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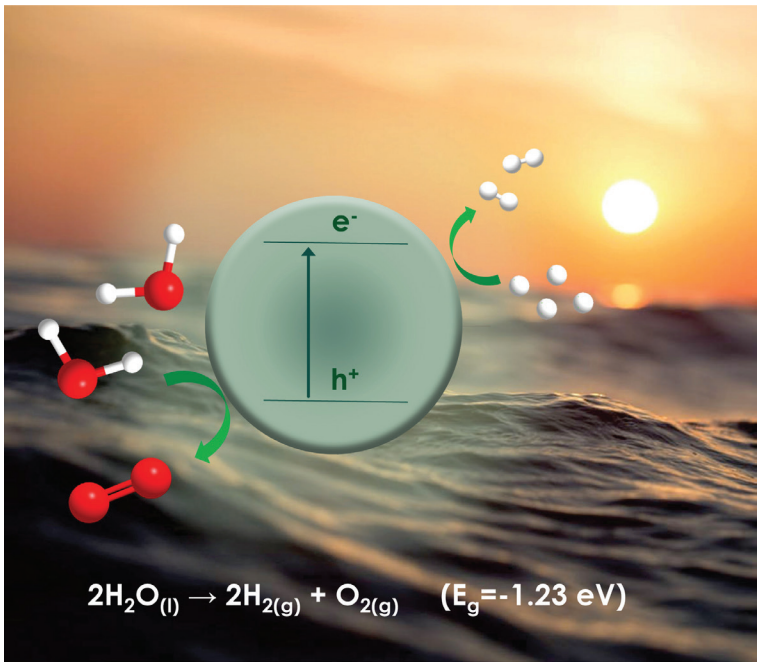
Cover Picture

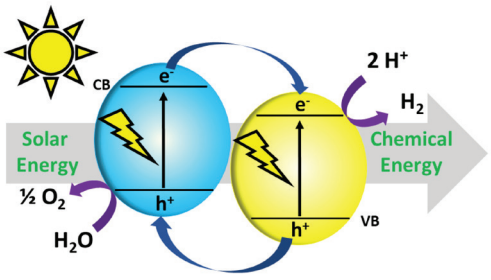


This figure illustrates the generation of charge carriers in semiconductor photocatalyst nanoparticles as a result of band gap excitation by sunlight. These charge carriers can then be employed to promote the water splitting reaction for the generation of H_2. This transformation is of paramount importance to the solar-to-chemical energy conversion. We review herein the fundamentals of H_2 generation from water splitting and representative classes of photocatalytic materials. Details are presented in the Review **An Overview of the Photocatalytic H_2 Evolution by Semiconductor-Based Materials for Nonspecialists** by *Ivo F. Teixeira, Jhon Quiroz, Mauricio S. Homsi and Pedro H. C. Camargo* on page 211.

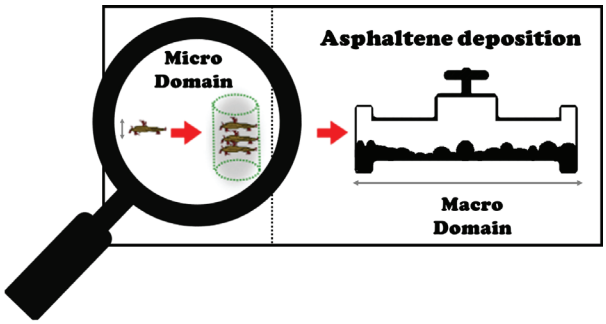
Contents

Reviews

Graphical Abstract
We review semiconductor photocatalysts for the H_2 evolution reaction that have displayed the best reported activities and quantum efficiencies.

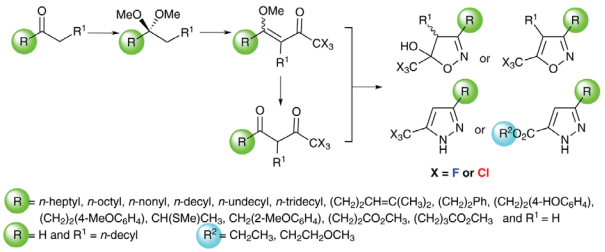


Semiconductor-Based Photocatalyst

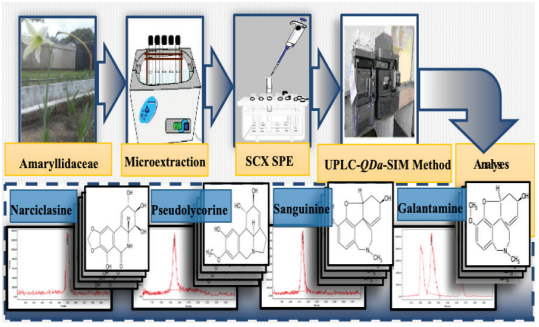


Graphical Abstract
This review discusses colloidal aspects of crude oil asphaltenes and their impact on oil production issues.

