

# RSC Sustainability

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## IN THIS ISSUE

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**Inside cover**  
See Mara G. Freire, João A. P. Coutinho *et al.*, pp. 1314–1331. Image reproduced by permission of João A. P. Coutinho from *RSC Sustainability.*, 2023, 1, 1314.

## EDITORIAL

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### Fundamental tools for managing sustainability

Mike Sutton\*

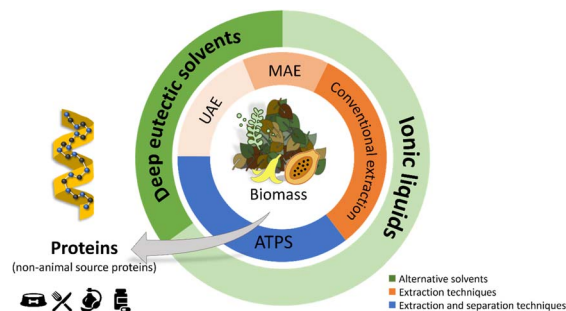


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### Towards the sustainable extraction and purification of non-animal proteins from biomass using alternative solvents

Bojan Kopilovic, Ana I. Valente, Ana M. Ferreira, Mafalda R. Almeida, Ana P. M. Tavares, Mara G. Freire\* and João A. P. Coutinho\*



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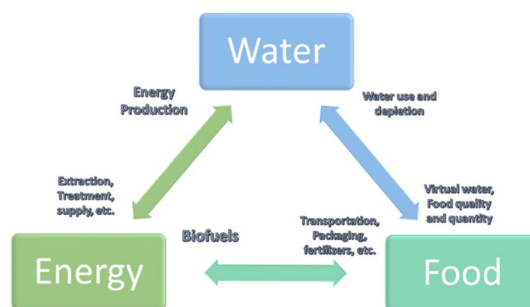


## CRITICAL REVIEWS

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**Sustainable design of water–energy–food nexus: a literature review**

Juan Gabriel Segovia-Hernández,\*  
Gabriel Contreras-Zarazúa and César Ramírez-Márquez

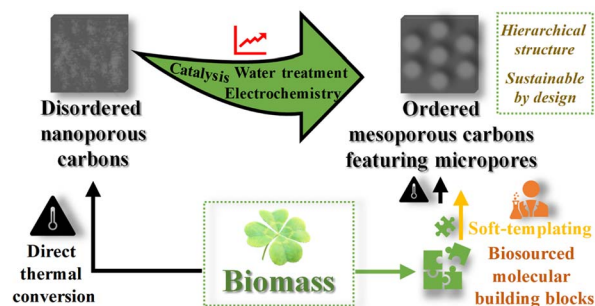


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**A tutorial mini-review on nanoporous carbons from biosourced compounds: ordered hierarchical nanoarchitectures through benign methodologies**

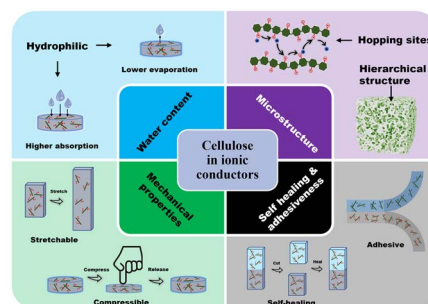
László Szabó,\* Wim Thielemans, Jin Won Seo,  
Frank Buysschaert, Dionysios D. Dionysiou  
and Veerle Vandeginste



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**Utilizing cellulose-based conducting hydrogels in iontronics**

Kudzanai Nyamayaro, Savvas G. Hatzikiriakos  
and Parisa Mehrkhodavandi\*



## PERSPECTIVE

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**Enhanced nickel catalysts for producing electrolytic hydrogen**

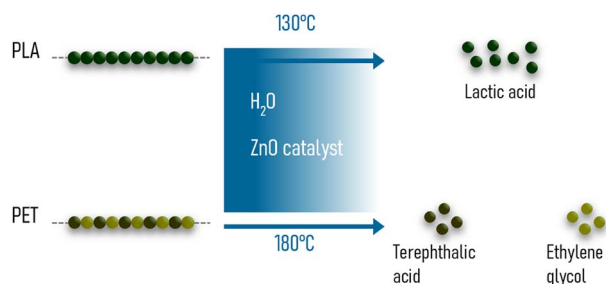
Rosaria Ciriminna\* and Mario Pagliaro\*

