

ISSN 2331-513X

Volume 13 Number 4 2025



# *Food Science and Technology*

*<http://www.hrpub.org>*

**Horizon Research Publishing, USA**



## Food Science and Technology

Food Science and Technology is an international peer-reviewed journal that publishes original and high-quality research papers in all areas of food science. As an important academic exchange platform, scientists and researchers can know the most up-to-date academic trends and seek valuable primary sources for reference. The subject areas include, but are not limited to the following fields: dietetics and nutrition, genetically engineered foods, food security and sustainability, food chemistry, food engineering, food preservation and storage, food microbiology, diet and health, food materials science, food processing, food rheology, food safety/ hygiene, food and environment, food marketing, food analysis, food and beverage sciences, complementary food.

## General Inquires

Publish with HRPUB, learn about our policies, submission guidelines etc.

Email: [editor@hrpub.org](mailto:editor@hrpub.org)

Tel: +1-626-626-7940

## Subscriptions (Electronic Version Only)

**Journal Title:** Food Science and Technology

**Journal's Homepage:** [http://www.hrpub.org/journals/jour\\_info.php?id=11](http://www.hrpub.org/journals/jour_info.php?id=11)

**Publisher:** Horizon Research Publishing Co., Ltd

**Publication Frequency:** quarterly

**Electronic Version:** freely online available at [http://www.hrpub.org/journals/jour\\_info.php?id=11](http://www.hrpub.org/journals/jour_info.php?id=11)

## Online Submission

Manuscripts should be submitted by Online Manuscript Tracking System (<http://www.hrpub.org/submission.php>).

If you are experiencing difficulties during the submission process, please feel free to contact the editor at [submission@hrpub.org](mailto:submission@hrpub.org).

## Copyright

Authors retains all copyright interest or it is retained by other copyright holder, as appropriate and agrees that the manuscript remains permanently open access in HRPUB 's site under the terms of the Creative Commons Attribution International License (CC-BY or CC-BY-NC). HRPUB shall have the right to use and archive the content for the purpose of creating a record and may reformat or paraphrase to benefit the display of the record.

## Creative Commons Attribution License (CC-BY or CC-BY-NC)

All articles published by HRPUB will be distributed under the terms and conditions of the Creative Commons Attribution License (CC-BY or CC-BY-NC). So anyone is allowed to copy, distribute, and transmit the article on condition that the original article and source is correctly cited.

## Open Access

Open access is the practice of providing unrestricted access to peer-reviewed academic journal articles via the internet. It is also increasingly being provided to scholarly monographs and book chapters. All original research papers published by HRPUB are available freely and permanently accessible online immediately after publication. Readers are free to copy and distribute the contribution under creative commons attribution-non commercial licence. Authors can benefit from the open access publication model a lot from the following aspects:

- High Availability and High Visibility-free and unlimited accessibility of the publication over the internet without any restrictions;
- Rigorous peer review of research papers----Fast, high-quality double blind peer review;
- Faster publication with less cost----Papers published on the internet without any subscription charge;
- Higher Citation----open access publications are more frequently cited.

# Food Science and Technology

---

## Editor-in-Chief

Prof. Ryszard Amarowicz Polish Academy of Sciences, Poland

## Deputy Editor-in-Chief

Prof. Michaela Dina Stanescu Politehnica University, Romania  
Dr. Hamdy Abdel-Hady Zahran Department of Fats and Oils, National Research Centre, Egypt  
Dr. Sofia Agriopoulou University of the Peloponnese, Greece  
Dr. Despina Tsipi General Chemical State Laboratory, Greece

