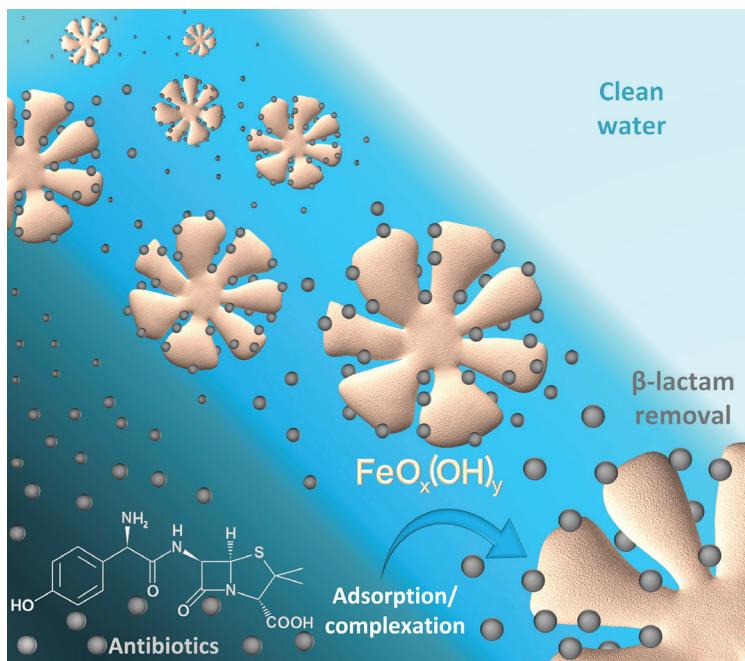


Cover Picture



The presence of antibiotics in water has become a worldwide concern. Adsorbents based on mesoporous iron oxide containing surface $[\text{FeO}_x(\text{OH})_y]$ sites were produced for the efficient adsorption of β -lactam antibiotics. The findings demonstrated a special interaction between amoxicillin and the surface iron oxyhydroxide species. Details are presented in the Article **Controlled Dehydration of $\text{Fe}(\text{OH})_3$ to Fe_2O_3 : Developing Mesopores with Complexing Iron Species for the Adsorption of β -Lactam Antibiotics** by Paula S. Pinto, Giovani D. Lanza, José D. Ardisson and Rochel M. Lago on page 310.

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- 211 Encapsulating TiO_2 into Polyvinyl Alcohol Coated Polyacrylonitrile Composite Beads for the Effective Removal of Methylene Blue
Zhenhua Han, Jiali Jin, Yuchao Wang, Zihui Zhang, Junjie Gu, Minrui Ou and Xiaoping Xu

Graphical Abstract
Polyacrylonitrile (PAN)/polyvinyl alcohol (PVA)/ TiO_2 (PPT) beads structure and removal of methylene blue (MB) under visible light irradiation.



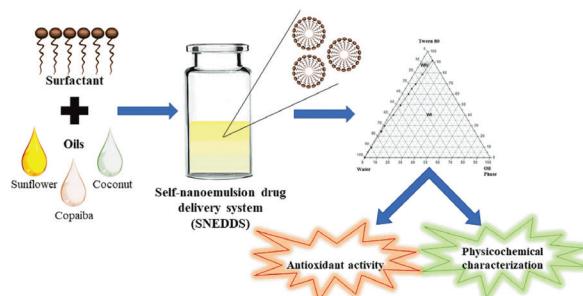
- 224 High Uranium Concentrations in the Groundwater of the Rio de Janeiro State, Brazil, Mountainous Region**
*José M. Godoy, Paulo R. Ferreira, Elder M. de Souza,
Larisse I. da Silva, Isabela C. S. Bittencourt and
Felipe Fraifeld*



Graphical Abstract

Uranium concentrations higher than the Brazilian regulatory limits were observed in several groundwater wells in the mountainous region near Rio de Janeiro City. Clear water does not mean uncontaminated water.

