**DESCRIPTION**

We are pleased to announce that *Food Research International* has been accepted in MEDLINE as of March 7th, 2017.

*Food Research International* provides a forum for the rapid dissemination of significant novel and high impact research in food science, technology, engineering and nutrition. The journal only publishes novel, high quality and high impact review papers, original research papers and letters to the editors, in the various disciplines encompassing the science and technology of food. It is journal policy to publish special issues on topical and emergent subjects of food research or food research-related areas. Special issues of selected, peer-reviewed papers from scientific meetings, workshops, conferences on the science, technology and engineering of foods will be also published.

*Food Research International* is the successor to the Canadian Institute of Food Science and Technology Journal. Building on the quality and strengths of its predecessor, *Food Research International* has been developed to create a truly international forum for the communication of research in *food science*.

Topics covered by the journal include: food chemistry, food microbiology and safety, microbiome, food toxicology, materials science of foods, food engineering, physical properties of foods, sensory science, food quality, health and nutrition, food biophysics, analysis of foods, food nanotechnology, emerging technologies.

Subjects that **will not** be considered for publication in *Food Research International*, and will be rejected as being outside of scope, include:

- Studies testing different formulations and ingredients leading to the choice of the best formulation or ingredient to be used in the manufacture of a specified food;
- Optimization studies aiming to determine processing conditions and/or raw materials that increase the yield of a production process or improve nutritional and sensorial qualities;
- Studies describing the production of ingredients and only their characterization without a strong mechanistic emphasis;
- Studies describing the biological activity of foods lacking identification of the compounds responsible for the reported activity will not be published. This is also valid for any other chemical compounds such as phytochemicals and minor components of foods. Compounds of interest need to be characterized at least by mass spectrometry-based methods.
- Studies that do not clearly prove the relationship between the structure of the compounds and their activity; Fingerprinting studies lacking molecular insights and validation sets;
- Studies on antimicrobial compounds that do not consider a validation step in foods, lacking full data on chemical composition indicating the compounds responsible for the inhibitory activity and, when appropriate, the use of molecular biology approaches to support the findings;
- Development
of analytical methods not comprising a validation step in situ that represent the range of conditions faced during their application will not be considered; Surveys of chemical, nutritional, physical and microbiological hazards will not be considered. Only papers presenting a significant data set, wide coverage, novel and supported by adequate chemical or microbiological techniques will be considered; Pharmacology and nutritional studies papers focusing in hosts rather than in foods. Pharmacology and nutritional studies that do not contain bioavailability or biofunctionality. Engineering studies lacking of mathematical verification or validation in situ, when appropriate; Fragmented studies, of low scientific quality, or poorly written. Studies with no food component.

**IMPACT FACTOR**

2018: 3.579 © Clarivate Analytics Journal Citation Reports 2019

**ABSTRACTING AND INDEXING**

CAB International
EMBiology
AGRICOLA
BIOSIS Citation Index
Elsevier BIOBASE
FSTA (Food Science and Technology Abstracts)
International Packaging Abstracts
Science Citation Index
Publications in Food Microbiology
Index to Scientific Reviews
Current Packaging Abstracts
Chemical Abstracts
Current Contents - Agriculture, Biology & Environmental Sciences
Scopus
PubMed/Medline

**EDITORIAL BOARD**

*Editor-in-Chief*
A. Sant’Ana, State University of Campinas Faculty of Food Engineering, Campinas, São Paulo, Brazil

*Associate Editors*

Emerging Technologies
F.J. Barba, University of Valencia Faculty of Pharmacy, Burjassot, Spain

Food Chemistry and Analysis
V. Gökmen, Hacettepe University, Ankara, Turkey

Food Engineering and Materials Science of Foods
P. E. D. Augusto, University of Sao Paulo Department of Agribusiness Food and Nutrition, PIRACICABA, Brazil

Food Microbiology, Safety and Quality
V.P. Valdramidis, University of Malta, Msida, Malta

Food Omics
A. Bordoni, University of Bologna Department of Agri-Food Sciences and Technologies, Bologna, Italy

Food Toxicology
B. De Meulenaer, Ghent University, Gent, Belgium

Microbiome
F. De Filippis, University of Naples Federico II, Naples, Italy

Nutrigenomics
A. Mackie, University of Leeds, Leeds, United Kingdom
Sensory Aspects of Foods

