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## **Cover Picture**



Biodiesel production has lead to glycerol formation as byproduct. In this sense, glycerol hydrogenolysis reaction arises as an important route for obtaining higher value added productsthrough C-O and/or C-C cleavages. Structural and electronic surface requirements of supported iridium catalysts for this reaction were studied by means of cyclohexane hydrogenolysis as a model reaction for C-C cleavage, elucidating particle size and support effects on glycerol conversion. Details are presented in the Article **Iridium Catalysts for C–C and C–O Hydrogenolysis: Catalytic Consequences of Iridium Sites** by *Aracelis J. Pamphile-Adrián, Pedro P. Florez-Rodriguez and Fabio B. Passos* on page 958.

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## **Editorial**

807 Sustainability & Diversity Through Chemistry Adriano D. Andricopulo and Luiz H. Catalani

## **Review**

809 Neurotoxic Effects Associated with Current Uses of Organophosphorus Compounds Iris Mangas, Eugenio Vilanova, Jorge Estévez and

Tanos C. C. França



Graphical Abstract The action of organophosphorus (OPs) compounds on enzymes of the nervous system triggers several toxic effects

## **Articles**

834

841

826 Assessing Drug-Excipient Interactions in the Formulation of Isoniazid Tablets

Wagner Wollinger, Raphael A. da Silva, Andréa B. da Nóbrega, Rosangela S. C. Lopes, Claudio C. Lopes and Glaucia B. C. A. Slana

### Graphical Abstract

A suitable and efficient method was developed for the determination of the tuberculostatic isoniazid and related impurities to study tablet excipients-drug compatibility

 Application of Enzymes in Sunflower Oil Extraction:

 Antioxidant Capacity and Lipophilic Bioactive Composition

 Suellen A. O. Ribeiro, Antonio E. Nicacio, Ana B. Zanqui,

 Polyana B. F. Biondo, Benício A. de Abreu-Filho, Jesui V.

 Visentainer, Sandra T. M. Gomes and Makoto Matsushita

#### Graphical Abstract

The application of enzymes in sunflower oil extraction represents a promising alternative to extraction methods that use toxic solvents, besides presenting larger quantities of some bioactive lipophilic compounds compared with conventional techniques



#### Antioxidant Compound Ascorbic Acid in Different NaClO<sub>4</sub> Aqueous Ethanol Solutions Morteza Jabbari and Sedigheh Khosravinia

Thermodynamic Study on the Acid-Base Properties of

### Graphical Abstract

The dependence on ionic strength of the protonation process of ascorbic acid in non-aqueous solutions of NaClO₄ has been analyzed by means of the specific ion interaction theory (SIT). The protonation constants were calculated using the STAR (stability constants by absorbance reading) program





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849 Electroanalytical Characterization of Montelukast Sodium and Its Voltammetric Determination in Pharmaceutical Dosage Form and Biological Fluids Bernu Çölkesen, Funda Öztürk and Pınar E. Erden Graphical Abstract The presented square wave cathodic adsorptive stripping voltammetry method was found to be highly accurate and precise for the determination of montelukast sodium in commercial pharmaceutical preparations and spiked human serum

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857 Degradation of the Dye Reactive Blue 4 by Coupled
Photoassisted Electrochemistry at DSA®-Type Electrode
Rodrigo G. da Silva and Adalgisa R. de Andrade
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#### Graphical Abstract

DSA®-type electrode with nominal composition Ti/Ru<sub>0.3</sub>Ti<sub>0.7</sub>O<sub>2</sub> under ultraviolet radiation was employed aiming to enhance the degradation yields of the dye Reactive Blue 4. Photoassisted electrochemical process increases substantially the degradation of the organic compounds decreasing the energy cost



866 Investigation of Copper Extraction from Aqueous Sulfate Solution in a Rotating Disc Contactor Maryam Kasaie, Hossein Bahmanyar and Mohammad A. Moosavian

#### Graphical Abstract

For evaluating the copper extraction applying rotating disc contactor apparatus, the aqueous phase pH and extractant concentration were primarily selected from batch experiments results. Then the effect of operating parameters on the copper extraction was investigated in rotating disc contactor column

Buch experiments PDC experimen

877 Modelling of Lead Migration from Electronic Waste to Mixtures of Kaolinite, Iron Oxides and Organic Matter Odilaine I. C. Damasceno, César Reis, Efraim L. Reis, Carlos R. Bellato and André F. de Oliveira

#### Graphical Abstract

The bioavailability of heavy metals in the environment may be affected by improper disposal of e-waste, which can ease migration of these chemical species, especially the lead. To investigate the migration of lead printed circuit boards for a simulated soil in small scale tests have been made wherein incubated printed circuit boards in mixtures containing organic matter, kaolin and iron oxide, based on a Simplex-Centroid experimental design







An Efficient and Chemoselective Deprotection of Aryl tert-Butyldimethylsilyl (TBDMS) Ethers by NaCN Xue-jun Qiao, Xiao Hou, Wu-hong Fang, Xue-fei Bao and