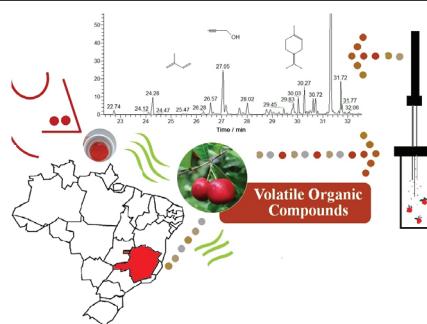
- 234 Physicochemical Characterizations and Antioxidant Property
of Copaiba Oil Loaded into SNEDDS Systems**
*Denise P. Emerenciano, Bernardo B. D. Baracho,
Melyssa L. de Medeiros, Hugo A. O. Rocha,
Francisco H. Xavier Jr., Valdir F. da Veiga Jr. and
Maria Aparecida M. Maciel*



Graphical Abstract

Graphical Abstract
Copaiba oil-resin loaded into self-nanoemulsion drug delivery systems (SNEDDS) were obtained in order to improve the solubility and bioavailability of this natural oil.

- 247 SPME Fiber Evaluation for Volatile Organic Compounds Extraction from Acerola**
Yesenia M. García, José C. M. Rufini, Matheus P. Campos, Mayara N. S. Guedes, Rodinei Augusti and Júlio O. F. Melo



Graphical Abstract

Graphical Abstract

Extraction of volatile organic compounds from acerola fruits through the use of different solid phase microextraction (SPME) fibers.

- 256 Biomonitoring of Toxic Elements in Plants Collected Near Leather Tanning Industry**
*Alex R. H. De La Cruz, Lorreine D. S. C. Ferreira,
Vinicius P. Andrade and Adriana Gioda*

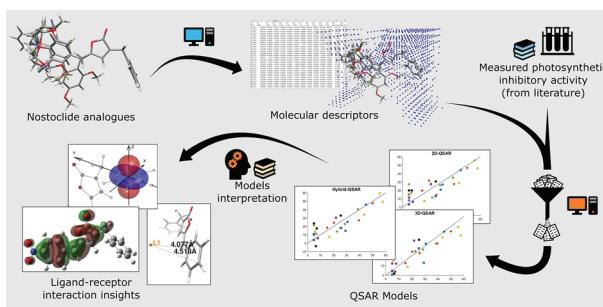


265 2D, 3D and Hybrid QSAR Studies of Nostoclide Analogues as Inhibitors of the Photosystem II



Pedro O. M. de Carvalho and Márcia M. C. Ferreira

SI online



Graphical Abstract

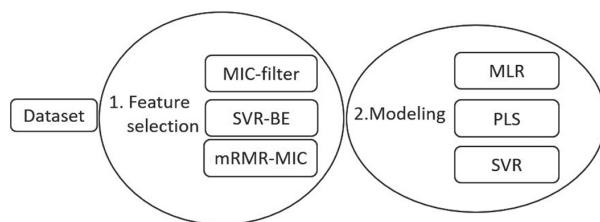
2D and 3D molecular descriptors were calculated, selected and used to build quantitative structure-activity relationship (QSAR) models to predict the herbicide activity of a set of nostoclide analogues (experimental data retrieved from the literature). The models were interpreted to understand the ligand-receptor interactions.

279 Maximal Information Coefficient and Support Vector Regression Based Nonlinear Feature Selection and QSAR Modeling on Toxicity of Alcohol Compounds to Tadpoles of *Rana temporaria*

Lifeng Wang, Pengwei Xing, Cong Wang, Xiaomao Zhou, Zhijun Dai and Lianyang Bai

Graphical Abstract

Given a dataset, first, use maximum information coefficient (MIC-filter), support vector regression backward elimination (SVR-BE) and minimal redundancy maximal relevance (mRMR-MIC) to select features. Second, use the multiple linear regression (MLR), partial least square regression (PLS) and support vector regression (SVR) to build quantitative structure activity relationship (QSAR) models.