G. Ares, University of the Republic Polo Technological Institute of Pando, Pando, Canelones, Uruguay

Review Editor

J.M. Lorenzo, Meat Technological Centre, Ourense, Spain

Editorial Board Members

H. G. Akillioglu, Hacettepe University, Ankara, Turkey
G. Alencikeiene, Kaunas University of Technology, Kaunas, Lithuania
A. Altunkaya, Republic of Turkey Ministry of Food Agriculture and Livestock, Ankara, Turkey
A. Alvarez-Ordóñez, Teagasc Food Research Centre Moorepark, Cork, Ireland
E. Alvarez Parrilla, Universidad Autónoma de Ciudad Juárez, Departamento de Ciencias Químico Biológicas, Ciudad Juárez, Chihuahua, Mexico
P. Andrade, University of Porto, Porto, Portugal
V. Arul, Pondicherry University, Puducherry, India
J.F. Ayala-Zavala, Center for Food Research and Development Emerging Technologies Laboratory, Hermosillo, Sonora, Mexico
O. Aydin, Karadeniz Technical University, Trabzon, Turkey
J. Banas, University of Agriculture in Krakow, Krakow, Poland
N. P. Bandara, Dalhousie University Department of Plant Food and Environmental Sciences, Truro, Nova Scotia, Canada
H. Bi, Northwest Institute of Plateau Biology Chinese Academy of Sciences, Xining, China
S. Bogusz, University of Sao Paulo Institute of Chemistry of Sao Carlos, SAO CARLOS, Brazil
N. Bragagnolo, State University of Campinas, CAMPINAS, Brazil
M. G. L. Brandao, University of Minas Gerais, Belo Horizonte, Brazil
V. Cadavez, Mountain Research Center, Braganca, Portugal
L. Cal, MGP Ingredients Inc, Atchison, Kansas, United States
M. Castilhos, Sao Paulo State University Julio de Mesquita Filho Department of Food Engineering and Technology, SAO JOSE DO RIO PRETO, Brazil
M. A. Cerqueira, International Iberian Nanotechnology Laboratory, Braga, Portugal
M. V. L. Chandra-Hioe, University of New South Wales, Sydney, New South Wales, Australia
S. K. Chang, South China Botanical Garden, Guangzhou, China
B. Chen, North Dakota State University, Fargo, North Dakota, United States
L. Chen, Guangdong University of Technology - University Town Campus, Guangzhou, China
A. Y. Chulayo, Dohne Agricultural Development Institute, Stutterheim, South Africa
F. Y. Chye, Universiti Malaysia Sabah Faculty of Food Science and Nutrition, Kota Kinabalu, Malaysia
A. Cilla, University of Valencia, Valencia, Spain
L. Cocolin, University of Turin Department of Agriculture Forestry and Food, Torino, Italy
G. G. Codina, #tefan cel Mare University of Suceava, Suceava, Romania
F. J. Contesini, State University of Campinas, CAMPINAS, Brazil
A. R. L. Costa, Federal University of Minas Gerais, Belo Horizonte, Brazil
C. DINCER, Akdeniz University, Antalya, Turkey
J. B. Daleprane, Rio de Janeiro State University, RIO DE JANEIRO, Brazil
A. Del Caro, University of Sassari, Sassari, Italy
M. A. Del Nobile, University of Foggia, Foggia, Italy
D.R. Dias, Federal University of Lavras, LAVRAS, Brazil
F. Ding, Qingdao Agricultural University, Qingdao, China
E. Doğan Cömert, Hacettepe University, Ankara, Turkey
O. Duman, Akdeniz University, Antalya, Turkey
A. F. El Sheikha, McMaster University, Hamilton, Ontario, Canada
G. Fan, Nanjing Forestry University College of Light Industry and Food Engineering, Nanjing, China
X. Feng, San Jose State University Department of Nutrition Food Science and Packaging, San Jose, California, United States
V. Fernandez-Ruiz, Complutense University of Madrid, Madrid, Spain
I. Ferrocino, University of Turin, Torino, Italy
S. Fiszman, Institute of Agrochemistry and Food Technology Research Department on Food Conservation and Quality, Valencia, Spain
A. C. Freitas, Centre of Biotechnology and Fine Chemistry, Porto, Portugal
V. de Freitas, University of Porto, Porto, Portugal
C. M. Galanakis, Galanakis Laboratories, Chania, Greece
J. A. Gallegos Infante, Institute Tecnology of Durango, Durango, Dgo, Mexico
E. D. Giaouris, University of the Aegean, Food Science and Nutrition, Lemnos, Greece
M. Giordano, University of Turin, Torino, Italy
A. Giri, EU Science Hub, Geel, Belgium
S. Gizachew Wubshet, Nofima AS As, Ås, Norway
A. Gomes da Cruz, Rio de Janeiro Federal Institute of Education Science and Technology, Rio de Janeiro, Brazil
C. Gomez-Corona, Firmenich de Mexico, Mexico City, Mexico
N. Goncuoglu, Hacettepe University, Ankara, Turkey
U.A. Gonzales-Barron, Mountain Research Center, Braganca, Portugal
S. Gorinstein, Hebrew University of Jerusalem, Jerusalem, Israel
L. Goya, Institute of Science and Technology Food and Nutrition, Madrid, Spain
D. Granato, State University of Ponta Grossa Department of Food Engineering, PONTA GROSSA, Brazil
A. H.S, University of Mysore Department of Biotechnology, Mysore, India
A. Hamzaloglu, Hacettepe University, Ankara, Turkey
L. He, University of Massachusetts Amherst Department of Food Science, Amherst, Massachusetts, United States
I. Hermosín-Gutiérrez, University of Castilla-La Mancha, Ciudad Real, Spain
E. Hassan Ali, UNIVERSITY OF ARKANSAS FOR MEDICAL SCIENCES, Little Rock, Arkansas, United States
S. Z. Iqbal, Government College University Faisalabad, Faisalabad, Pakistan
G. Izli, Bursa Technical University, Bursa, Turkey
M.E. Jaramillo-Flores, National School of Biological Sciences
S. Kamiloglu, Mevsm Foods and Cold Storage Inc, Bursa, Turkey
P. Kandylis, University of Patras Department of Chemistry, Patras, Greece
M. Kicil-Akyilmaz, Istanbul Technical University, Istanbul, Turkey
V. Kontogiorgos, University of Huddersfield Department of Biological Sciences, Huddersfield, United Kingdom
H. Koolen, University of Amazonas State, MANAUS, Brazil
J. Li, Nutraceutical Corp, Park City, Utah, United States
A.G. Marangoni, University of Guelph Department of Food Science, Guelph, Ontario, Canada
L.R.B Mariotti, State University of Campinas, CAMPINAS, Brazil
J. McCallum, Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada
I. G. Medina-Meza, Michigan State University, East Lansing, Michigan, United States
L. Melo, Federal University of Rio de Janeiro, RIO DE JANEIRO, Brazil
A.Z. Mercadante, State University of Campinas, CAMPINAS, Brazil
D. Mercer, University of Guelph Kemptville Campus, Kemptville, Ontario, Canada
A. Mishra, The University of Georgia, Athens, Georgia, United States
B. B. Misra, Wake Forest University School of Medicine, Winston-Salem, North Carolina, United States
S. Mieleko, University of Life Sciences in Lublin, Lublin, Poland
M. Moutou, University of Sao Paulo, Sao Paulo, Brazil
A. Mousavi Khaneghah, State University of Campinas, CAMPINAS, Brazil
Y. Mrabet, National Institute of Research and Physico-Chemical Analysis, Sidi Thabet, Tunisia
V. Muchenje, University of Fort Hare, Alice, RSA
K. A. Omar, Zanzibar Food and Drug Agency, Zanzibar, Tanzania, United Republic of
M. Oroian, #tefan cel Mare University of Suceava, Suceava, Romania
E. H. Papaioannou, Lancaster University, Lancaster, United Kingdom
M.T. Pedrosa Silva Clerici, State University of Campinas, CAMPINAS, Brazil
J. Pérez-Jiménez, Institute of Science and Technology Food and Nutrition, Madrid, Spain
F. Pérez-Rodríguez, University of Cordoba, Cordoba, Spain
V.I. Petropoulos, Goce Delcev University Faculty of Agriculture, Štip, Macedonia, the former Yugoslav Republic of
G. Petzold, University of Bio-Bio - Chillan Campus, Chillan, Chile
G. Picariello, Institute of Food Sciences National Research Council, Avellino, Italy
F. Pinu, New Zealand Institute for Plant and Food Research Ltd, Auckland, New Zealand
P. Putnik, University of Zagreb Department of Food Engineering, Zagreb, Croatia
C. S. Ranadheera, University of Melbourne School of Agriculture and Food, Melbourne, Victoria, Australia
H. Rodrigues, State University of Campinas, CAMPINAS, Brazil
S. Rohn, University of Hamburg, Hamburg, Germany
D.W. Schaffner, Rutgers The State University of New Jersey, New Brunswick, New Jersey, United States
S. Sforza, University of Parma, Parma, Italy
S. Silbir, Igdir University, Igdir, Turkey
H. Singh, Massey University, Riddet Institute, Palmerston North, New Zealand
P. Sirisomboon, King Mongkut's Institute of Technology Ladkrabang - Chao Khun Tanh Ladkrabang Campus, Bangkok, Thailand
U. Sonesson, Swedish Institute for Food and Biotechnology, Göteborg, Sweden
W. Sun, South China University of Technology, Guangzhou, China
C.H Tang, South China University of Technology School of Food Science and Engineering, Guangzhou, China
I. Techkiengkrai, Ramkhamhaeng University, Bangkok, Thailand
Z. Tang, University of Maryland at College Park, Baltimore, Maryland, United States
G. C. Tenere, University of Naples Federico II, Naples, Italy
R.V. Tikekar, University of Naples Federico II, Naples, Italy
R. Tofalo, University of Teramo, Teramo, Italy
A. D. Troise, University of Naples Federico II, Naples, Italy
E. Troncoso Ahués, Metropolitan Technological University, Santiago, Chile
U. Utra, Science University of Malaysia School of Industrial Technology, Penang, Malaysia
P. Valentão, University of Porto, Porto, Portugal
D. Valentín, University of Burgundy, Dijon, France
M. Viuda-Martos, Miguel Hernandez University of Elche Agro-Food Technology Department, Orihuela, Spain
B. Wang, Zhejiang Ocean University, Zhoushan, China
G. J. Wei, Chinese Academy of Agricultural Sciences, Beijing, China
J. Weissbrodt, Symrise AG, Holzminden, Germany
M. Wesolowski, Medical University of Gdansk, Gdansk, Poland
Y. Ye, Hefei University of Technology, Hefei, China
S. K. Yeap, Xiamen University, Xiamen, China
C.-T. Yeh, Taipei Medical University, Taipei, Taiwan
C. Yilmaz, Hacettepe University, Ankara, Turkey
Y. Yilmaz, Mehmet Akif Ersoy University, Burdur, Turkey
L. Yu, CSIRO Australian Manufacturing and Materials Precinct, Clayton, Australia
U. Yucel, Kansas State University, Manhattan, Kansas, United States
G. L. Zabot, Federal University of Santa Maria - Cachoeira do Sul Campus, Cachoeira do Sul, Brazil
W.-C. Zeng, Sichuan University College of Biomass Science and Engineering, Chengdu, China
H. Zhao, South China University of Technology, Guangzhou, China
S. Žilić, Maize Research Institute Zemun Polje, Beograd, Serbia
GUIDE FOR AUTHORS