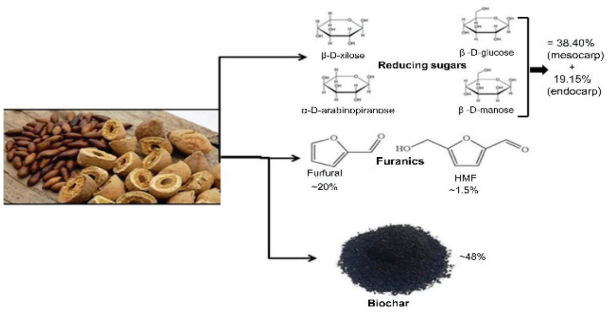
Articles



Graphical Abstract
The goal is to demonstrate the scope of the practical acetal acetylation methodology for synthesis of trihalomethyl substituted 1,3-dielectrophiles and their versatility in the preparation of 1,2-azoles.



Graphical Abstract
Ultra-performance liquid chromatography coupled to mass spectrometry (UPLC-ESI-MS) method for quantitation of Amaryllidaceae alkaloids.

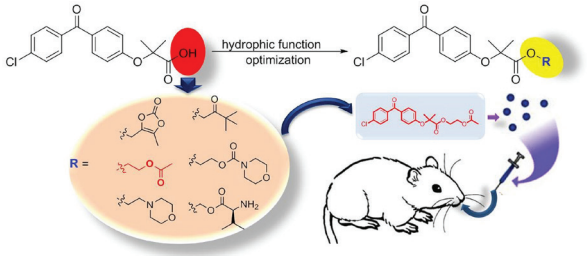


Graphical Abstract
Brazilian Cerrado biomass waste was evaluated as potential raw-material for biofuel and bioproduct production in biorefineries.

280 **Synthesis and Evaluation of Fenofibric Acid Ester Derivatives: Studies of Different Formulation with Their Bioavailability and Absorption Conditions**

SI online

Zhixiang Lv, Zhou Wang, Fuyan Xiao and Guofan Jin



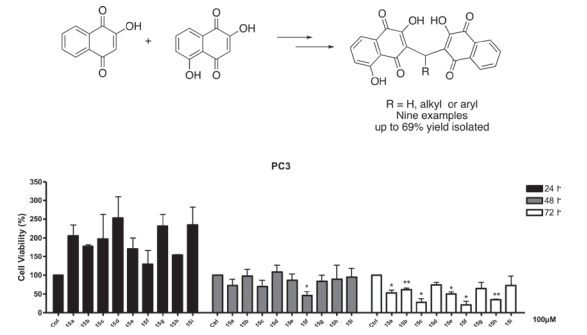
Graphical Abstract

A series of fenofibric acid ester pro-drugs were synthesized. The oral administration (20 mg kg^{-1}) of **JF-2** showed a relative bioavailability of approximately 272.8% compared to fenofibrate.

288 **A New Strategy for the Synthesis of Nonsymmetrical 3,3'-(Aryl/alkyl-methylene)bis-2-hydroxy-1,4-naphthoquinones and Their Cytotoxic Effects in PC3 Prostate Cancer Cells**

SI online

Ruan Carlos B. Ribeiro, Paula Priscilla de Freitas, Caroline S. Moreira, Leonardo G. C. de Moraes, Matheus G. de Moraes, Fernando C. da Silva, David R. Rocha, Etel R. Pereira Gimba and Vitor F. Ferreira



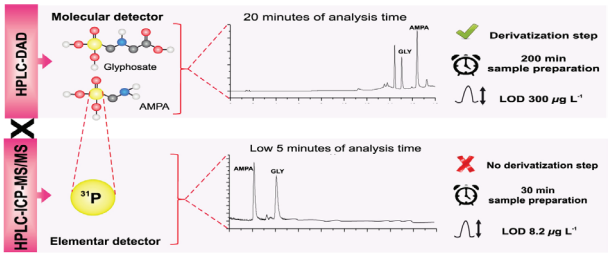
Graphical Abstract

A novel method for the synthesis of nonsymmetrical 3,3'-(aryl/alkyl-methylene)bis-2-hydroxy-1,4-naphthoquinones was developed by using the Mannich adduct of naphthoquinone and the reaction with another moiety of 2-hydroxy-1,4-naphthoquinone.

