

# RSC Sustainability

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## IN THIS ISSUE

ISSN 2753-8125 CODEN RSSUAN 3(8) 3217–3616 (2025)



### Cover

See Alexander M. Kirillov et al., pp. 3396–3406. Image reproduced by permission of Alexander M. Kirillov and Chris Franco from *RSC Sustainability*, 2025, 3, 3396.



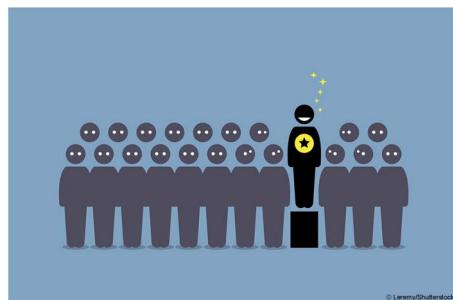
### Inside cover

See Rodrigo O. M. A. de Souza et al., pp. 3407–3417. Image reproduced by permission of Rodrigo O. M. A. de Souza from *RSC Sustainability*, 2025, 3, 3407.

## EDITORIAL

3227

### Outstanding Reviewers for *RSC Sustainability* in 2024

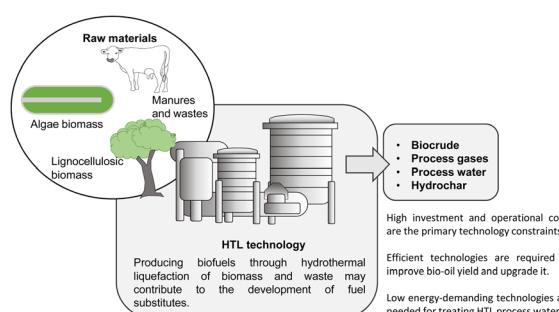


## CRITICAL REVIEWS

3228

### Reducing fossil fuel demand by using biofuels as an alternative hydrothermal liquefaction is a promising process for transforming biomass into drop-in fuels

Ivan Mazariegos,\* Ebtihal Abdelfath-Aldayyat, Silvia González-Rojo and Xiomar Gómez



# Environmental Science: Atmospheres



GOLD  
OPEN  
ACCESS

## Connecting communities and inspiring new ideas

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Fundamental questions  
Elemental answers

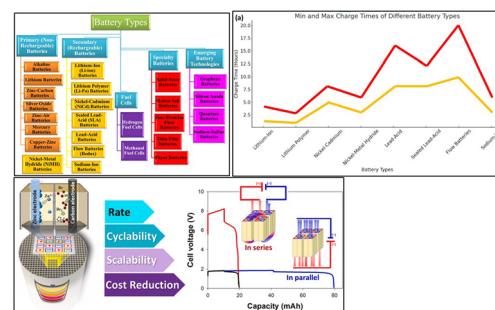


## CRITICAL REVIEWS

3266

# Powering the sustainable future: a review of emerging battery technologies and their environmental impact

Peeyush Phogat,\* Subhadeepa Dey and Meher Waris

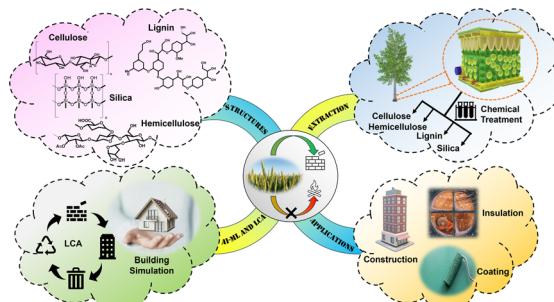


## TUTORIAL REVIEWS

3307

# Recent breakthroughs in the valorization of lignocellulosic biomass for advancements in the construction industry: a review