INTRODUCTION

Food Research International is the successor to the Canadian Institute of Food Science and Technology Journal. Building on the quality and strengths of its predecessor, Food Research International has been developed to create a truly international forum for the communication of research in food science.

Food Research International provides a forum for the rapid dissemination of significant novel and high impact research in food science, technology, engineering and nutrition. The journal only publishes novel, high quality and high impact review papers, original research papers and letters to the editors, in the various disciplines encompassing the science and technology of food. It is journal policy to publish special issues on topical and emergent subjects of food research or food research-related areas. Special issues of selected, peer-reviewed papers from scientific meetings, workshops, conferences on the science, technology and engineering of foods will be also published.

Food Research International does not publish papers with a product development emphasis, statistical optimizations of processes or surveys. This is based on the editorial policy of the journal to publish more fundamental work with a strong quantitative emphasis and of a general nature.

Topics covered by the journal include:
Emerging Technologies Sensory Aspects of Foods Food Toxicology Food Chemistry and Analysis Food Omics Nutrition, health and food digestion Food Engineering and Materials Science of Foods Functional Foods Food Microbiology, Safety and Quality

Please also refer to the list of subjects not considered in Food Research International before you submit your paper. These topics can be found in the full aims and scope of the journal.

Types of paper
Research papers - original full-length research papers which have not been published previously, except in a preliminary form, and should not exceed 6,000 words. The word count refers to the text of the manuscript per se, i.e., references, figures and tables are not considered. Review articles - will be accepted in all areas of food science covered by the scope of the journal. Review articles focused on recent literature published (for example, over the previous 2-5 years) as well as comprehensive and definitive reviews will be considered. Review papers must contain critical assessment of literature and may also contain author's views on the subject. There are no word counts and reference numbers limit for review papers. Short communications - Food Research International does not publish short communication papers. Letters to the Editor - Letters are published from time to time on matters of topical interest. Book Reviews

Food Research International is concerned with safeguarding the rights and welfare of animals and human research subjects. Authors must provide a letter with the approval from the ethics committee from the respective University or research center where the study was performed.