298 **Quantification of Glyphosate and AMPA by HPLC-ICP-MS/MS and HPLC-DAD: A Comparative Study**

SI online

Emanuella M. Pimenta, Fabio F. da Silva, Érica S. Barbosa, Ane P. Cacique, Douglas L. Cassimiro, Gevany P. de Pinho and Flaviano O. Silvério



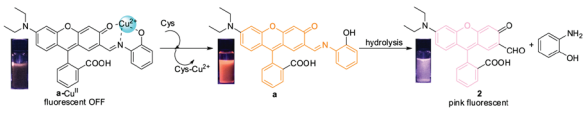
Graphical Abstract

The image represents the parameters in which high performance liquid chromatography using inductively coupled plasma with triple quadrupole mass spectrometer (HPLC-ICP-MS/MS) was superior to high performance liquid chromatography with diode array detector (HPLC-DAD) in determining glyphosate and aminomethylphosphonic acid (AMPA).

305 **A Highly Selective Colorimetric Sensor for Cysteine Detection**

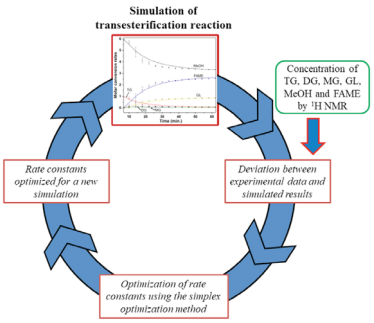
SI online

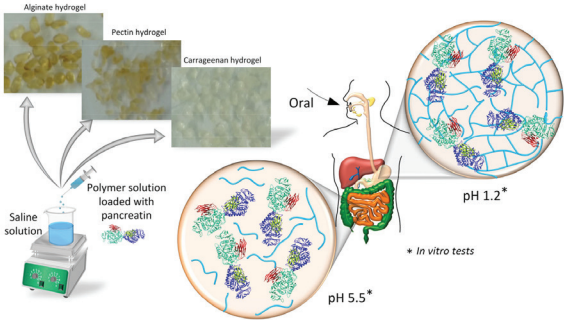
Mengjiao Peng, Hui Wang, Gregory L. Gibson, Hua Shang, Jianmin Yang, Yan Chen and Yin Lu