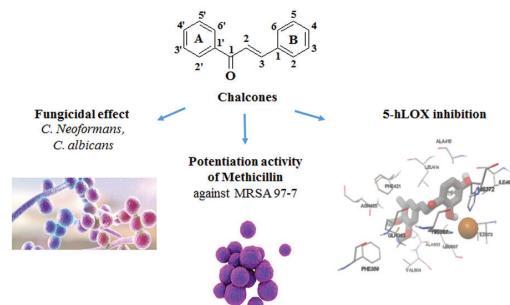
286 Antimicrobial, Anti-Inflammatory and Antioxidant Activities of Polyoxygenated Chalcones



Yesseny A. Vásquez-Martínez, Mauricio E. Osorio, Diego A. San Martín, Marcela A. Carvajal, Alejandra P. Vergara, Elizabeth Sanchez, Marcela Raimondi, Susana A. Zacchino, Carolina Mascayano, Claudia Torrent, Francisco Cabezas, Sophia Mejias, Margarita Montoya and Marcelo Cortez-San Martín

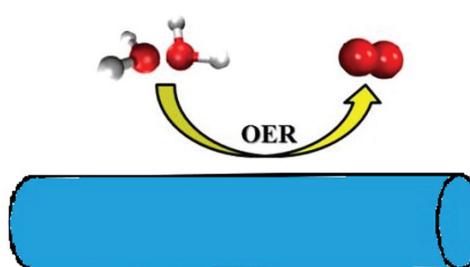
Graphical Abstract

Nine simple polyoxygenated chalcones were synthesized to evaluate their antimicrobial, anti-inflammatory and antioxidant activities.



305 Influence of Electrooxidation of Ni Wire Electrodes on the Kinetics of Oxygen Evolution Reaction Studied in 0.1 mol dm⁻³ NaOH

Andrii Slis, Tomasz Mikolajczyk and Boguslaw Pierozynski



Graphical Abstract

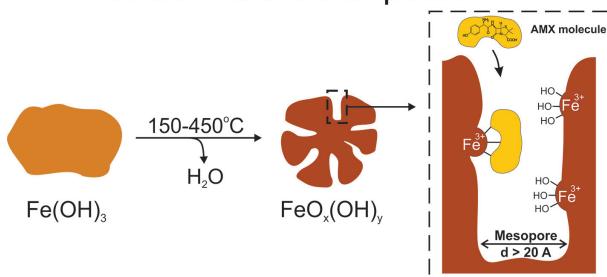
Oxygen evolution reaction (OER) on nickel wire with nickel oxyhydroxide layer.

310 Controlled Dehydration of Fe(OH)_3 to Fe_2O_3 : Developing Mesopores with Complexing Iron Species for the Adsorption of β -Lactam Antibiotics

SI online Paula S. Pinto, Giovani D. Lanza, José D. Ardisson and Rochel M. Lago

Graphical Abstract
The evolution of the iron hydroxide to produce mesopores containing $[\text{FeO}_x(\text{OH})_y]$ surface sites capable of complexing the amoxicillin molecules.

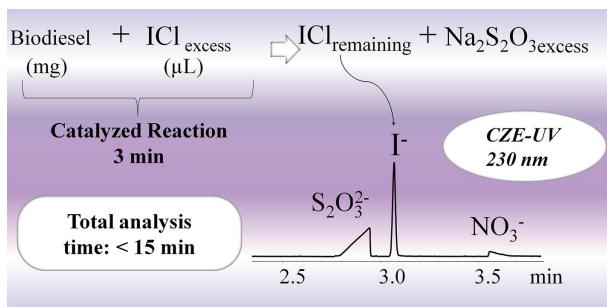
Antibiotic diffusion and complexation



318 Fast Determination of Iodine Number of Biodiesel Using Capillary Zone Electrophoresis with Multi- and Single-Point Calibration

SI online Alysson V. F. Sako and Gustavo A. Micke

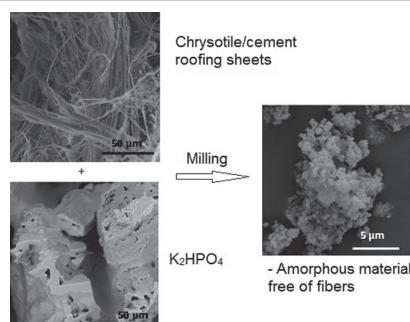
Graphical Abstract
Strategy for fast determination of iodine number of biodiesel samples by capillary zone electrophoresis (CZE). Low sample amount (mg), reagent (μL), and organic solvent (μL) are required.