Nilanjan Dey, Shakshi Bhardwaj and Pradip K. Maji\*

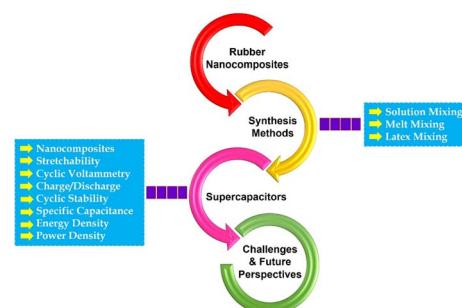


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3358

## A minireview on rubber nanocomposites for sustainable supercapacitors

Susmi Anna Thomas, Jayesh Cherusseri\* and Deepthi N. Rajendran



## PERSPECTIVE

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3384

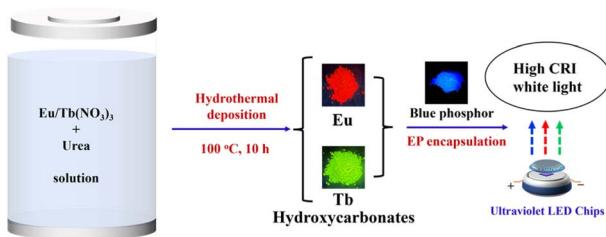
# Addressing the global data imbalance of contaminants of emerging concern in the context of the United Nations sustainable development goals

Andrea-Lorena Garduño-Jiménez,\* Rachel L. Gomes,  
Yolanda López-Maldonado and Laura J. Carter



## COMMUNICATION

3392

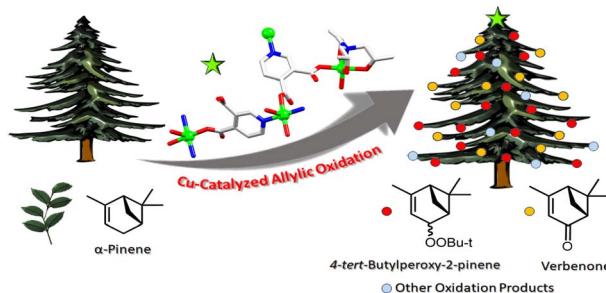


## Facile hydrothermal synthesis of rare earth hydroxycarbonate phosphors for high-performance warm white LEDs

Haoxuan Zeng, Qiao Liang, Lu He, Ziyuan Li, Taihui Chen and Xiaoli Wu\*

## PAPERS

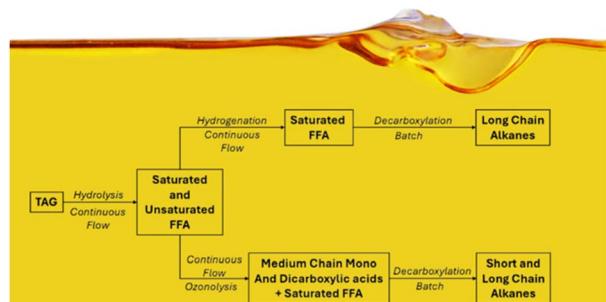
3396



## From $\alpha$ -pinene feedstock to value-added products: scalable and recyclable copper(II) catalysts for allylic oxidation

Gilvan A. Correia, Chris H. J. Franco, Marina V. Kirillova, Alexandre Pradal, Giovanni Poli, Fabrice Galou and Alexander M. Kirillov\*

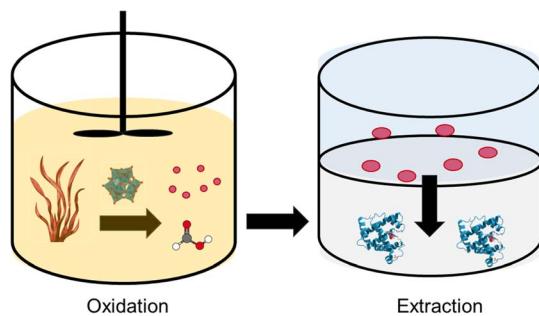
3407



## Chemo-enzymatic cascades for the sustainable transformation of canola oil into hydrocarbon fuels

Lucas B. Barbosa, Caio M. Pacheco, Isabela G. da Silva, Mauro R. B. P. Gomez, Alexandre S. França, Gabriela C. Breda, Matheus C. Silva, Patrícia S. de Alencar, Fernanda A. Lima, Raquel A. C. Leão, Rodrigo V. Almeida and Rodrigo O. M. A. de Souza\*