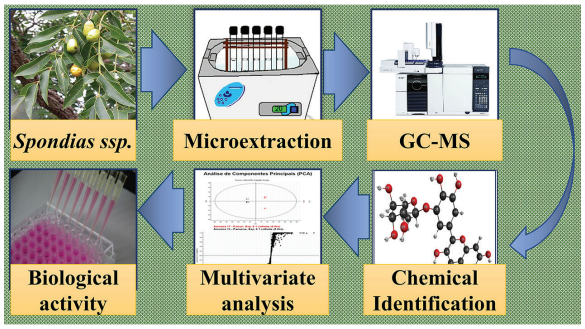


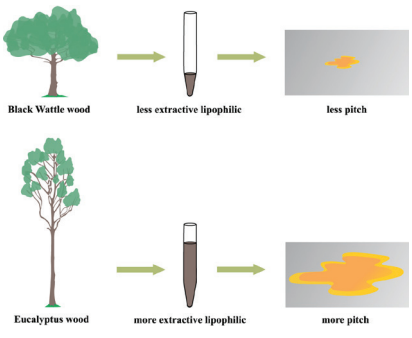
Graphical Abstract

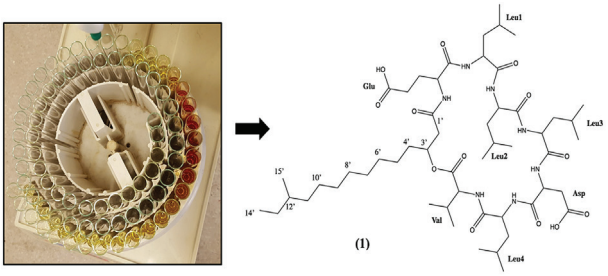
Cysteine (Cys) can release Cu^{II} ion from the non-fluorescent **a**-Cu^{II} complex. Then hydrolytic cleavage of Schiff base (*E*)-2-(6-(diethylamino)-2-((2-hydroxyphenylimino)methyl)-3-oxo-3*H*-xanthen-9-yl)benzoic acid (**a**) produces a pink fluorescent compound 2-(6-(diethylamino)-2-formyl-3-oxo-3*H*-xanthen-9-yl)benzoic acid (**2**). Thus, Cys residues act as a "switch" in an off-on fluorescence system.

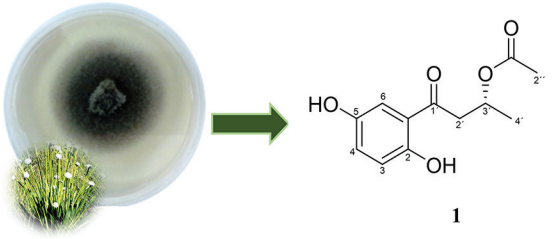


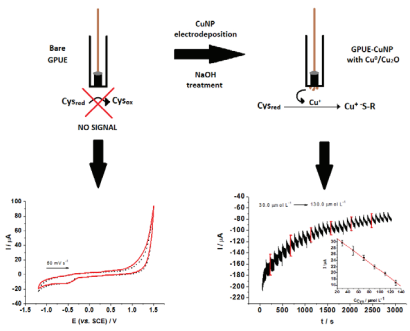


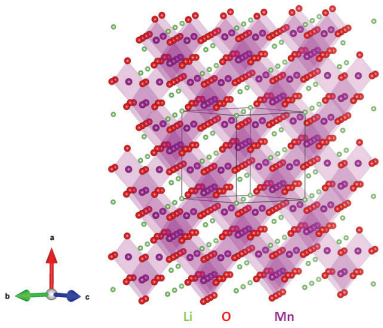


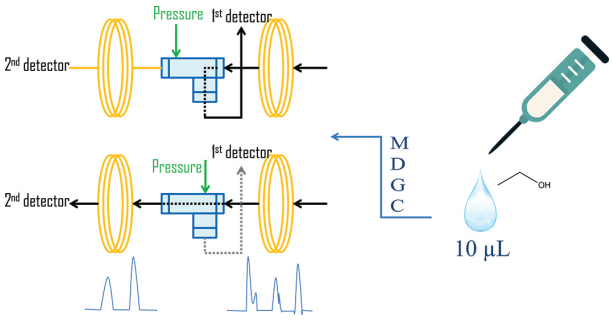


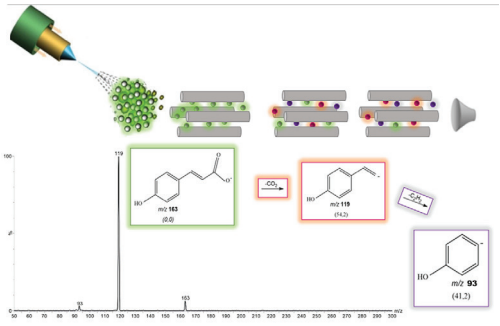


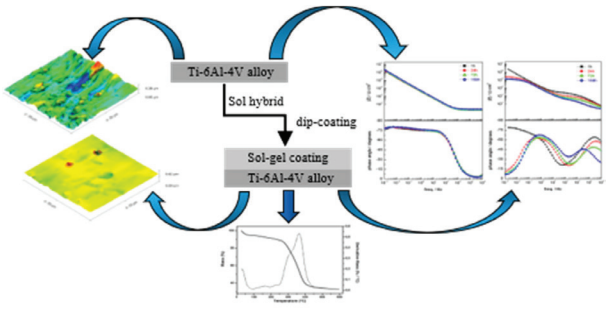












Graphical Abstract

Wine samples were added in the hydrophilic microzones of a paper device followed by addition of NaOH solution in stoichiometric excess. An infrared camera was used to record the analytical operations. The neutralization reaction releases heat, and the temperature of solutions rises, and it could be directly related to the wine acidity.