The list of references must be as updated as possible. Making reference to recent work in the field is particularly key to highlight the current context of the manuscript and to make it more comprehensive, to highlight the novelty to the readers as well as its contribution to the field.

Contact details for submission
Submission for all types of manuscripts to Food Research International proceeds totally online. Via the Elsevier Editorial System (EES) website for this journal, http://ees.elsevier.com/foodres, you will be guided step-by-step through the creation and uploading of the various files.

Questions regarding content of a proposed submission can be directed to: foodresearchinternational@gmail.com.

Submission checklist
You can use this list to carry out a final check of your submission before you send it to the journal for review. Please check the relevant section in this Guide for Authors for more details.

Ensure that the following items are present:
One author has been designated as the corresponding author with contact details:
- E-mail address
- Full postal address

All necessary files have been uploaded:

**Manuscript:**
- Include keywords
- All figures (include relevant captions)
- All tables (including titles, description, footnotes)
- Ensure all figure and table citations in the text match the files provided
- Indicate clearly if color should be used for any figures in print

**Graphical Abstracts / Highlights files** (where applicable)

**Supplemental files** (where applicable)

Further considerations
- Manuscript has been 'spell checked' and 'grammar checked'
- All references mentioned in the Reference List are cited in the text, and vice versa
- Permission has been obtained for use of copyrighted material from other sources (including the Internet)
- A competing interests statement is provided, even if the authors have no competing interests to declare
- Journal policies detailed in this guide have been reviewed
- Referee suggestions and contact details provided, based on journal requirements

For further information, visit our Support Center.

**BEFORE YOU BEGIN**

**Ethics in publishing**
Please see our information pages on Ethics in publishing and Ethical guidelines for journal publication.

**Studies in humans and animals**
If the work involves the use of human subjects, the author should ensure that the work described has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for experiments involving humans. The manuscript should be in line with the Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals and aim for the inclusion of representative human populations (sex, age and ethnicity) as per those recommendations. The terms sex and gender should be used correctly.

Authors should include a statement in the manuscript that informed consent was obtained for experimentation with human subjects. The privacy rights of human subjects must always be observed.

All animal experiments should comply with the ARRIVE guidelines and should be carried out in accordance with the U.K. Animals (Scientific Procedures) Act, 1986 and associated guidelines, EU Directive 2010/63/EU for animal experiments, or the National Institutes of Health guide for the care and use of Laboratory animals (NIH Publications No. 8023, revised 1978) and the authors should clearly indicate in the manuscript that such guidelines have been followed. The sex of animals must be indicated, and where appropriate, the influence (or association) of sex on the results of the study.

**Declaration of interest**
All authors must disclose any financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work. Examples of potential competing interests include employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/registrations, and grants or other funding. Authors must disclose any interests in two places: 1. A summary declaration of interest statement in the title page file (if double-blind) or the manuscript file (if single-blind). If there are no interests to declare then please state this: 'Declarations of interest: none'. This summary statement will be ultimately published if the article is accepted. 2. Detailed disclosures as part of a separate Declaration of Interest form, which forms part of the journal's official records. It is important for potential interests to be declared in both places and that the information matches. More information.
Submission declaration and verification
Submission of an article implies that the work described has not been published previously (except in the form of an abstract, a published lecture or academic thesis, see 'Multiple, redundant or concurrent publication' for more information), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright-holder. To verify originality, your article may be checked by the originality detection service Crossref Similarity Check.

Preprints
Please note that preprints can be shared anywhere at any time, in line with Elsevier's sharing policy. Sharing your preprints e.g. on a preprint server will not count as prior publication (see 'Multiple, redundant or concurrent publication' for more information).

Use of inclusive language
Inclusive language acknowledges diversity, conveys respect to all people, is sensitive to differences, and promotes equal opportunities. Articles should make no assumptions about the beliefs or commitments of any reader, should contain nothing which might imply that one individual is superior to another on the grounds of race, sex, culture or any other characteristic, and should use inclusive language throughout. Authors should ensure that writing is free from bias, for instance by using 'he or she', 'his/her' instead of 'he' or 'his', and by making use of job titles that are free of stereotyping (e.g. 'chairperson' instead of 'chairman' and 'flight attendant' instead of 'stewardess').

Contributors
Each author is required to declare his or her individual contribution to the article: all authors must have materially participated in the research and/or article preparation, so roles for all authors should be described. The statement that all authors have approved the final article should be true and included in the disclosure.

Changes to authorship
Authors are expected to consider carefully the list and order of authors before submitting their manuscript and provide the definitive list of authors at the time of the original submission. Any addition, deletion or rearrangement of author names in the authorship list should be made only before the manuscript has been accepted and only if approved by the journal Editor. To request such a change, the Editor must receive the following from the corresponding author: (a) the reason for the change in author list and (b) written confirmation (e-mail, letter) from all authors that they agree with the addition, removal or rearrangement. In the case of addition or removal of authors, this includes confirmation from the author being added or removed. Only in exceptional circumstances will the Editor consider the addition, deletion or rearrangement of authors after the manuscript has been accepted. While the Editor considers the request, publication of the manuscript will be suspended. If the manuscript has already been published in an online issue, any requests approved by the Editor will result in a corrigendum.

Article transfer service
This journal is part of our Article Transfer Service. This means that if the Editor feels your article is more suitable in one of our other participating journals, then you may be asked to consider transferring the article to one of those. If you agree, your article will be transferred automatically on your behalf with no need to reformat. Please note that your article will be reviewed again by the new journal. More information.

Copyright
Upon acceptance of an article, authors will be asked to complete a 'Journal Publishing Agreement' (see more information on this). An e-mail will be sent to the corresponding author confirming receipt of the manuscript together with a 'Journal Publishing Agreement' form or a link to the online version of this agreement.