3418



## ProFA – valorization of macroalgae biomass as a source of proteins and formic acid

Stefanie Wesinger, Keerthana Eratemparambil, Andreas Liese, Maximilian J. Poller, Ana Malvis Romero and Jakob Albert\*

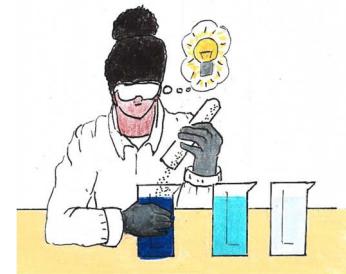


## PAPERS

3437

**Green beginnings: creating an affordable advanced enquiry-based experimental nanochemistry learning module with catalytically active 'green' iron oxide nanoparticles (IONPs)**

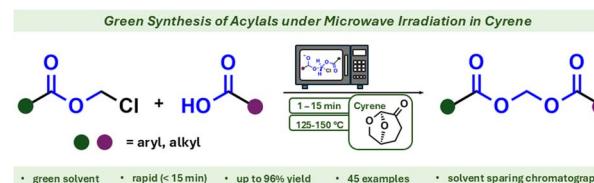
Timothy Schwantes, Dylan Medina, Brittney Morgan and Abhinandan Banerjee\*



3448

**Biobased dihydrolevoglucosenone (Cyrene) enables rapid and efficient synthesis of acylals under microwave irradiation**

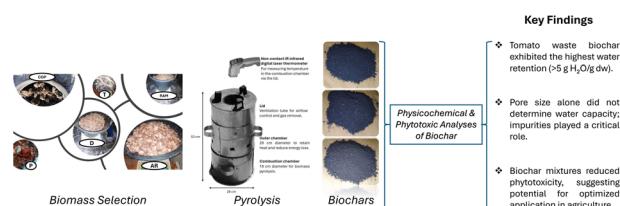
Tobias Keydel and Andreas Link\*



3459

**Comprehensive assessment of phytotoxic effects, morphology, chemical compositions, and water retention capacities of biochars**

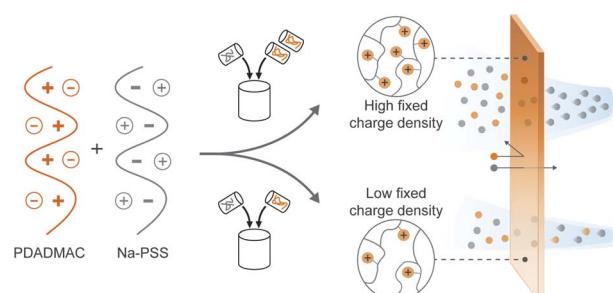
Hassan El Moussaoui,\* Zaina Idardare and Laila Bouqbis\*



3473

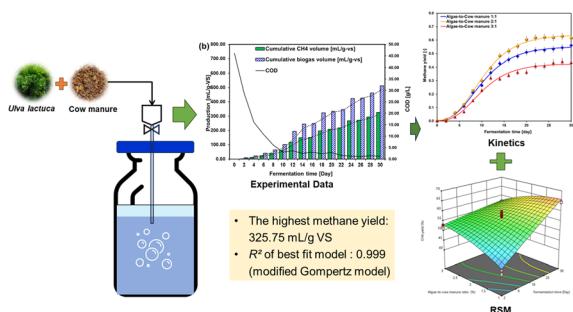
**Improving the fixed charge density of sustainably produced saloplastic anion exchange membranes**

