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Cover Picture



Zero-valent copper nanoparticles were used to remove cefadroxil and ceftriaxone beta-lactams antibiotics (removal > 85% within 20 min of reaction). The results indicated that Cu⁺ species are responsible for degradation, whereas Cu²⁺ species are responsible for the adsorption of antibiotics and byproducts degradation on the material surface. Details are presented in the Article **Removal of Beta-Lactams Antibiotics through Zero-Valent Copper Nanoparticles** by *Lucas M. F. Oliveira, Mayra A. Nascimento, Yuri M. Guimarães, André F. Oliveira, Antônio A. Silva and Renata P. Lopes* on page 1630.

Contents

Communications

1593 Arsenic Speciation in Fish and Rice by HPLC-ICP-MS Using Salt Gradient Elution Raquel Nogueira, Evyson A. Melo, Jefferson L. C. Figueiredo, Jéssica J. Santos and Antonio P. do Nascimento Neto

> Graphical Abstract AsB, DMA, As^{III}, MMA and As^V in rice and fish were separated in 15 min by high-performance liquid chromatography with inductively coupled plasma-mass spectrometer (HPLC-ICP-MS) using an Agilent Bio SAX column and salt gradient elution.



1601 Chemo-Preventive Functions of Grape Seed Proanthocyanidin Extract against UV-Induced Intracellular Oxidative Stress and Tyrosinase Activity Lei Shi, Hua-Lin Tang and Su-Ling Xu





Graphical Abstract Grape seed proanthocyanidin extract regulates the intracellular reactive oxidative stress and tyrosinase activity originated from UV exposure.

Articles



SI online Armando De La Cruz, Carlos Alejandro Vega-Acevedo, Ignacio A. Rivero and Daniel Chávez



Graphical Abstract

Improved method for the synthesis of benzodiazepin-2,5-diones and 7-iodobenzodiazepin-2,5-diones mediated by glacial acetic acid.



Investigation of Distribution of Antioxidant Compounds from Natural Sources and Study of Lipid Protection in Oil-in-Water Emulsions

SI online Sylvio V. Palombini, Fabiana Carbonera, Marília B. Galuch, Thiago Claus, Thiago F. S. Magon, Jesuí V. Visentainer, Sandra T. M. Gomes and Makoto Matsushita

Graphical Abstract

Direct addition of natural sources of antioxidants in oil-in-water emulsions, followed by the study of their antioxidant activity and the distribution of the antioxidant compounds between the emulsion phases.





Phragmalin Limonoids from *Swietenia macrophylla* and Their Antifeedant Assay against Mahogany Predator

Sônia G. S. R. Pamplona, Mara S. P. Arruda, Kelly C. F. Castro, Slonline Consuelo Y. Y. e Silva, Antonio G. Ferreira, Maria F. G. F. da Silva, Orlando S. Ohashi and Milton N. da Silva

Graphical Abstract

Eight new phragmalin limonoids with an 8,9,30-ortho-ester unit, together with eight known were isolated from *Swietenia macrophylla* King. Four known limonoids show a significant reduction in the larval weight of *Hypsipyla grandella*.





antioxidant capacity of pequi pulp, as alternative to spectrophotometric assays.



Ketalization of Ketones to 1,3-Dioxolanes and Concurring Self-Aldolization Catalyzed by an Amorphous, Hydrophilic Self-Aldonzation Canage 20

Sl online Sandro L. Barbosa, Myrlene Ottone, Mainara T. de Almeida, Guilherme L. C. Lage, Melina A. R. Almeida, David Lee Nelson, Wallans T. P. dos Santos, Giuliano C. Clososki, Norberto P. Lopes, Stanlei I. Klein and Lucas D. Zanatta

Graphical Abstract

A sulfuric acid modified silica catalyst has great affinity for ketones, producing high yields of self-condensation products; in the presence of polyalcohols, ketals are easily prepared.





Dilamara R. Scharf and Euclésio Simionatto

Graphical Abstract Ester blends from the transesterification of babassu oil and soybean oil were evaluated for their thermal properties. The babassu esters have been shown a positive influence on the crystallization point profile of the blends.



1680 De-NO_x Performance and Mechanism of Mn-Based Low-**Temperature SCR Catalysts Supported on Foamed Metal** Nickel

Baozhong Zhu, Guobo Li, Yunlan Sun, Shoulai Yin, Qilong Fang, Zhaohui Zi, Zicheng Zhu, Jiaxin Li and Keke Mao

Graphical Abstract

The Eley-Rideal mechanism and superior H₂O resistance of Mn_{7.5}/foamed metal nickel (FMN) catalyst in NH₃-selective catalytic reduction (SCR) reaction.