Subscribers may reproduce tables of contents or prepare lists of articles including abstracts for internal circulation within their institutions. Permission of the Publisher is required for resale or distribution outside the institution and for all other derivative works, including compilations and translations. If excerpts from other copyrighted works are included, the author(s) must obtain written permission from the copyright owners and credit the source(s) in the article. Elsevier has preprinted forms for use by authors in these cases.
For gold open access articles: Upon acceptance of an article, authors will be asked to complete an 'Exclusive License Agreement' (more information). Permitted third party reuse of gold open access articles is determined by the author's choice of user license.

**Author rights**
As an author you (or your employer or institution) have certain rights to reuse your work. More information.

*Elsevier supports responsible sharing*
Find out how you can share your research published in Elsevier journals.

**Role of the funding source**
You are requested to identify who provided financial support for the conduct of the research and/or preparation of the article and to briefly describe the role of the sponsor(s), if any, in study design; in the collection, analysis and interpretation of data; in the writing of the report; and in the decision to submit the article for publication. If the funding source(s) had no such involvement then this should be stated.

*Funding body agreements and policies*
Elsevier has established a number of agreements with funding bodies which allow authors to comply with their funder's open access policies. Some funding bodies will reimburse the author for the gold open access publication fee. Details of existing agreements are available online.

**Open access**
This journal offers authors a choice in publishing their research:

- **Subscription**
  - Articles are made available to subscribers as well as developing countries and patient groups through our universal access programs.
  - No open access publication fee payable by authors.
  - The Author is entitled to post the accepted manuscript in their institution's repository and make this public after an embargo period (known as green Open Access). The published journal article cannot be shared publicly, for example on ResearchGate or Academia.edu, to ensure the sustainability of peer-reviewed research in journal publications. The embargo period for this journal can be found below.

- **Gold open access**
  - Articles are freely available to both subscribers and the wider public with permitted reuse.
  - A gold open access publication fee is payable by authors or on their behalf, e.g. by their research funder or institution.

Regardless of how you choose to publish your article, the journal will apply the same peer review criteria and acceptance standards.

For gold open access articles, permitted third party (re)use is defined by the following Creative Commons user licenses:

- **Creative Commons Attribution (CC BY)**
  Lets others distribute and copy the article, create extracts, abstracts, and other revised versions, adaptations or derivative works of or from an article (such as a translation), include in a collective work (such as an anthology), text or data mine the article, even for commercial purposes, as long as they credit the author(s), do not represent the author as endorsing their adaptation of the article, and do not modify the article in such a way as to damage the author's honor or reputation.

- **Creative Commons Attribution-NonCommercial-NoDerivs (CC BY-NC-ND)**
  For non-commercial purposes, lets others distribute and copy the article, and to include in a collective work (such as an anthology), as long as they credit the author(s) and provided they do not alter or modify the article.

The gold open access publication fee for this journal is **USD 3800**, excluding taxes. Learn more about Elsevier's pricing policy: [https://www.elsevier.com/openaccesspricing](https://www.elsevier.com/openaccesspricing).
Green open access
Authors can share their research in a variety of different ways and Elsevier has a number of green open access options available. We recommend authors see our open access page for further information. Authors can also self-archive their manuscripts immediately and enable public access from their institution's repository after an embargo period. This is the version that has been accepted for publication and which typically includes author-incorporated changes suggested during submission, peer review and in editor-author communications. Embargo period: For subscription articles, an appropriate amount of time is needed for journals to deliver value to subscribing customers before an article becomes freely available to the public. This is the embargo period and it begins from the date the article is formally published online in its final and fully citable form. Find out more.

This journal has an embargo period of 12 months.

Elsevier Researcher Academy
Researcher Academy is a free e-learning platform designed to support early and mid-career researchers throughout their research journey. The "Learn" environment at Researcher Academy offers several interactive modules, webinars, downloadable guides and resources to guide you through the process of writing for research and going through peer review. Feel free to use these free resources to improve your submission and navigate the publication process with ease.

Language (usage and editing services)
Please write your text in good English (American or British usage is accepted, but not a mixture of these). Authors who feel their English language manuscript may require editing to eliminate possible grammatical or spelling errors and to conform to correct scientific English may wish to use the English Language Editing service available from Elsevier's Author Services.

Submission
Our online submission system guides you stepwise through the process of entering your article details and uploading your files. The system converts your article files to a single PDF file used in the peer-review process. Editable files (e.g., Word, LaTeX) are required to typeset your article for final publication. All correspondence, including notification of the Editor's decision and requests for revision, is sent by e-mail.

Authors must provide and use an email address unique to themselves and not shared with another author registered in EES, or a department.

Referees
Please submit the names and institutional e-mail addresses of several potential referees. For more details, visit our Support site. Note that the editor retains the sole right to decide whether or not the suggested reviewers are used.

PREPARATION

Peer review
This journal operates a single blind review process. All contributions will be initially assessed by the editor for suitability for the journal. Papers deemed suitable are then typically sent to a minimum of two independent expert reviewers to assess the scientific quality of the paper. The Editor is responsible for the final decision regarding acceptance or rejection of articles. The Editor's decision is final. More information on types of peer review.

Use of word processing software
It is important that the file be saved in the native format of the word processor used. The text should be in single-column format. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. In particular, do not use the word processor's options to justify text or to hyphenate words. However, do use bold face, italics, subscripts, superscripts etc. When preparing tables, if you are using a table grid, use only one grid for each individual table and not a grid for each row. If no grid is used, use tabs, not spaces, to align columns. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the Guide to Publishing with Elsevier). Note that source files of figures, tables and text graphics will be required whether or not you embed your figures in the text. See also the section on Electronic artwork.

To avoid unnecessary errors you are strongly advised to use the 'spell-check' and 'grammar-check' functions of your word processor.
All pages of the manuscript must be numbered. All lines must be numbered continuously throughout the manuscript.