**Electrolytic hydrogen**  
via new generation **Ni-based**  
electrocatalysts



## COMMUNICATION

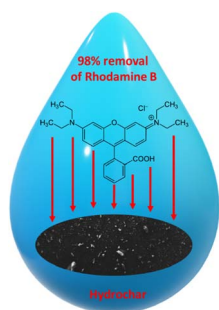
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**Hydrolytic depolymerisation of polyesters over heterogeneous ZnO catalyst**

Francesca Liguori, Carmen Moreno-Marrodán, Werner Oberhauser, Elisa Passaglia and Pierluigi Barbaro\*

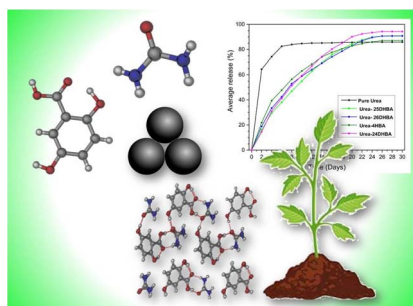
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**Hydrochar from *Sargassum muticum*: a sustainable approach for high-capacity removal of Rhodamine B dye**

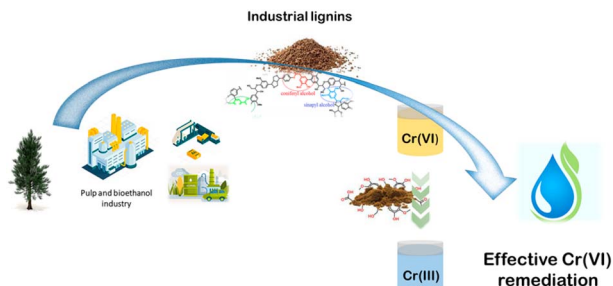
D. Spagnuolo, D. Iannazzo, T. Len, A. M. Balu, M. Morabito, G. Genovese, C. Espro and V. Bressi\*

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**Mechanosynthesis of urea–hydroxybenzoic acid cocrystals as sustained-release nitrogen fertilizer**

Trishna Rajbongshi, Shalika Parakatawella, Diptajyoti Gogoi, Poonam Deka, Nadeesh M. Adassooriya and Ranjit Thakuria\*

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**Industrial lignins as efficient biosorbents for Cr(VI) water remediation: transforming a waste into an added value material**

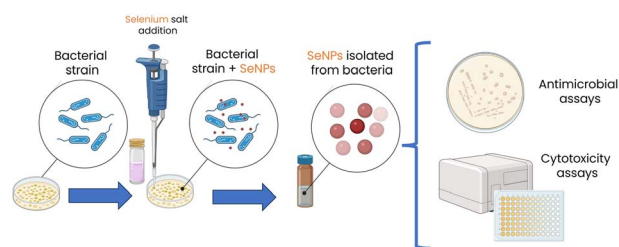
Marianna Vescovi, Matteo Melegari, Cristina Gazzurelli, Monica Maffini, Claudio Mucchino, Paolo Pio Mazzeo, Mauro Carcelli, Jacopo Perego, Andrea Migliori, Giuliano Leonardi, Suvi Pietarinen, Paolo Pelagatti\* and Dominga Rogolino\*



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## Bacterial-mediated selenium nanoparticles as highly selective antimicrobial agents with anticancer properties

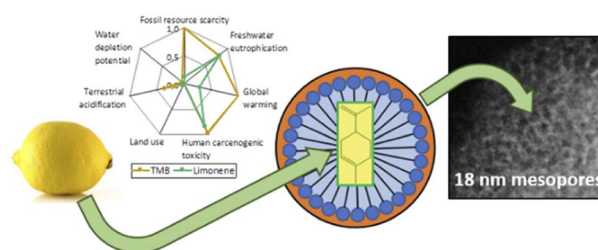
David Medina-Cruz, Linh B. Truong, Eduardo Sotelo, Lidia Martínez, María Ujué González, Yves Huttel, Thomas J. Webster, José Miguel García-Martín and Jorge L. Cholula-Díaz\*



