

# Sustainable Food Technology

rsc.li/susfoodtech

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

## IN THIS ISSUE

ISSN 2753-8095 CODEN SFTUAG 1(6) 775–964 (2023)



**Cover**  
See Pedro Geada *et al.*, pp. 850–862. Image reproduced by permission of Pedro Geada from *Sustainable Food Technol.*, 2023, 1, 850.



**Inside cover**  
See Alina Hadi *et al.*, pp. 863–873. Image reproduced by permission of Alina Hadi from *Sustainable Food Technol.*, 2023, 1, 863.

## REVIEWS

783

### Digitalization of the agro-food sector for achieving sustainable development goals: a review

Adithya Sridhar, Muthamilselvi Ponnuchamy, P. Senthil Kumar,\* Ashish Kapoor,\* Dai-Viet Nguyen Vo\* and Gayathri Rangasamy



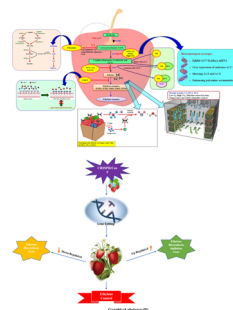
Digitalization of agro-food sector

Sustainable development goals

803

### Biological and postharvest interventions to manage the ethylene in fruit: a review

Ram Asrey, Swati Sharma,\* Kalyan Barman,\* Uma Prajapati, Narender Negi and Nirmal Kumar Meena\*



**Editorial Staff****Executive Editor**

Anna Rulka

**Deputy Editor**

Audra Taylor

**Editorial Production Manager**

Viktoria Titmus

**Assistant Editors**

Shwetha Krishna, Angelica-Jane Onyekwere, Michael Whitelaw, Alexander Whiteside

**Editorial Assistant**

Samantha Campos

**Publishing Assistant**

Brittany Hanlon

**Publisher**

Neil Hammond

For queries about submitted papers, please contact Viktoria Titmus, Editorial Production Manager in the first instance. E-mail: [susfoodtech@rsc.org](mailto:susfoodtech@rsc.org)

For pre-submission queries please contact

Anna Rulka, Executive Editor.

E-mail: [susfoodtech@rsc.org](mailto:susfoodtech@rsc.org)

Sustainable Food Technology (electronic: ISSN 2753-8095) is published 6 times a year by the Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, UK CB4 0WF.

Sustainable Food Technology is a Gold Open Access journal and all articles are free to read. Please email [orders@rsc.org](mailto:orders@rsc.org) to register your interest or contact Royal Society of Chemistry Order Department, Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, CB4 0WF, UK Tel +44 (0)1223 432398; E-mail: [orders@rsc.org](mailto:orders@rsc.org)

Whilst this material has been produced with all due care, the Royal Society of Chemistry cannot be held responsible or liable for its accuracy and completeness, nor for any consequences arising from any errors or the use of the information contained in this publication. The publication of advertisements does not constitute any endorsement by the Royal Society of Chemistry or Authors of any products advertised. The views and opinions advanced by contributors do not necessarily reflect those of the Royal Society of Chemistry which shall not be liable for any resulting loss or damage arising as a result of reliance upon this material. The Royal Society of Chemistry is a charity, registered in England and Wales, Number 207890, and a company incorporated in England by Royal Charter (Registered No. RC000524), registered office: Burlington House, Piccadilly, London W1J 0BA, UK, Telephone: +44 (0) 207 4378 6556.

**Advertisement sales:**

Tel +44 (0) 1223 432246; Fax +44 (0) 1223 426017;

E-mail [advertising@rsc.org](mailto:advertising@rsc.org)

For marketing opportunities relating to this journal, contact [marketing@rsc.org](mailto:marketing@rsc.org)

# Sustainable Food Technology

[rsc.li/susfoodtech](http://rsc.li/susfoodtech)

*Sustainable Food Technology* publishes cultivating sustainable solutions to food processing and engineering.