326 Potential Slow Release Fertilizers and Acid Soil Conditioners Obtained by One-Pot Mechanochemical Activation of Chrysotile:Cement Roofing Sheets with K_2HPO_4

Roger Borges and Fernando Wypych

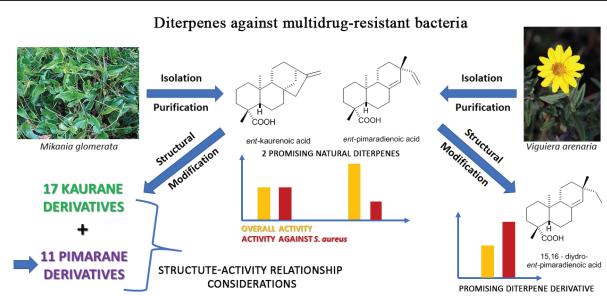
Graphical Abstract
Chrysotile:cement sheets were milled with K_2HPO_4 and the amorphous mixture, free of fibers, presents a potential fertilizer and soil conditioner behavior.



333 Antimicrobial Potential of Natural and Semi-Synthetic *ent*-Kaurane and *ent*-Pimarane Diterpenes against Clinically Isolated Gram-Positive Multidrug-Resistant Bacteria

SI online Ana Carolina F. Soares, Priscilla M. Matos, Karime F. da Silva, Carlos H. G. Martins, Rodrigo C. S. Veneziani, Sérgio R. Ambrósio, Herbert J. Dias, Raquel A. dos Santos and Vladimir C. G. Heleno

Graphical Abstract
Two natural diterpenes were evaluated against multi-drug resistant (MDR) Gram-positive bacteria and were converted into 28 semi-synthetic derivatives. Both natural compounds displayed interesting activity overall, but not so good against *Staphylococcus aureus*, a relevant multi-resistant pathogen. The activities of all derivatives were determined what revealed one with good overall activity and with a noteworthy activity against *S. aureus*. All other results could further clarify some structure-antimicrobial activity relationship questions about diterpenes.

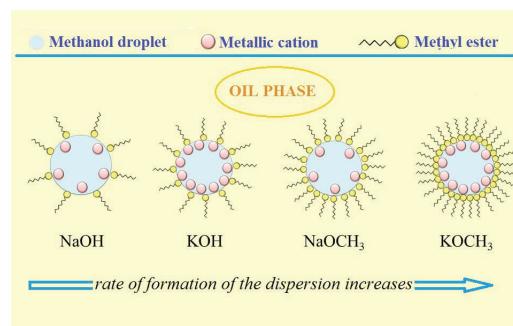


342 Biodiesel Synthesis: Influence of Alkaline Catalysts in Methanol-Oil Dispersion

José G. Rocha Jr., Andreza D. M. Mendonça,
Daniel A. R. de Campos, Renilson O. Mapele,
Cristina M. Barra, Glauco F. Bauerfeldt and
Matthieu Tubino

Graphical Abstract

Methyl esters and alkaline catalysts are adsorbed on the surface of the methanol oil, favoring the dispersion of the methanol in the oil phase.
The adsorption of potassium is greater than that of sodium.