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## Substituting fossil-based with bio-based chemicals: the case of limonene as a greener pore expander for micellar templated silica

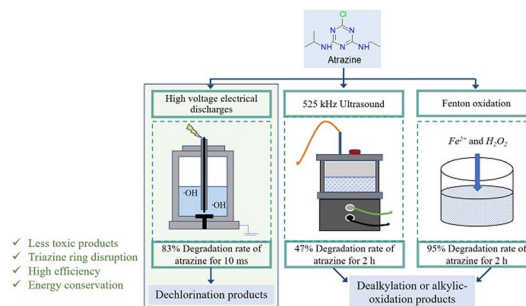
Umair Sultan, Katrin Städtke, Andreas Göpfert, Daniel Lemmen, Ezzeldin Metwali, Santanu Maiti, Carola Schlumberger, Tadahiro Yokosawa, Benjamin Apeleo Zubiri, Erdmann Spiecker, Nicolas Vogel, Tobias Unruh, Matthias Thommes and Alexandra Inayat



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## Degradation of herbicide atrazine in water by high voltage electrical discharge in comparison with Fenton oxidation and ultrasound treatments

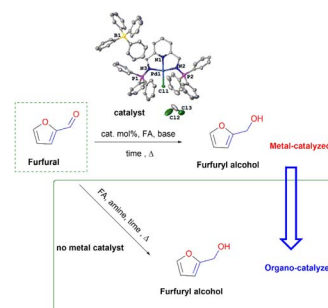
Junting Hong, Nadia Boussetta, Gérald Enderlin, Franck Merlier and Nabil Grimi\*



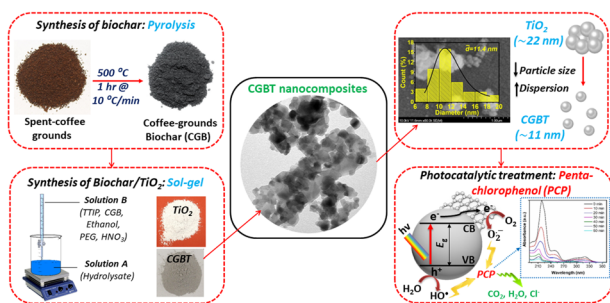
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## Convenient hydrogenation of furfural to furfuryl alcohol in metal-catalyzed and organo-catalyzed environments

Asanda C. Matsheku, Munaka Christopher Maumela and Banothile C. E. Makhubela\*



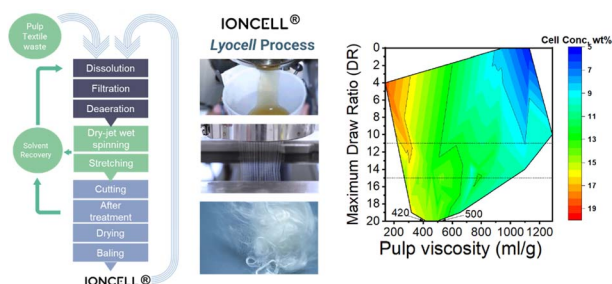
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### Spent-coffee grounds-derived biochar-supported heterogeneous photocatalyst: a performance evaluation and mechanistic approach for the degradation of pentachlorophenol

Rahil Changotra, Himadri Rajput, Jie Yang, Mita Dasog\* and Quan (Sophia) He\*

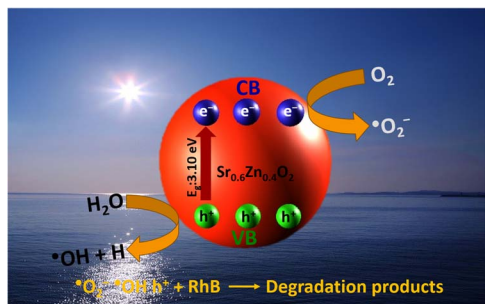
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### Influence of DP and MMD of the pulps used in the Ioncell® process on processability and fiber properties