**Editorial Board****Editor-in-Chief**

Jorge Barros Velázquez, University of Santiago de Compostela, Spain

**Associate Editors**

Rekha Singhal, Institute of Chemical Technology, India  
Qin Wang, University of Maryland, USA

Benu Adhikari, RMIT University, Australia

**Editorial Board Members**

Paula Bourke, University College Dublin, Ireland

**Advisory Board**

Cristóbal N. Aguilar, Universidad Autónoma de Coahuila, Mexico

Rafael Auras, Michigan State University, USA

Maria G. Corradini, University of Guelph, Canada

Sakamon Devahastin, King Mongkut's University of Technology Thonburi (KMUTT), Thailand

Tian Ding, Zhejiang University, China

Hao Feng, North Carolina A&T State University, USA

Elena Ibañez, CIAL-CSIC, Spain

Joe P. Kerry, University College Cork, Ireland

Olga Martín-Belloso, Universitat de Lleida, Catalonia, Spain

Maria Angela A Meireles, Universidade Estadual de Campinas, Brazil

Manjusri Misra, University of Guelph, Canada

Solange I. Mussatto, Technical University of Denmark, Denmark

Indrawati Oey, University of Otago, New Zealand

Umezuruike Linus Opara, Stellenbosch University, South Africa

Federico Pallottino, CREA-IT, Italy

Marco Poiana, Mediterranean University of Reggio Calabria, Italy

Anet Režek Jambrak, University of Zagreb, Croatia

Victor Rodov, ARO - The Volcani Institute, Israel

Andreas Schieber, Universität Bonn, Germany

Juming Tang, Washington State University, USA

Paula Teixeira, Universidade Católica Portuguesa, Portugal

Long Yu, South China University of Technology, Institute of Chemistry, Henan Academy of Sciences, China

Min Zhan, Jiangnan University, China

**Information for Authors**

Full details on how to submit material for publication in Sustainable Food Technology are given in the Instructions for Authors (available from <http://www.rsc.org/authors>). Submissions should be made via the journal's homepage: [rsc.li/susfoodtech](http://rsc.li/susfoodtech)

Authors may reproduce/republish portions of their published contribution without seeking permission from the Royal Society of Chemistry, provided that any such republication is accompanied by an acknowledgement in the form: (Original Citation)–Reproduced by permission of the Royal Society of Chemistry.

This journal is © The Royal Society of Chemistry 2023. Apart from fair dealing for the purposes of research or private study for non-commercial purposes, or criticism or review, as permitted under the Copyright, Designs and Patents Act 1988 and the Copyright and Related Rights Regulation 2003, this publication may only be reproduced, stored or transmitted, in any form or by any means, with the prior permission in writing of the Publishers or in the case of reprographic reproduction in accordance with the terms of licences issued by the Copyright Licensing Agency in the UK. US copyright law is applicable to users in the USA.

Registered charity number: 207890

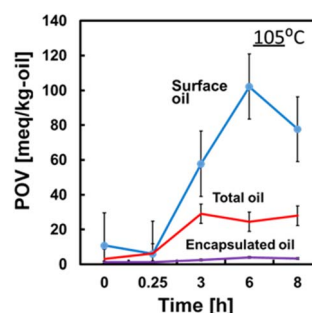


## REVIEWS

827

**Encapsulation of fish oil and essential fatty acids by spray drying**

Afroza Sultana, Shuji Adachi and Hidefumi Yoshii\*

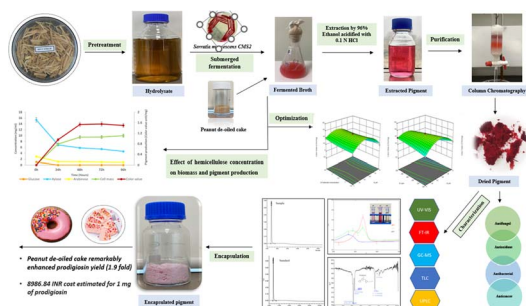


## COMMUNICATION

837

**Sustainable production of prodigiosin from rice straw derived xylose by using isolated *Serratia marcescens* (CMS 2): statistical optimization, characterization, encapsulation & cost analysis**