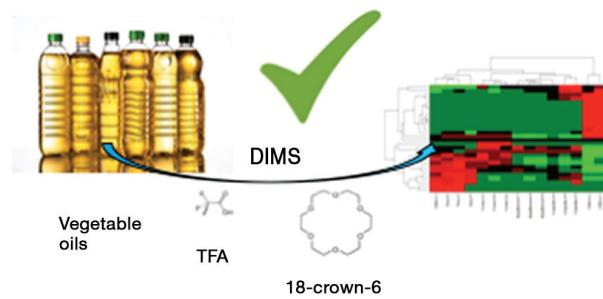


350 Fast Triacylglycerol Screening and Semi-Quantitative Analysis of Fatty Acids in Commercial Oils by DIMS with 18-Crown-6 Ether/Trifluoroacetic Acid Dopants

Angelica P. P. Tonin, Marcos A. S. Ribeiro, Camila B. Poliseli,
Roberta da Silveira, Jesuí V. Visentainer, Valquíria M. Silva,
Leomara F. Ribeiro, Rodrigo C. T. de Souza,
Cláudio C. de Oliveira and Eduardo C. Meurer

Graphical Abstract

Simple and rapid analysis of commercial oils by direct injection electrospray ionization mass spectrometry (DIMS) and identification of adulteration in olive oil.

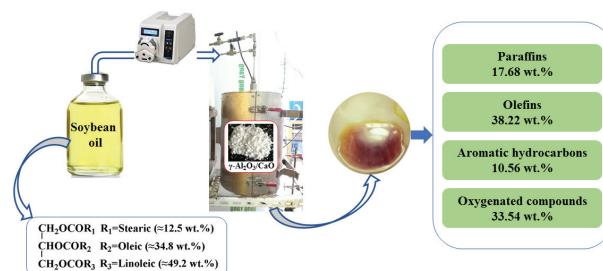


359 Catalytic Cracking of Soybean Oil for Biofuel over γ -Al₂O₃/CaO Composite Catalyst

Zhi Zheng, Tong Lei, Jun Wang, Yi Wei, Xuejun Liu, Fengwen Yu and Jianbing Ji

Graphical Abstract

Catalytic cracking of soybean oil for biofuel over γ -Al₂O₃/CaO composite catalysts was conducted in a fixed-bed reactor. The biofuel showed similar chemical composition and fuel properties (low acid value and high calorific value) with the petroleum-based fuel due to the acid-base characters of γ -Al₂O₃/CaO composite catalysts

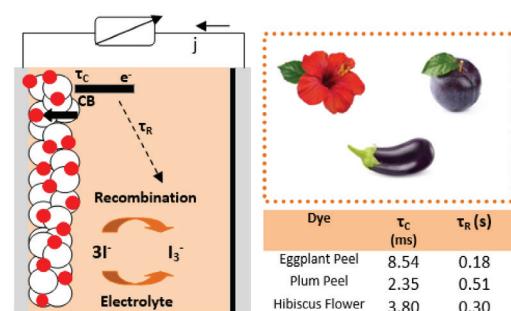


371 Recombination Study of Dye Sensitized Solar Cells with Natural Extracts

Gideá T. Tractz, Aline Viomar, Bianca V. Dias,
Camila A. de Lima, Everson P. Banczek, Maico T. da Cunha,
Sandra R. M. Antunes and Paulo R. P. Rodrigues

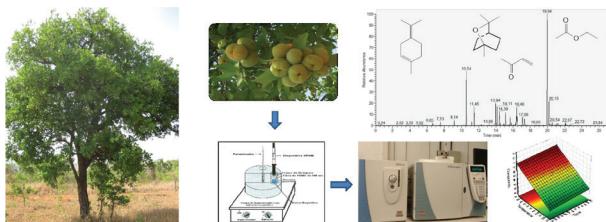
Graphical Abstract

In this study, frequency domain techniques are used to examine electron transport and dye recombination in natural dye sensitized solar cells.