Hestie A. Brink, Ricardo P. Martinho, Wiebe M. de Vos and Saskia Lindhoud\*



## PAPERS

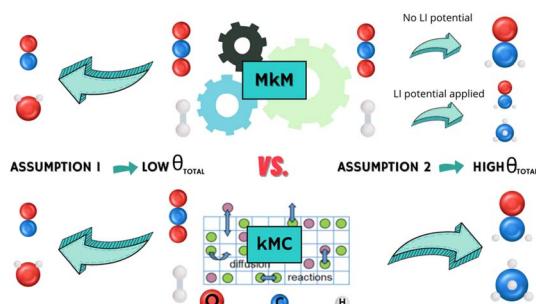
3483



### Sustainable biogas production through anaerobic co-digestion of *Ulva lactuca* (Chlorophyta) and cow manure: a kinetic and process optimization study

Obie Farobie,\* Veni Anggita Sari, Edy Hartulistiyo, Widya Fatriasari, Asep Bayu Dani Nandyanto, Apip Amrullah, Lusi Ernawati and Misbahuddin

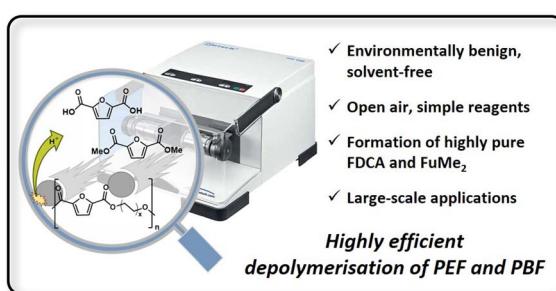
3499



### $\text{CO}_2$ hydrogenation on Ni(111): microkinetic modelling vs. kinetic Monte Carlo simulations – choosing the right approach for unravelling reaction kinetics

Alejandro Gracia, Pablo Lozano-Reis, Fermín Huarte-Larrañaga, Pablo Gamallo\* and Ramón Sayós

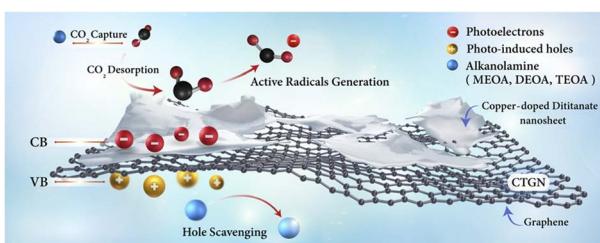
3513



### Highly efficient mechanochemical depolymerisation of bio-based polyethylene furanoate and polybutylene furanoate

Divya Jain, Florian Cramer, Pauline Shamraienko, Hans-Joachim Drexler, Brigitte Voit\* and Torsten Beweries\*

3520



### Effects of alkanolamines on photocatalytic reduction of carbon dioxide to liquid fuels using a copper-doped dititanate/graphene photocatalyst

Wannisa Neamsung, Nutkamol Kitjanukit, Apisit Karawek, Napatr Chongkol, Napat Lertthanaphol, Poomipat Chotngamkhum, Kongphoom Khumsupa, Poomiwat Phadungbut, Woranart Jonglertjanya, Pattaraporn Kim-Lohsoontorn and Sira Srinives\*

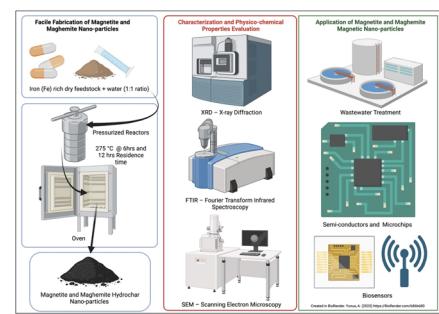


## PAPERS

3530

## Facile fabrication of magnetite ( $\text{Fe}_3\text{O}_4$ ) nanoparticles by hydrothermal carbonization of waste iron supplements

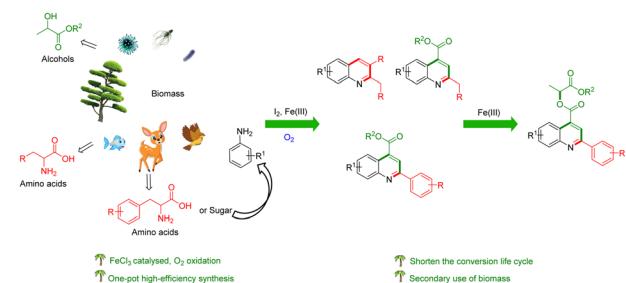
Ahmed I. Yunus, Samuel A. Darko,\* Yongsheng Chen and Joe F. Bozeman III\*