Kanika Miglani, Saumya Singh, Devendra Pratap Singh and Meena Krishania\*

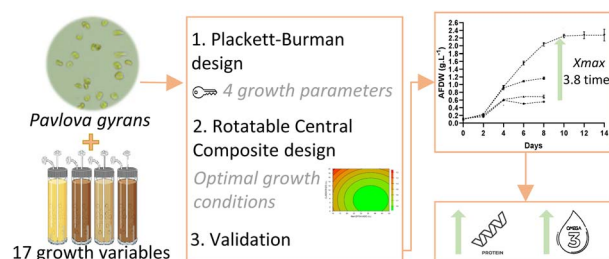


## PAPERS

850

**Optimization of *Pavlova gyrans* biomass production and the fatty acid profile using a two-step approach**

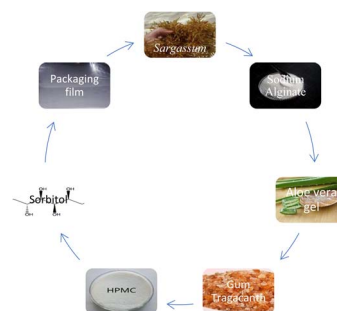
Filipe Maciel, Daniela Couto, Pedro Geada,\* Hugo Pereira, José Teixeira, M. Rosário Domingues, Joana Silva and António Vicente



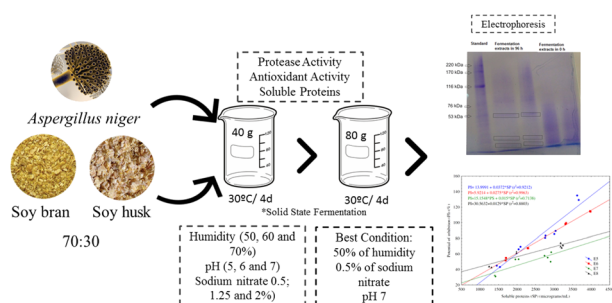
863

**Development of sodium alginate–aloe vera hydrogel films enriched with organic fibers: study of the physical, mechanical, and barrier properties for food-packaging applications**

Alina Hadi,\* Anjum Nawab, Feroz Alam and Sara Naqvi



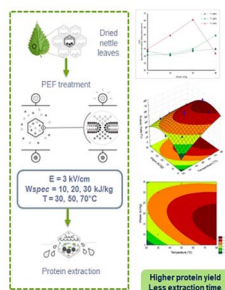
874



### Simultaneous production of proteases and antioxidant biopeptides by solid-state fermentation

Luciane Maria Colla,\* Christian Oliveira Reinehr, Paola Gouvêa Manfredini, Vitor Augusto Farina Cavanhi and Jorge Alberto Vieira Costa

886



### Pulsed electric field assisted extraction of soluble proteins from nettle leaves (*Urtica dioica* L.): kinetics and optimization using temperature and specific energy

Morgana Kronbauer, Ivan Shorstkii, Suse Botelho da Silva,\* Stefan Toepfl, Alica Lammerskitten and Claudia Siemer

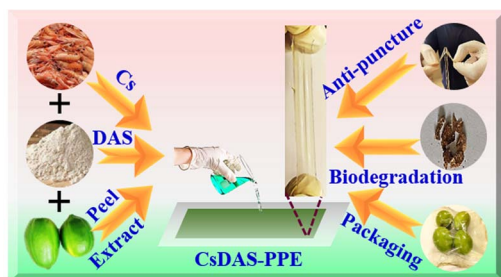
896



### Comparative study of different particle sizes of added olive leaves for the content of target polyphenols in virgin olive oil