379 Evaluation of the Influence of Extraction Conditions on the Isolation and Identification of Volatile Compounds from Cagaita (*Eugenia dysenterica*) Using HS-SPME/GC-MS

 
Mauro R. Silva, Gustavo H. Bueno, Raquel L. B. Araújo,
Inayara C. A. Lacerda, Lucas G. Freitas, Harriman A. Morais,
Rodinei Augusti and Júlio O. F. Melo

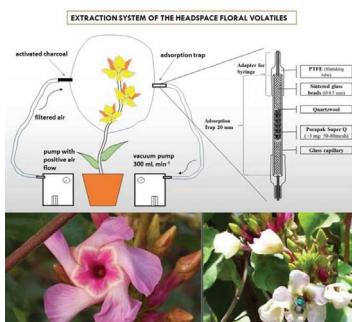


Graphical Abstract

Conditions optimization of extraction of volatile compounds from fruit of *Eugenia dysenterica* using different solid-phase microextraction (SPME) fibers.

388 Floral Scent and Nectar Sugar Composition of *Tenmadenia odorifera* (Apocynoideae, Apocynaceae)

 
Rafael F. Silva, Natália A. B. Tinoco, Anna Tsukui,
Cristiana Koschnitzke, Inara C. Silva-Batista,
Claudia M. Rezende and Humberto R. Bizzo



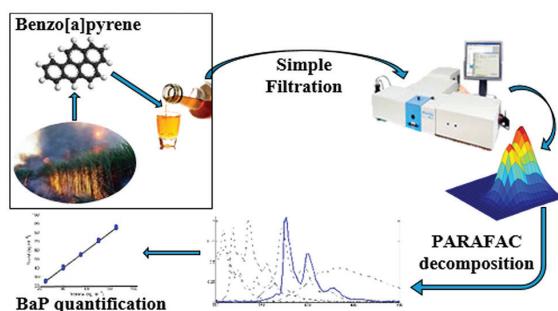
Graphical Abstract

Analysis of the chemical composition of the attractants and floral resources available in *T. odorifera* provided a broader understanding of the mechanisms responsible for plant-insect interactions.

398 Green Chemistry Method Based on PARAFAC EEM Data Modeling for Benzo[a]pyrene Quantitation in Distilled Spirit

Amanda C. Silva, Licarion Pinto, Adriano A. Gomes and

Mario C. U. Araujo

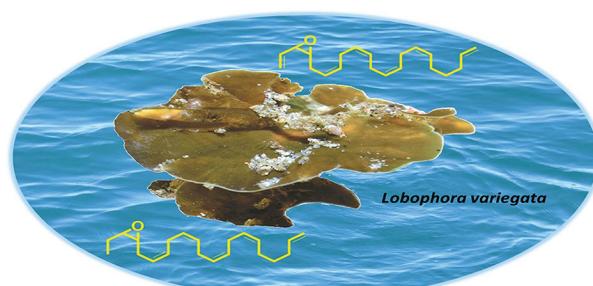


Graphical Abstract

Procedure of benzo[a]pyrene (BaP) quantification in cachaças using PARAFAC to overcome the interferences.

406 New Antiproliferative Polyunsaturated Epoxy-Heneicosane Derivatives Isolated from the Brown Alga *Lobophora variegata*

 
Fábio N. Ávila, Francisco C. L. Pinto, Pedro B. M. Carneiro,
Kayanny Q. Ferreira, Diego V. Wilke, Nádia A. P. Nogueira,
Edilberto R. Silveira and Otília Deusdênia L. Pessoa



Graphical Abstract

Two new polyunsaturated 3,4-epoxy-heneicosane derivatives named as epoxy-lobophorene A and B were isolated from the brown alga *Lobophora variegata* and presented a moderate antiproliferative effect against tumor cell lines.

413 Carbon in Physical Fractions and Organic Matter Chemical Composition of an Acrisol after Amazon Forest Burning and Conversion into Pasture

Otávio A. Leal, Deborah P. Dick, Falberni S. Costa,
Heike Knicker, João A. de Carvalho Júnior and José C. Santos

Graphical Abstract

Soil carbon stocks and organic matter composition (assessed by ^{13}C NMR spectroscopy) in an Acrisol under native Amazon Forest and natural regeneration or pasture cultivation after native Amazon Forest slash-and-burn, which emitted 74 Mg ha^{-1} of carbon to the atmosphere.

