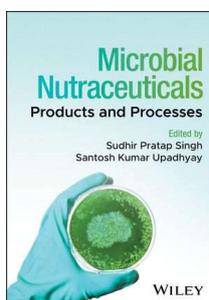


Polymers in Functional Foods and Drugs: Chemistry and Essential Applications

Publication Date: October, 2025

Editors: Balakumar Chandrasekaran, Mohammad F. Bayan

Publisher: Wiley

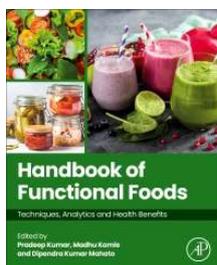


Microbial Nutraceuticals: Products and Processes

Publication Date: July, 2025

Editors: Sudhir Pratap Singh, Santosh Kumar Upadhyay

Publisher: Wiley

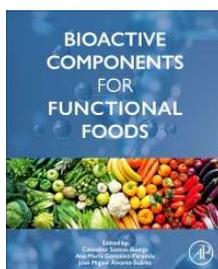


Handbook of Functional Foods: Techniques, Analytics and Health Benefits

Publication Date: February 2, 2026

Editors: Pradeep Kumar, Madhu Kamle, Dipendra Kumar Mahato

Publisher: Elsevier



Bioactive Components for Functional Foods

Publication Date: October 28, 2025

Editors: Celestino Santos-Buelga, Ana María González-Paramás, José Miguel Álvarez-Suárez

Publisher: Elsevier

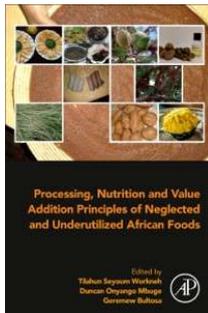


Exploring Health Benefits of Phenolic Compounds in Food By-Products and Functional Foods

Publication Date: July 1, 2025

Editors: Abdur Rauf, Giovanni Ribaudo

Publisher: Elsevier

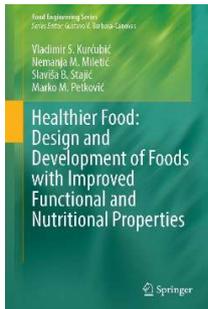


Processing, Nutrition and Value Addition Principles of Neglected and Underutilized African Foods

Publication Date: January 23, 2026

Editors: Tilahun Seyoum Workneh, Duncan Onyango Mbuge, Geremew Bultosa

Publisher: Elsevier

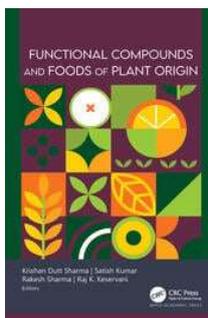


Healthier Food: Design and Development of Foods with Improved Functional and Nutritional Properties

Publication Date: August 10, 2025

Editors: Vladimir S. Kurćubić, Nemanja M. Miletić, Slaviša B. Stajić, Marko M. Petković

Publisher: Springer Cham

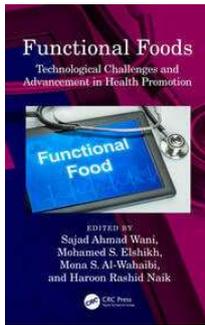


Functional Compounds and Foods of Plant Origin

Publication Date: July 15, 2025

Editors: Krishan Dutt Sharma, Satish Kumar, Rakesh Sharma, Raj K. Keservani

Publisher: Taylor & Francis

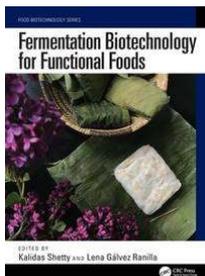


Functional Foods: Technological Challenges and Advancement in Health Promotion

Publication Date: June 26, 2025

Editors: Sajad Ahmad Wani, Mohamed S. Elshikh, Mona S. Al-Wahaibi, Haroon Rashid Naik