Fereshteh Safarzadeh Markhali\* and José A. Teixeira

906



### In situ crosslinked Schiff base biohydrogels containing *Carica papaya* peel extract: application in the packaging of fresh berries

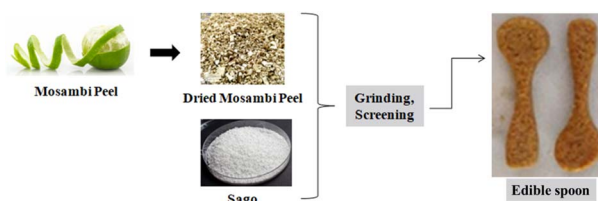
Ganeswar Dalei, Swagat Kumar Das, Susri Sangita Mohapatra and Subhaseema Das\*



921

## Exploring the potential of mosambi peel and sago powder in developing edible spoons

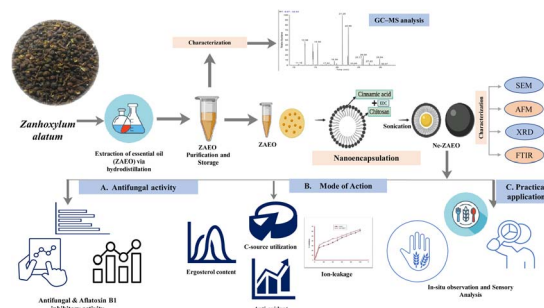
Bareera Siddiqui, Alisha Ahmad, Owais Yousuf and Kaiser Younis\*



930

## A chitosan-based biopolymer as an encapsulating nanomaterial for enhancing the antifungal and aflatoxin B<sub>1</sub> inhibitory efficacy of *Zanthoxylum alatum* (Roxb) essential oil and elucidation of the mode of action

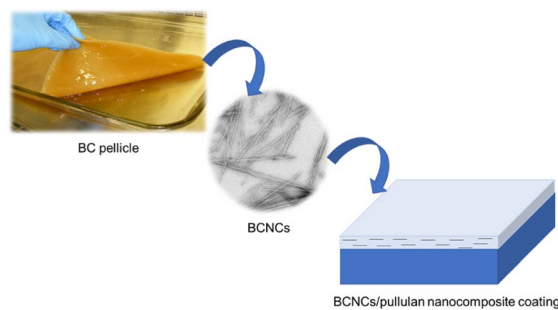
Amrita Yadav, Tanya Singh Raghuvanshi and Bhanu Prakash\*



941

## Acid-derived bacterial cellulose nanocrystals as organic filler for the generation of high-oxygen barrier bio-nanocomposite coatings

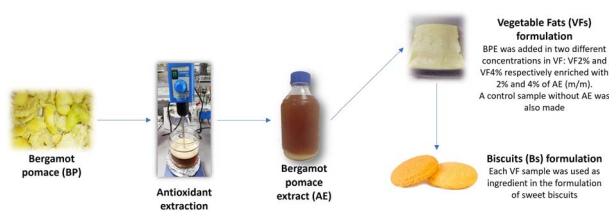
Daniele Carullo, Cesare Rovera, Tommaso Bellesia, Duygu Büyüktaş, Masoud Ghaani, Nadia Santo, Diego Romano and Stefano Farris\*



951

## Fortification of vegetable fat with natural antioxidants recovered by bergamot pomace for use as an ingredient for the production of biscuits

Antonio Gattuso, Amalia Piscopo, Simone Santacaterina, Elisa Imeneo, Alessandra De Bruno\* and Marco Poiana



962

**Correction: Synthesis of green fluorescent carbon dots from *Moringa oleifera* for sensing of deltamethrin and fenvalerate in vegetables and rice**

Foziya Yusuf Vadia, Jinet Susan Johny, Naved I. Malek and Suresh Kumar Kailasa\*

