Green Chemistry

Cutting-edge research for a greener sustainable future

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See Cheng-Pan Zhang *et al.*, pp. 1662–1731.

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Inside cover
See Botao Qiao, Aiqin Wang, Francois Jérôme *et al.*, pp. 1770–1776.

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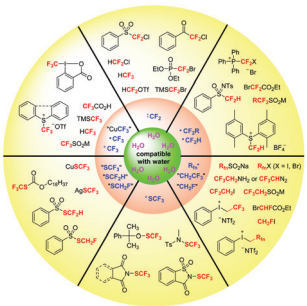
EDITORIAL

TUTORIAL REVIEW



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Cutting-edge research for a greener sustainable future

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Green Chemistry focuses on cutting-edge research that attempts to reduce the environmental impact of the chemical enterprise by developing a technology base that is inherently non-toxic to living things and the environment.

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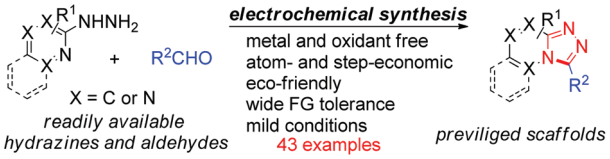

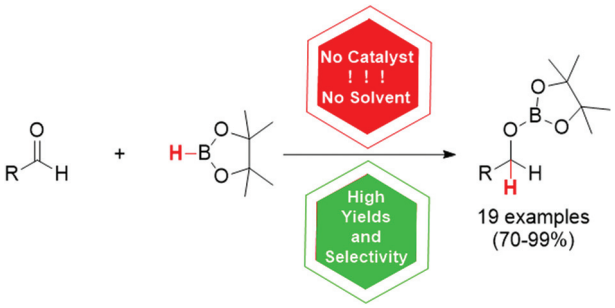

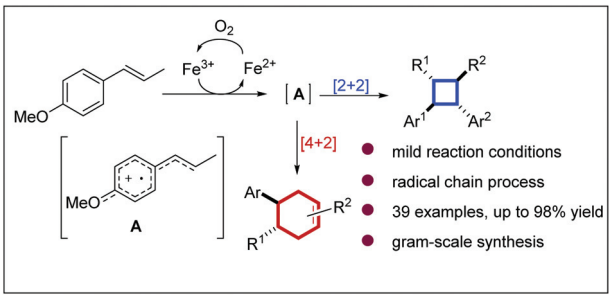

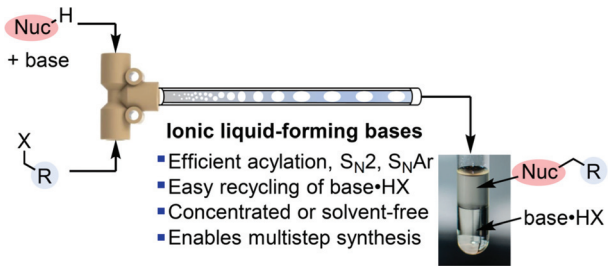

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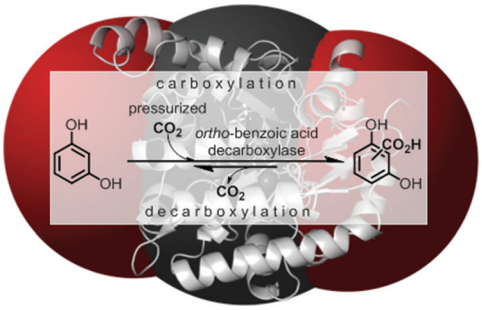
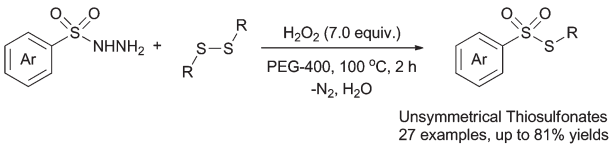


Pressurized CO_2 as a carboxylating agent for the biocatalytic *ortho*-carboxylation of resorcinol

Katharina Plasch, Gerhard Hofer, Walter Keller, Sam Hay, Derren J. Heyes, Alexander Dennig, Silvia M. Glueck* and Kurt Faber*

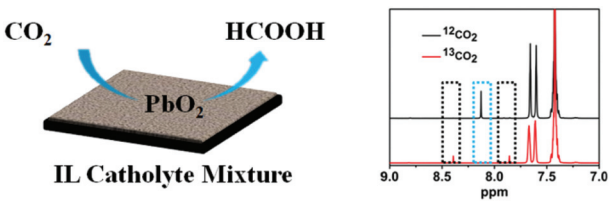
Utilization of gaseous carbon dioxide as a C_1-building block in the biocatalytic *ortho*-carboxylation of a phenol.



H_2O_2-mediated metal-free protocol towards unsymmetrical thiosulfonates from sulfonyl hydrazides and disulfides in PEG-400

Z. Peng, X. Zheng, Y. Zhang, D. An* and W. Dong*

A series of unsymmetrical thiosulfonates were successfully prepared from sulfonyl hydrazides and disulfides with the assistance of H_2O_2 (7.0 equiv.) in PEG-400 at 100 °C, releasing N_2 and H_2O as byproducts. EPR analysis proved the protocol proceeded through a free radical pathway and a plausible mechanism was proposed.