Yibo Ma,\* Xiang You, Kaarlo Nieminen, Daisuke Sawada and Herbert Sixta\*

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### Effective photocatalytic degradation of rhodamine-B over Zn-doped BaO<sub>2</sub> and SrO<sub>2</sub> composites under UV and sunlight irradiation

Kirankumar Venkatesan Savunthari, Daneshwaran Balaji, Nivedita Sudheer, Mittal Bathwar, Manjunath Rangasamy, Ganesh Kumar Dhandabani, Alain R. Puente Santiago, Sumathi Shanmugam,\* Kien-Voon Kong\* and Vijayaraghavan R\*

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Improved 2-Pyridyl Reductive Homocoupling Reaction Using Biorenewable Solvent Cyrene™ (dihydrolevoglucosenone)



Conclusions:

- Reductive homocoupling reactions proceed faster in Cyrene™ and Cyrene™ blends than in dimethylformamide
- The formation of a 2,2'-bipyridyl product accelerates the reaction rate

### Improved 2-pyridyl reductive homocoupling reaction using biorenewable solvent Cyrene™ (dihydrolevoglucosenone)

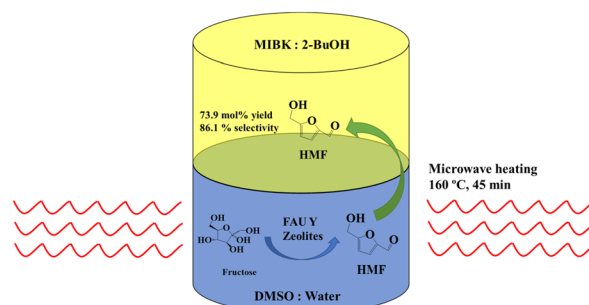
Daniel A. Webb, Zeid Alsudani, Guolin Xu, Peng Gao and Leggy A. Arnold\*



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### Hierarchical zeolite catalysed fructose dehydration to 5-hydroxymethylfurfural within a biphasic solvent system under microwave irradiation

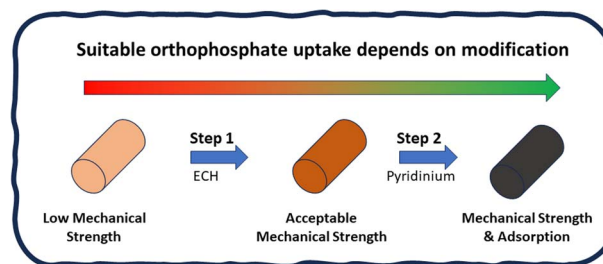
Huaizhong Xiang, Shima Zainal, Henry Jones, Xiaoxia Ou, Carmine D'Agostino, Jesús Esteban,\*  
Christopher M. A. Parlett\* and Xiaolei Fan\*



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### Pyridinium-furfuryl-modified granular agro-waste adsorbent for orthophosphate recovery

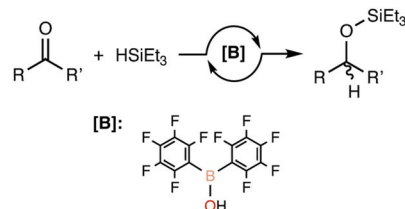
Bernd G. K. Steiger and Lee D. Wilson\*



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### Exploration of bis(pentafluorophenyl)borinic acid as an electronically saturated, bench-top stable Lewis acid catalyst

Taylor P. L. Cosby and Christopher B. Caputo\*



- Lewis acidity assessed
- Stability of borane catalysts explored towards air and moisture
- Catalysis shown under ambient conditions, in undried solvents, and benchmarked to state-of-the-art Lewis acid catalysts

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### Isolation of hydroxyapatite from Atlantic salmon processing waste using a protease and lipase mixture

Sarah Boudreau, Sabahudin Hrapovic, Yali Liu, Alfred C. W. Leung, Edmond Lam\*  
and Francesca M. Kerton\*



## CORRECTION

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**Correction: Removal of metals and inorganics from rendered fat using polyamine-modified cellulose nanocrystals**

Ezequiel Vidal, Frank Alexis, José M. Camiña, Carlos D. Garcia\* and Daniel C. Whitehead\*