## Members of Editorial Board

Prof. Elena Sorrentino Department of Agriculture Environment and Food, University of Molise, Italy  
Prof. Luciano Cinquanta University of Molise, Italy  
Prof. Eduardo Hernández Technical University of Catalonia, Spain  
Prof. Mustafa Ardiç Department of Food Engineering, Aksaray University, Turkey  
Prof. Jasmine Lukinac Josip Juraj Strossmayer University of Osijek, Croatia  
Prof. Hatice Ögütü Ahi Evran University, Turkey  
Dr. Maria Lisa Clodoveo University of Bari Aldo Moro, Italy  
Dr. Aldo Todaro University of Palermo, Italy  
Dr. Seyed Mehdi Nassiri Department of Agricultural Engineering, Shiraz University, Iran  
Dr. Diego Planeta University of Palermo, Italy  
Dr. Joana Amaral Polytechnic Institute of Bragança, Portugal  
Dr. Rakesh Jaiswal Jacobs University Bremen, Germany  
Dr. Ajay Desai College of Fisheries Science, India  
Dr. Miguel Vilas-Boas Mountain Research Center/ Polytechnic Institute of Bragança, Portugal  
Dr. Valeria Righi University of Bologna, Italy  
Dr. Hamid El Bilali Mediterranean Agronomic Institute of Bari, Italy  
Dr. Rinaldo Botondi University of Tuscia, Italy  
Dr. Maria Hayes Teagasc Food Research Centre, Ireland  
Dr. Rosa Palmeri University of Catania, Italy  
Dr. Juan Antonio Giménez Bastida Polish Academy of Science, Poland  
Dr. John Marchello University of Arizona, USA  
Dr. Ruth S. Macdonald R. D. Iowa State University, USA  
Dr. Asmaa Fathi Moustafa Hamouda Jazan University, Saudi Arabia  
Dr. Aslı Ayar Uçar Ankara University, Turkey  
Dr. Julieta Domínguez Soberanes Panamerican University, Mexico  
Dr. Sevasti Matsia Aristotle University of Thessaloniki, Greece  
Dr. Nurul Ain binti Azizan University of Nottingham Malaysia, Malaysia  
Assoc. Prof. Stoin Daniela Banat University of Agricultural Sciences and Veterinary Medicine of Timișoara, Romania  
Assoc. Prof. Laura Stan University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca, Romania  
Assoc. Prof. Yohanes Kristianto Health Polytechnic of the Ministry of Health Malang, Indonesia  
Dr. Teresa Gladys Cerón Carrillo Benemérita Universidad Autónoma de Puebla, Mexico

ISSN 2331-513X

# Table of Contents

## Food Science and Technology

Volume 13 Number 4 2025

**Effects of Foil Pouch and PET Jar on the Storage Properties of Spray-Dried *Kelulut* Honey Powder**

(<https://www.doi.org/10.13189/fst.2025.130401>)

Jacqueline-Hui-Wen Wa, Siew-Ling Hii, Chen-Chung Koh, Suzy Rini Gindi .....309

**Physico-Chemical and Chromatographic Study of Unrefined Palm Oil in the Yamoussoukro Area (Côte d'Ivoire): Functional and Nutritional Potential**

(<https://www.doi.org/10.13189/fst.2025.130402>)

Medy Camille Nongbe, Emmanuel Aya Diane Boudouin Dibi, Souleymane Bamba, Mawa Kone, Linda Ekou, Tchiroua Ekou, Yao Kouassi Benjamin .....323



# *Food Science and Technology*

## Call for Papers

Food Science and Technology is an international peer-reviewed journal that publishes original and high-quality research papers in all areas of food science. As an important academic exchange platform, scientists and researchers can know the most up-to-date academic trends and seek valuable primary sources for reference.

### Aims & Scope

- Dietetics and Nutrition
- Genetically Engineered Foods
- Food Security and Sustainability
- Food Chemistry
- Food Engineering
- Food Preservation and Storage
- Food Microbiology
- Diet and Health
- Food Materials Science
- Food Processing
- Food Rheology
- Food Safety/ Hygiene
- Food and Environment
- Food Marketing
- Food Analysis
- Food and Beverage Sciences
- Complementary Food

### Manuscripts Submission

Manuscripts to be considered for publication have to be submitted by Online Manuscript Tracking System(<http://www.hrpub.org/submission.php>). If you are experiencing difficulties during the submission process, please feel free to contact the editor at [submission@hrpub.org](mailto:submission@hrpub.org).

Submit your paper at [http://www.hrpub.org/journals/jour\\_submitmanuscript.php?id=11](http://www.hrpub.org/journals/jour_submitmanuscript.php?id=11)

Available Online [http://www.hrpub.org/journals/jour\\_info.php?id=11](http://www.hrpub.org/journals/jour_info.php?id=11)



## Contact Us

Horizon Research Publishing  
2880 ZANKER RD STE 203  
SAN JOSE, CA 95134  
USA  
Email: [editor@hrpub.org](mailto:editor@hrpub.org)

Submit your paper at [http://www.hrpub.org/journals/jour\\_submitmanuscript.php?id=11](http://www.hrpub.org/journals/jour_submitmanuscript.php?id=11)

Available Online [http://www.hrpub.org/journals/jour\\_info.php?id=11](http://www.hrpub.org/journals/jour_info.php?id=11)

**Horizon Research Publishing**

<http://www.hrpub.org>