Sl online Guo-liang Chen

R <sub>2</sub>		,CH₃ Pi∼t-Bu <sup>–</sup> CH₃	0.1 eq NaCN, ethanol Yield 80-95% (10 compounds)			
R <sub>3</sub> <sup>-</sup>						$R_3 \sim$
	R <sub>1</sub> = H	$R_2 = H$	$R_3 = NO_2$	$R_1 = H$	$R_2 = H$	$R_3 = OCF_3$
	R <sub>1</sub> = H	$R_2 = H$	$R_3 = Br$	$R_1 = CF_3$	$R_2 = H$	R3=H
	R <sub>1</sub> = H	$R_2 = CH_3$	$R_3 = H$	$R_1 = Br$	$R_2 = H$	$R_3 = CI$
	R <sub>1</sub> = H	$R_2 = F$	$R_3 = H$	$R_1 = H$	$R_2 = H$	$R_3 = NHCOCH_3$
1	$R_1 = CH_3$	$R_2 = H$	R <sub>3</sub> = H	$R_1 = H$	$R_2 = H$	$R_3 = NH_2$
				$R_1 = H$	$R_2 = H$	$R_3 = OBz$

**Graphical Abstract** This is a mild, efficient, inexpensive and selective method for the deprotection of aryl tert-butyldimethylsilyl (TBDMS) ethers in the presence of alkyl silyl ethers using sodium cyanide (NaCN) in ethanol

905 Nanocomposite of Poly(Lactic Acid)/Cellulose Nanocrystals: Effect of CNC Content on the Polymer Crystallization Kinetics Mauro Vestena, Idejan P. Gross, Carmen M. O. Müller and

Alfredo T. N. Pires

# **Graphical Abstract**

Influence of the presence and content of cellulose nanocrystals on the poly(lactic acid) (PLA) crystallization kinetics, fitting to Avrami model



912 Development and Validation of a New Spectrophotometric Method for the Determination of Cephalexin Monohydrate in Pure Form and Pharmaceutical Formulations Muhammad N. Khan, Jalal Ahmad, Muhammad N. Jan, Hussain Gulab and Muhammad Idrees

#### **Graphical Abstract**

A simple, fast, sensitive and accurate spectrophotometric method has been developed for the quantitative determination of cephalexin monohydrate in dosage form and in commercial formulations. The method involves the addition of  $\mathsf{Ce}^{\nu}$  to cephalexin in acidic medium, followed by the determination of residual Ce<sup>IV</sup> by reacting with a fixed amount of methyl orange



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925 Electrochemical and Quantum Chemical Investigations of the Insecticide Fipronil Fabiano Okumura, Raquel B. Amaral, Ednilsom Orestes, Albérico B. F. Silva and Luiz Henrique Mazo



Graphical Abstract Electrochemical oxidation of fipronil molecule over graphitepolyurethane electrode was investigated by voltammetric and quantum chemical methods

**933** Hybrid Materials Based on Bentonite Functionalized with Amine Groups via the Hydrolytic Sol-Gel Method Thales J. Gilberto, Liziane Marçal, Jhonatan M. Silva, Lucas A. Rocha, Katia J. Ciuffi, Emerson H. Faria and Eduardo J. Nassar

941

Fadi Alakhras

#### **Graphical Abstract**

The modified commercial bentonite can be used to remove pollutants. The sol-gel process affords homogeneous hybrid materials under mild conditions, at low temperature, allowing for incorporation of a variety of compounds into the matrix. Bentonite can be modified by the sol-gel process





#### **Graphical Abstract**

The electrochemical synthesis of selenophene-3-chlorothiophene copolymers was achieved potentiostatically. The spectroelectrochemical properties of the obtained films were investigated and compared with the individual homopolymers

Spectroelectrochemistry of Intrinsically Conducting

Selenophene-3-Chlorothiophene Copolymers





Iridium Catalysts for C-C and C-O Hydrogenolysis: Catalytic **Consequences of Iridium Sites** 

Aracelis J. Pamphile-Adrián, Pedro P. Florez-Rodriguez and Fabio B. Passos SI online



#### Graphical Abstract

C-C and C-O hydrogenolysis were compared on supported Ir catalysts from a fundamental point of view in order to determine the structure requirements and the state of the catalytic sites

Short Reports

967

Gayane G. Tokmajyan and Lusine V. Karapetyan http://

Synthesis of New Bis-Iminodihydrofurans

SI online

-NHR<sub>1</sub> CH<sub>3</sub> H<sub>3</sub>C ĊН

971

Orientation of Pterin-6-Carboxylic Acid on Gold Capped Silicon Nanopillars Platforms: Surface Enhanced Raman Spectroscopy and Density Functional Theory Studies Sl online John J. Castillo, Ciro E. Rozo, Linda Bertel,

This sequence of reactions opens the new approach to the synthesis of novel polyheteroconjugated systems, consisting from

Tomas Rindzevicius, Stelia C. Mendez-Sanchez, Fernando Martínez Ortega and Anja Boisen

#### **Graphical Abstract**

**Graphical Abstract** 

iminodihvdrofuran rings

The figure shows a gold nanopillar scanning electron microscopy (SEM) image of pterin-6-carboxylic acid adsorbed on the head of the nanopillar. Leaning of nanopillars leads to an effective accumulation of pterin-6carboxylic acid molecules within the electromagnetic hot spots in the proximity of the gold nanopillars where the Raman scattering signal is enhanced the most