General: Manuscripts must be typewritten, with 2 cm margins. Each page must be numbered, and lines must be consecutively numbered from the start to the end of the manuscript. Good quality printouts with a font size of 12 or 10 pt are required. The corresponding author should be identified (include a valid E-mail address). Full postal and email addresses must be given for all co-authors. Authors should consult a recent issue of the journal for style if possible. The Editors reserve the right to adjust style to certain standards of uniformity.

Article structure
Subdivision - numbered sections
Divide your article into clearly defined and numbered sections. Subsections should be numbered 1.1 (then 1.1.1, 1.1.2, ...), 1.2, etc. (the abstract is not included in section numbering). Use this numbering also for internal cross-referencing: do not just refer to 'the text'. Any subsection may be given a brief heading. Each heading should appear on its own separate line.

Introduction
State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results.

Material and methods
Provide sufficient details to allow the work to be reproduced by an independent researcher. Methods that are already published should be summarized, and indicated by a reference. If quoting directly from a previously published method, use quotation marks and also cite the source. Any modifications to existing methods should also be described.

Theory/calculation
A Theory section should extend, not repeat, the background to the article already dealt with in the Introduction and lay the foundation for further work. In contrast, a Calculation section represents a practical development from a theoretical basis.

Authors are encouraged to read the helpful notes on statistics applied in the planning of experiments and assessment of results in the field of food science and technology. The more important univariate and bivariate parametric and non-parametric methods, their advantages and disadvantages are presented in "Observations on the use of statistical methods in Food Science and Technology by Granato (http://www.sciencedirect.com/science/article/pii/S0963996913005723).

Follow this order when typing manuscripts: Title, Authors, Affiliations, Abstract, Keywords, Main text (Introduction, Material and Methods, Results, Conclusion), Acknowledgements, Appendix, References. The corresponding author should be identified with an asterisk and footnote. All other footnotes (except for table footnotes) should be identified with superscript Arabic numbers. The title of the paper should unambiguously reflect its contents.

Results
Results should be clear and concise.

Discussion
This should explore the significance of the results of the work, not repeat them. A combined Results and Discussion section is often appropriate. Avoid extensive citations and discussion of published literature.

Conclusions
The main conclusions of the study may be presented in a short Conclusions section, which may stand alone or form a subsection of a Discussion or Results and Discussion section.

Appendices
If there is more than one appendix, they should be identified as A, B, etc. Formulae and equations in appendices should be given separate numbering: Eq. (A.1), Eq. (A.2), etc.; in a subsequent appendix, Eq. (B.1) and so on. Similarly for tables and figures: Table A.1; Fig. A.1, etc.
Essential title page information

• Title. Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible.

• Author names and affiliations. Please clearly indicate the given name(s) and family name(s) of each author and check that all names are accurately spelled. You can add your name between parentheses in your own script behind the English transliteration. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lowercase superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author.

• Corresponding author. Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication. This responsibility includes answering any future queries about Methodology and Materials. Ensure that the e-mail address is given and that contact details are kept up to date by the corresponding author.

• Present/permanent address. If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

Highlights

Highlights are mandatory for this journal as they help increase the discoverability of your article via search engines. They consist of a short collection of bullet points that capture the novel results of your research as well as new methods that were used during the study (if any). Please have a look at the examples here: example Highlights.

Highlights should be submitted in a separate editable file in the online submission system. Please use 'Highlights' in the file name and include 3 to 5 bullet points (maximum 85 characters, including spaces, per bullet point).

Abstract

A concise and factual abstract is required. The abstract should state briefly the purpose of the research, the principal results and major conclusions. An abstract is often presented separately from the article, so it must be able to stand alone. For this reason, References should be avoided, but if essential, then cite the author(s) and year(s). Also, non-standard or uncommon abbreviations should be avoided, but if essential they must be defined at their first mention in the abstract itself.

Graphical abstract

A graphical abstract is mandatory for this journal. It should summarize the contents of the article in a concise, pictorial form designed to capture the attention of a wide readership online. Authors must provide images that clearly represent the work described in the article. Graphical abstracts should be submitted as a separate file in the online submission system. Image size: please provide an image with a minimum of 531 × 1328 pixels (h × w) or proportionally more. The image should be readable at a size of 5 × 13 cm using a regular screen resolution of 96 dpi. Preferred file types: TIFF, EPS, PDF or MS Office files. You can view Example Graphical Abstracts on our information site. Authors can make use of Elsevier’s Illustration Services to ensure the best presentation of their images also in accordance with all technical requirements.

Keywords

Immediately after the abstract, provide at least 6 keywords (maximum allowed: 12 keywords), using American spelling and avoiding general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. Keywords must be different from title to enhance searchability and findability. These keywords will be used for indexing purposes.

Abbreviations

Define abbreviations that are not standard in this field in a footnote to be placed on the first page of the article. Such abbreviations that are unavoidable in the abstract must be defined at their first mention there, as well as in the footnote. Ensure consistency of abbreviations throughout the article.
Acknowledgements
Collate acknowledgements in a separate section at the end of the article before the references and do not, therefore, include them on the title page, as a footnote to the title or otherwise. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proof reading the article, etc.).

Formatting of funding sources
List funding sources in this standard way to facilitate compliance to funder’s requirements:

Funding: This work was supported by the National Institutes of Health [grant numbers xxxx, yyyy]; the Bill & Melinda Gates Foundation, Seattle, WA [grant number zzzz]; and the United States Institutes of Peace [grant number aaaa].

It is not necessary to include detailed descriptions on the program or type of grants and awards. When funding is from a block grant or other resources available to a university, college, or other research institution, submit the name of the institute or organization that provided the funding.

If no funding has been provided for the research, please include the following sentence:

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Units
Follow internationally accepted rules and conventions: use the international system of units (SI). If other units are mentioned, please give their equivalent in SI.