Heloisa P. Dias, Eliane V. Barros, Cristina M. S. Sad, Enrique R. Yapuchura, Alexandre O. Gomes, Robson Moura, Fernanda E. Pinto, Débora V. Domingos, Glória M. F. V. Aquije, Valdemar Lacerda Jr. and Wanderson Romão

Graphical Abstract

AISI 1020 steel was submitted to thermal degradation in acid crude oil. Microscopy images (light microscopy (LM), scanning electron microscopy/ energy dispersive spectroscopy (SEM/EDX), atomic force microscopy (AFM), and Raman) were combined to understand the influence of corrosion rate. A passivation film was formed, which consisted of two layers (an external, formed of FeS, and an internal, composed of iron oxides).



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1701 Fast Spectrophotometric Determination of Iodine Value in Biodiesel and Vegetable Oils Samara Soares and Fábio R. P. Rocha



Graphical Abstract Schematic representation of the procedure for determination of iodine value in biodiesel and vegetable oils.



Graphical Abstract A new compound 1-phenylethyl-O-α-L-rhamnopyranoside from *C. crassipes*, together with sixteen secondary metabolites were isolated from two endophytic fungi associated with *Casearia sylvestris*. The compound cyclo(D)-Pro-(D)-Phe exhibited potent antifungal and antioxidant activity and potent acetylcholinesterase (AChE) inhibition.





1714 Synthesis of Modified Silica Aerogel Nanoparticles for Remediation of Vietnamese Crude Oil Spilled on Water Hong K. D. Nguyen, Phuong T. Hoang and Ngo T. Dinh

> Graphical Abstract Surface modified silica aerogel nanoparticles.



1721 Full Factorial Experimental Design for Carbamazepine Removal Using Electrochemical Process: a Case Study of Scheming the Pathway Degradation

Sl online Fouad F. Al-Qaim, Zainab H. Mussa, Ali Yuzir, Md P. Abdullah and Mohamed R. Othman

Graphical Abstract

Full factorial experimental design was applied for the treatment of carbamazepine, which is one of the most used drugs for treatment of neuropathic pain. The results showed that applied voltage is the most significant factor in this treatment process. Moreover, pathway degradation was monitored as well using liquid chromatography-time of flight/mass spectrometry (LC-TOF/MS).



1732 **Evaluating the Electrochemical Characteristics of Babassu** Coconut Mesocarp Ethanol Produced to Be Used in Fuel Cells Ziel S. Cardoso, Isaide A. Rodrigues, Cáritas J. S. Mendonça, José R. P. Rodrigues, Walace R. A. Ribeiro, Wanderson O. Silva and Adeilton P. Maciel



Stages of the process of evaluation of the electrochemical characteristics of babassu alcohol.



Hevelyse M. C. dos Santos, Cesar Sary, Thiago F. S. Magon, Ingrid L. Figueiredo, Ricardo P. Ribeiro, Jesuí V. Visentainer and Oscar O. Santos

Graphical Abstract

Lycopene, lutein and beta-carotene capsules were supplemented to tilapia (genetically improved farmed tilapia, GIFT). An increase in the concentration of all compounds supplemented, as well as the preservation in the lipid quality was observed in the fillets, even after thermal processing.





Silver Complex of an N-Heterocyclic Carbene Ligand with **Bulky Thiocarbamate Groups** 🟅 Elvis Robles-Marín, Alexander Mondragón,

SI online Marcos Flores-Alamo and Ivan Castillo

Graphical Abstract A thiocarbamate-containing imidazolium reacts with Ag₂O affording the sterically hindered N-heterocyclic carbene (NHC)-silver complex.



Bulky thiocarbamate-containing NHC



Electrode Material Containing Graphite Incorporated to an Amino-Functionalized Polydimethylsiloxane Network for the Detection of Copper

Slonline Ricardo P. D. Silva, Alzira M. S. Lucho and Fabio L. Pissetti

Graphical Abstract A polydimethylsiloxane amino functionalized polymer network with graphite incorporated was used as electrode material to detect copper ions in aqueous solutions and sugarcane spirit.





online Antonio F. Forto Jr., Jeanny M. A. Damasto, Bismark M. Santiago, Evely G. L. Costa and Fabiano F. da Silva

Graphical Abstract In the milk of Holstein × Zebu crossbred cows fed on whole cottonseed, there is a modification of the lipid profile that reduces the concentration of saturated fatty acids (SFA), monounsaturated FA (MFA) and making it rich in polyunsaturated FA (PUFA), which is beneficial to health.



Additions and Corrections

1776 An Environmentally Friendly Procedure to Obtain Flavonoids from Brazilian Citrus Waste Barbara S. Bellete, Luize Z. Ramin, Deyvid Porto, Alany I. Ribeiro, Moacir R. Forim, Vânia G. Zuin, João B. Fernandes and Maria Fátima G. F. Silva