3548

## One-pot iron chloride-catalyzed sustainable syntheses of quinolines from amino acids, alkyl lactate and arylamine

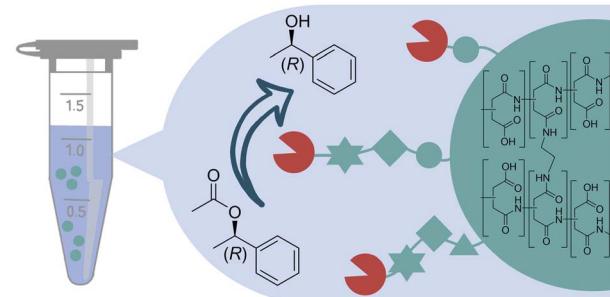
Meitian Fu, Lu Yin, Junjie Li, Sihan Zhao, Fujun Wang, Minglong Yuan\* and Chao Huang\*



3554

## Functionalized poly(aspartic acid) hydrogel particles as carriers for covalent enzyme immobilization

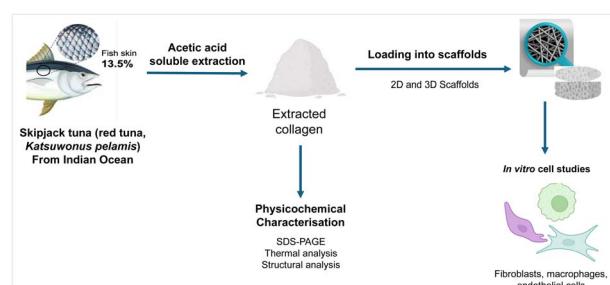
Johanna Meyer, Lars-Erik Meyer, Hadir Borg, Dirk Dorfs and Selin Kara\*



3567

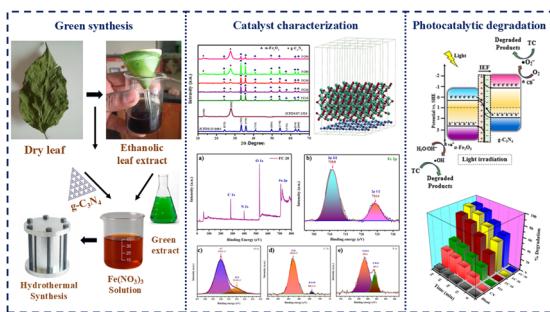
## Collagen from skipjack tuna skin waste enhances cellular proliferative activity, vascularization potential and anti-inflammatory properties of nanofibrous and hydrogel scaffolds

Tejaswini Petkar, Marie Andrea Laetitia Huët, Devesh Bekah, Itisha Chummun Phul, Nowsheen Goonoo and Archana Bhaw-Luximon\*



## PAPERS

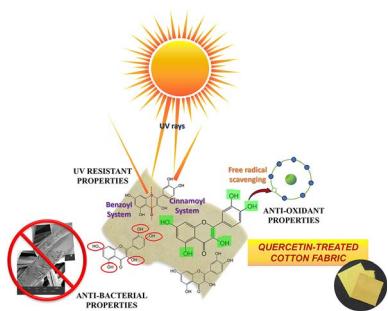
3582



***Nyctanthes arbor-tristis* L. mediated sustainable synthesis of  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub>/g-C<sub>3</sub>N<sub>4</sub> S-scheme heterojunctions for enhanced photocatalytic degradation of tetracycline hydrochloride: a mechanistic insight and DFT study**

Mano Ranjan Barik, Jagadish Kumar and Sushanta Kumar Badamali\*

3601



**A facile and sustainable method for integrating bio-based quercetin into cotton structures to impart multifunctionality: a thorough study on the effects of treatment conditions**

Mandira Mondal and S. Wazed Ali\*