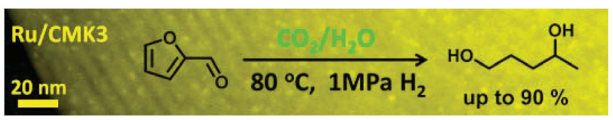


Highly efficient electrochemical reduction of CO_2 into formic acid over lead dioxide in an ionic liquid–catholyte mixture

Haoran Wu, Jinliang Song,* Chao Xie, Yue Hu and Buxing Han*

The combination of commercial lead dioxide and ionic liquid based catholytes showed highly efficient electrochemical reduction of CO_2 into formic acid.

PAPERS



Catalytic cascade conversion of furfural to 1,4-pentanediol in a single reactor

Fei Liu, Qiaoyun Liu, Jinming Xu, Lei Li, Yi-Tao Cui, Rui Lang, Lin Li, Yang Su, Shu Miao, Hui Sun, Botao Qiao,* Aiqin Wang,* Francois Jérôme* and Tao Zhang

The selective transformation of furfural to 1,4-pentanediol has been achieved with up to 90% yield in a $CO_2/H_2/H_2O$ system over Ru catalytic species supported on a mesoporous carbon.

PAPERS

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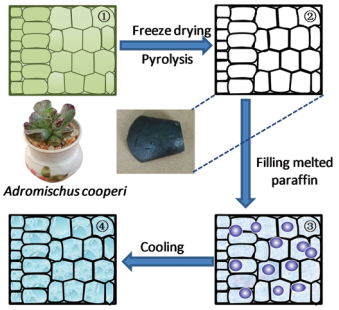

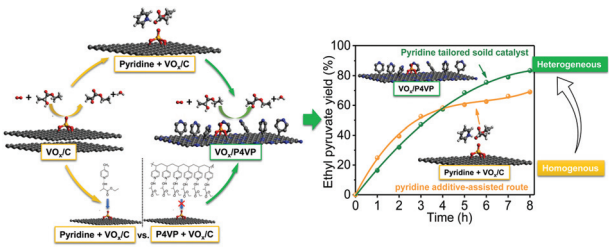

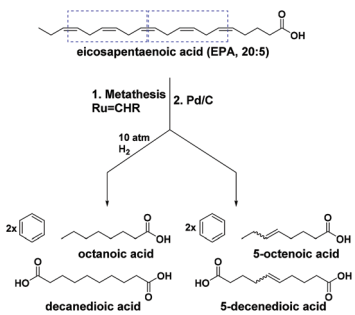

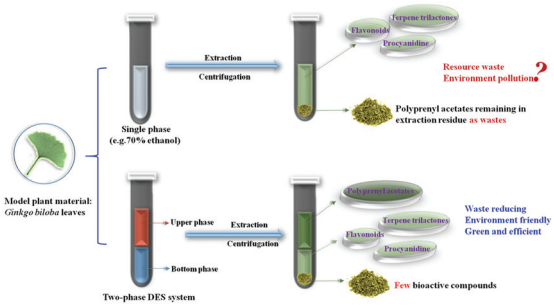

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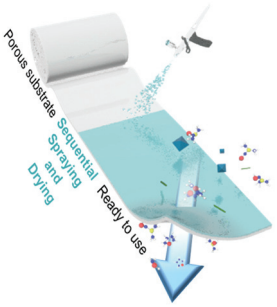


A compact and scalable fabrication method for robust thin film composite membranes

Ji Hoon Kim, Marcus Cook, Sang Hyun Park, Sun Ju Moon, Jeong F. Kim, Andrew G. Livingston and Young Moo Lee*

A compact and scalable membrane fabrication method proposes an environmentally friendly process intensification in terms of efficiently reduced production time, chemical consumption, and wastewater generation, resulting in a robust membrane.

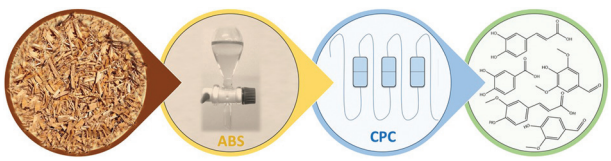
1899

Water-borne coatings that share the mechanism of action of oil-based coatings

Jaddie Ho, Bhanu Mudraboyina, Caroline Spence-Elder, Rui Resendes, Michael F. Cunningham* and Philip G. Jessop*

A new coating performs like an oil-based paint, with fully dissolved polymer, but uses water as a solvent.

1906



Separation of phenolic compounds by centrifugal partition chromatography

João H. P. M. Santos, Mafalda R. Almeida, Cláudia I. R. Martins, Ana C. R. V. Dias, Mara G. Freire, João A. P. Coutinho and Sónia P. M. Ventura*

An integrated process to purify a mixture of phenolic compounds was implemented in continuous regime by using centrifugal partition chromatography.