Math formulae
Please submit math equations as editable text and not as images. Present simple formulae in line with normal text where possible and use the solidus (/) instead of a horizontal line for small fractional terms, e.g., X/Y. In principle, variables are to be presented in italics. Powers of e are often more conveniently denoted by exp. Number consecutively any equations that have to be displayed separately from the text (if referred to explicitly in the text).

Footnotes
Footnotes should be used sparingly. Number them consecutively throughout the article. Many word processors can build footnotes into the text, and this feature may be used. Otherwise, please indicate the position of footnotes in the text and list the footnotes themselves separately at the end of the article. Do not include footnotes in the Reference list.

Artwork
Image manipulation
Whilst it is accepted that authors sometimes need to manipulate images for clarity, manipulation for purposes of deception or fraud will be seen as scientific ethical abuse and will be dealt with accordingly. For graphical images, this journal is applying the following policy: no specific feature within an image may be enhanced, obscured, moved, removed, or introduced. Adjustments of brightness, contrast, or color balance are acceptable if and as long as they do not obscure or eliminate any information present in the original. Nonlinear adjustments (e.g. changes to gamma settings) must be disclosed in the figure legend.

Electronic artwork
General points
- Make sure you use uniform lettering and sizing of your original artwork.
- Embed the used fonts if the application provides that option.
- Aim to use the following fonts in your illustrations: Arial, Courier, Times New Roman, Symbol, or use fonts that look similar.
- Number the illustrations according to their sequence in the text.
- Use a logical naming convention for your artwork files.
- Provide captions to illustrations separately.
- Size the illustrations close to the desired dimensions of the published version.
- Submit each illustration as a separate file.
A detailed guide on electronic artwork is available.

You are urged to visit this site; some excerpts from the detailed information are given here.

Formats
If your electronic artwork is created in a Microsoft Office application (Word, PowerPoint, Excel) then please supply 'as is' in the native document format.

Regardless of the application used other than Microsoft Office, when your electronic artwork is finalized, please 'Save as' or convert the images to one of the following formats (note the resolution requirements for line drawings, halftones, and line/halftone combinations given below):

- **EPS** (or **PDF**): Vector drawings, embed all used fonts.
- **TIFF** (or **JPEG**): Color or grayscale photographs (halftones), keep to a minimum of 300 dpi.
- **TIFF** (or **JPEG**): Bitmapped (pure black & white pixels) line drawings, keep to a minimum of 1000 dpi.
- **TIFF** (or **JPEG**): Combinations bitmapped line/half-tone (color or grayscale), keep to a minimum of 500 dpi.

**Please do not:**
- Supply files that are optimized for screen use (e.g., GIF, BMP, PICT, WPG); these typically have a low number of pixels and limited set of colors;
- Supply files that are too low in resolution;
- Submit graphics that are disproportionately large for the content.

**Color artwork**

Please make sure that artwork files are in an acceptable format (TIFF (or JPEG), EPS (or PDF), or MS Office files) and with the correct resolution. If, together with your accepted article, you submit usable color figures then Elsevier will ensure, at no additional charge, that these figures will appear in color online (e.g., ScienceDirect and other sites) regardless of whether or not these illustrations are reproduced in color in the printed version. **For color reproduction in print, you will receive information regarding the costs from Elsevier after receipt of your accepted article.** Please indicate your preference for color: in print or online only. Further information on the preparation of electronic artwork.

**Figure captions**

Ensure that each illustration has a caption. Supply captions separately, not attached to the figure. A caption should comprise a brief title (not on the figure itself) and a description of the illustration. Keep text in the illustrations themselves to a minimum but explain all symbols and abbreviations used.

**Tables**

Please submit tables as editable text and not as images. Tables must be placed on separate page(s) at the end of the manuscript. Number tables consecutively in accordance with their appearance in the text and place any table notes below the table body. Be sparing in the use of tables and ensure that the data presented in them do not duplicate results described elsewhere in the article. Please avoid using vertical rules.

**References**

**Citation in text**

Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full. Unpublished results and personal communications are not recommended in the reference list, but may be mentioned in the text. If these references are included in the reference list they should follow the standard reference style of the journal and should include a substitution of the publication date with either 'Unpublished results' or 'Personal communication'. Citation of a reference as 'in press' implies that the item has been accepted for publication.

The list of references must be as updated as possible. Making reference to recent work in the field is particularly key to highlight the current context of the manuscript and to make it more comprehensive, to highlight the novelty to the readers as well as its contribution to the field.

**Web references**

As a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired, or can be included in the reference list.

**Data references**

This journal encourages you to cite underlying or relevant datasets in your manuscript by citing them in your text and including a data reference in your Reference List. Data references should include the following elements: author name(s), dataset title, data repository, version (where available), year, and global persistent identifier. Add [dataset] immediately before the reference so we can properly identify it as a data reference. The [dataset] identifier will not appear in your published article.
References in a special issue
Please ensure that the words 'this issue' are added to any references in the list (and any citations in the text) to other articles in the same Special Issue.

Reference management software
Most Elsevier journals have their reference template available in many of the most popular reference management software products. These include all products that support Citation Style Language styles, such as Mendeley. Using citation plug-ins from these products, authors only need to select the appropriate journal template when preparing their article, after which citations and bibliographies will be automatically formatted in the journal's style. If no template is yet available for this journal, please follow the format of the sample references and citations as shown in this Guide. If you use reference management software, please ensure that you remove all field codes before submitting the electronic manuscript. More information on how to remove field codes from different reference management software.

Users of Mendeley Desktop can easily install the reference style for this journal by clicking the following link:
http://open.mendeley.com/use-citation-style/food-research-international
When preparing your manuscript, you will then be able to select this style using the Mendeley plug-ins for Microsoft Word or LibreOffice.