Publisher: CRC Press

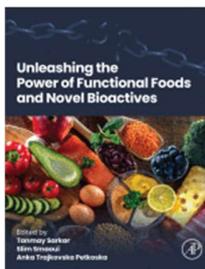


Fermentation Biotechnology For Functional Foods

Publication Date: 2025

Editors: Kalidas Shetty and Lena Gálvez Ranilla

Publisher: Taylor & Francis Np Exclusive(Cbs)

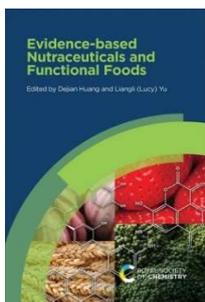


Unleashing the Power of Functional Foods and Novel Bioactives

Publication Date: January 29, 2025

Editors: Tanmay Sarkar, Slim Smaoui and Anka Trajkovska Petkoska

Publisher: Elsevier



Evidence-based Nutraceuticals and Functional Foods

Publication Date: May 2, 2025

Editors: Dejian Huang and Liangli (Lucy) Yu

Publisher: Royal Society of Chemistry



MEMBERSHIP APPLICATION FORM FOR 2026

Last Name: _____ First Name: _____	
Membership #: ISNFF-	
Company / Institution / University:	
Address:	
Telephone: ()	Fax: ()
Email address:	

New Membership	<input type="checkbox"/>
Renewal	<input type="checkbox"/>
Cancel Membership	<input type="checkbox"/>
Member	\$95 <input type="checkbox"/>
Student Member	\$45 <input type="checkbox"/>
Corporate Member	\$2,000 <input type="checkbox"/>
Corporate Member (Renewal)	\$500 <input type="checkbox"/>
Affiliate and Chapter Member	\$2,000 <input type="checkbox"/>

Payment Method:	
Money Order:	<input type="checkbox"/>
Credit Card: VISA <input type="checkbox"/> MASTERCARD <input type="checkbox"/>	
Credit Card #:	_____
Card Holder:	_____
CVV:	_____
Expiry Date:	_____

Please complete form and return to:

ISNFF, P.O. Box 29095, 12 Gleneyre Street, St. John's, NL, A1A 5B5 Canada
Or scan and forward by Email: ISNFFsecretary@gmail.com

A TRIBUTE TO ASSOCIATE PROFESSOR GEORGE ARMSTRONG CAVENDER

Clemson University, Clemson, US

George Armstrong Cavender, Food Scientist and Associate Professor of Food, Nutrition, and Packaging Science Department of Clemson University, Clemson, US, passed away on December 2, 2025 surrounded by his family.



Dr. George Armstrong Cavender served as an Associate Professor of Food Engineering in the Department of Food, Nutrition, and Packaging Sciences at Clemson University. He is a certified food scientist whose research focuses on novel food processing technologies and the sustainable use of food by-products. Dr. Cavender received both his Bachelor of Science in Biological Engineering (2004) and his Doctor of Philosophy in Food Science (2011) from the University of Georgia. He previously worked as a Research Assistant Professor at the University of Nebraska, Lincoln, focusing on ingredient modification and food coatings. He also held an Assistant Professor position at Lincoln University in Missouri from September 2020 to July 2021. He joined the faculty at Clemson University and was recently promoted to Associate Professor, a position he has held since July 2021.

He is a recognized expert in food processing, quality measurement, sensory science, and food engineering. Dr. Cavender's research interests are:

- Effects of processing on Food Safety and Quality
- High Pressure Processing for improved safety, quality and functionality
- Sensory and instrumental evaluation of foods
- Valorization of food byproducts/ waste streams

Professor Cavender was a valuable member of ISNFF since 2012 and helped the society each year during our conferences. Our prayers go to his wife, Kelli, and the rest of his family. May the family find comfort in the excellent work that George did while alive.