Reference style
Text: Citations in the text should follow the referencing style used by the American Psychological Association. You are referred to the Publication Manual of the American Psychological Association, Sixth Edition, ISBN 978-1-4338-0561-5, copies of which may be ordered online or APA Order Dept., P.O.B. 2710, Hyattsville, MD 20784, USA or APA, 3 Henrietta Street, London, WC3E 8LU, UK.
List: references should be arranged first alphabetically and then further sorted chronologically if necessary. More than one reference from the same author(s) in the same year must be identified by the letters 'a', 'b', 'c', etc., placed after the year of publication.
Examples:
Reference to a journal publication:
Reference to a journal publication with an article number:
Reference to a book:
Reference to a chapter in an edited book:
Reference to a website:
Reference to a dataset:
Reference to a conference paper or poster presentation:

Video
Elsevier accepts video material and animation sequences to support and enhance your scientific research. Authors who have video or animation files that they wish to submit with their article are strongly encouraged to include links to these within the body of the article. This can be done in the same way as a figure or table by referring to the video or animation content and noting in the body text where it should be placed. All submitted files should be properly labeled so that they directly
relate to the video file's content. In order to ensure that your video or animation material is directly usable, please provide the file in one of our recommended file formats with a preferred maximum size of 150 MB per file, 1 GB in total. Video and animation files supplied will be published online in the electronic version of your article in Elsevier Web products, including ScienceDirect. Please supply 'stills' with your files; you can choose any frame from the video or animation or make a separate image. These will be used instead of standard icons and will personalize the link to your video data. For more detailed instructions please visit our video instruction pages. Note: since video and animation cannot be embedded in the print version of the journal, please provide text for both the electronic and the print version for the portions of the article that refer to this content.

Data visualization
Include interactive data visualizations in your publication and let your readers interact and engage more closely with your research. Follow the instructions here to find out about available data visualization options and how to include them with your article.

Supplementary material
Supplementary material such as applications, images and sound clips, can be published with your article to enhance it. Submitted supplementary items are published exactly as they are received (Excel or PowerPoint files will appear as such online). Please submit your material together with the article and supply a concise, descriptive caption for each supplementary file. If you wish to make changes to supplementary material during any stage of the process, please make sure to provide an updated file. Do not annotate any corrections on a previous version. Please switch off the 'Track Changes' option in Microsoft Office files as these will appear in the published version.

Research data
This journal encourages and enables you to share data that supports your research publication where appropriate, and enables you to interlink the data with your published articles. Research data refers to the results of observations or experimentation that validate research findings. To facilitate reproducibility and data reuse, this journal also encourages you to share your software, code, models, algorithms, protocols, methods and other useful materials related to the project.

Below are a number of ways in which you can associate data with your article or make a statement about the availability of your data when submitting your manuscript. If you are sharing data in one of these ways, you are encouraged to cite the data in your manuscript and reference list. Please refer to the "References" section for more information about data citation. For more information on depositing, sharing and using research data and other relevant research materials, visit the research data page.

Data linking
If you have made your research data available in a data repository, you can link your article directly to the dataset. Elsevier collaborates with a number of repositories to link articles on ScienceDirect with relevant repositories, giving readers access to underlying data that gives them a better understanding of the research described.

There are different ways to link your datasets to your article. When available, you can directly link your dataset to your article by providing the relevant information in the submission system. For more information, visit the database linking page.

For supported data repositories a repository banner will automatically appear next to your published article on ScienceDirect.

In addition, you can link to relevant data or entities through identifiers within the text of your manuscript, using the following format: Database: xxxx (e.g., TAIR: AT1G01020; CCDC: 734053; PDB: 1XFN).

Mendeley Data
This journal supports Mendeley Data, enabling you to deposit any research data (including raw and processed data, video, code, software, algorithms, protocols, and methods) associated with your manuscript in a free-to-use, open access repository. During the submission process, after uploading your manuscript, you will have the opportunity to upload your relevant datasets directly to Mendeley Data. The datasets will be listed and directly accessible to readers next to your published article online.

For more information, visit the Mendeley Data for journals page.
**Data statement**
To foster transparency, we encourage you to state the availability of your data in your submission. This may be a requirement of your funding body or institution. If your data is unavailable to access or unsuitable to post, you will have the opportunity to indicate why during the submission process, for example by stating that the research data is confidential. The statement will appear with your published article on ScienceDirect. For more information, visit the Data Statement page.

**AFTER ACCEPTANCE**

**Online proof correction**
Corresponding authors will receive an e-mail with a link to our online proofing system, allowing annotation and correction of proofs online. The environment is similar to MS Word: in addition to editing text, you can also comment on figures/tables and answer questions from the Copy Editor. Web-based proofing provides a faster and less error-prone process by allowing you to directly type your corrections, eliminating the potential introduction of errors.

If preferred, you can still choose to annotate and upload your edits on the PDF version. All instructions for proofing will be given in the e-mail we send to authors, including alternative methods to the online version and PDF.

We will do everything possible to get your article published quickly and accurately. Please use this proof only for checking the typesetting, editing, completeness and correctness of the text, tables and figures. Significant changes to the article as accepted for publication will only be considered at this stage with permission from the Editor. It is important to ensure that all corrections are sent back to us in one communication. Please check carefully before replying, as inclusion of any subsequent corrections cannot be guaranteed. Proofreading is solely your responsibility.

**Offprints**
The corresponding author will, at no cost, receive a customized Share Link providing 50 days free access to the final published version of the article on ScienceDirect. The Share Link can be used for sharing the article via any communication channel, including email and social media. For an extra charge, paper offprints can be ordered via the offprint order form which is sent once the article is accepted for publication. Both corresponding and co-authors may order offprints at any time via Elsevier’s Author Services. Corresponding authors who have published their article gold open access do not receive a Share Link as their final published version of the article is available open access on ScienceDirect and can be shared through the article DOI link.

**AUTHOR INQUIRIES**
Visit the Elsevier Support Center to find the answers you need. Here you will find everything from Frequently Asked Questions to ways to get in touch.

You can also check the status of your submitted article or find out when your accepted article will be published.