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# **Cover Picture**



A novel Tb(III)-diketonate complex, [Tb(DBM)(NO<sub>3</sub>)<sub>2</sub>(HMPA)<sub>2</sub>], that exhibits abnormally high green luminescence intensity in the crystalline form has been characterized. This complex presents considerably higher triplet state energy than its analogues [Tb(DBM)<sub>2</sub>(NO<sub>3</sub>)(HMPA)<sub>2</sub>] and [Tb(DBM)<sub>3</sub>(HMPA)] complexes, promoting a more operative *antenna effect*. This new complex presents potential for photonic applications based on Light Conversion Molecular Devices (LCMD). Details are presented in the Article **Energy Transfer Processes in Tb(III)-Dibenzoylmethanate Complexes with Phosphine Oxide Ligands** by *Francisco A. Silva Jr., Helenise A. Nascimento, Dariston K. S. Pereira, Ercules E. S. Teotonio, Hermi F. Brito, Maria Cláudia F. C. Felinto, José Geraldo P. Espínola, Gilberto F. Sá and Wagner M. Faustino* on page 601.

# Contents

# **Editorial**

525 Refreshing Guidelines for Peer Reviewers Joaquim A. Nóbrega and Watson Loh

# Communication



An Azafluorenone Alkaloid and a Megastigmane from Unonopsis lindmanii (Annonaceae)

Nídia C. Yoshida, João M. de Siqueira, Ricardo P. Rodrigues, SI online Rodolfo P. Correia and Walmir S. Garcez

## **Graphical Abstract** The occurrence of azafluorenone alkaloids is rare and restricted to the Annonaceae family. In this study, the isolation of the alkaloid 5,8-dimethoxy-7-hydroxy-1-methyl-4-azafluoren-9-one and the megastigman (-)-(5R\*, 6S\*)-megastigman-3-one-10,7-olide from aerial parts of Unonopsis lindmanii (Annonaceae) is described

# **Articles**

534 Potential Diagnostic Assay for Cystinuria by Capillary **Electrophoresis Coupled to Mass Spectrometry** Camila G. Barbosa, Norberto S. Gonçalves, Etelvino J. H. Bechara and Nilson A. Assunção

**Graphical Abstract** This method can determine the profile of amino acids in human urine, in which alterations characterize cystinuria, an inborn error of metabolism. The earlier this alteration is detected in a newborn, the lower the chances of further health damage

541 **Development of a Multicommuted Flow Analysis Procedure** for Photometric Determination of Total N-ureide in Soybean Tissues

Carla C. Crispino and Boaventura F. Reis









**Graphical Abstract** A low cost flow analysis setup employing multicommutation process for photometric determination of alantoin in soybean was developed employing a LED based photometer. Profitable features such as low reagent consumption and low volume of waste generation were achieved



Lee M. G. de Carvalho, Wiury C. de Abreu,

Sl online Maria das Graças de O. e Silva, José Renato de O. Lima, José Eduardo de Oliveira, José Milton E. de Matos, Carla V. R. de Moura and Edmilson M. de Moura

### **Graphical Abstract**

Compounds of strontium (SrO + SrCO<sub>3</sub> + Sr(OH)<sub>2</sub>) can efficiently catalyze the transesterification reaction of babassu and castor oils as well as a mixture of these oils. This method can greatly contribute to the settling of the transesterification process since it is more industrially satisfactory

**DDT and Derivatives May Target Insulin Pathway Proteins** Diana Montes-Grajales, Jesus Olivero-Verbel and Maria Cabarcas-Montalvo

SI online

# **Graphical Abstract**

DDT (1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane) and its derivatives showed good AutoDock Vina affinity values with several proteins involved in the insulin signaling pathway, suggesting this pesticide may modulate biochemical mechanisms, eventually explaining the reported relationship between exposure to this chemical and diabetes prevalence



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 573 Chemical Interactions Study of Antiretroviral Drugs Efavirenz and Lamivudine Concerning the Development of Stable Fixed-Dose Combination Formulations for AIDS Treatment Elionai C. de L. Gomes, Wagner N. Mussel, Jarbas M. Resende, Silvia L. Fialho, Jamile Barbosa and Maria I. Yoshida
Graphical Abstract Thermo-óptical analysis (TOA) images at 100× magnification of (a) efavirenz, (b) lamivudine and (c) mixture. Three images in different temperatures were shown for each pure drug and six for the mixture
580 A Straightforward and Efficient Synthesis of 3-(Pyrimidinyl) propanoates from Levulinic Acid

Alex F. C. Flores, Juliana L. Malavolta, Alynne A. Souto, Sl online Rayane B. Goularte, Darlene C. Flores and Luciana A. Piovesan



## Graphical Abstract

This work describes the synthesis of a novel 3-(pyrimidinyl)propanoate series from versatile precursors 7,7,7-trihalo-4-methoxy-6-oxo-4heptenoates obtained from renewable levulinic acid. These new derivatives are promising candidates for the treatment of different nervous system diseases

585 Plastic Membrane, Carbon Paste and Multiwalled Carbon Nanotube Composite Coated Copper Wire Sensors for Determination of Oxeladin Citrate Using Batch and Flow Injection Techniques

Sayed I. M. Zayed and Yousry M. Issa



**Graphical Abstract** 

The fabrication and performance characteristics of three novel potentiometric sensors for the determination of oxeladin citrate are described. The sensors are based on the oxeladin-phosphotungstate ion associate as the electroactive material and dibutyl phthalate as solvent mediator

595 Curing, Monomer Leaching and Water Sorption of TEGDMA/ BisGMA Photopolymerized Copolymers Leticia F. A. Pinto, Isabel C. Rigoli, Miguel G. Neumann and Carla C. S. Cavalheiro



Graphical Abstract Monomer elution and water absorption from, or into, copolymers show the same dependence with the degree of conversion of the photopolymerization processes



## **Graphical Abstract**

A series of lanthanide compounds containing one to three dibenzoylmethanate (DBM) ligands were synthesized and studied by luminescence spectroscopy. The abnormally high luminescence intensity exhibited by the less substituted Tb<sup>3+</sup>-DBM compounds was investigated and rationalized in terms of intramolecular ligand-to-metal energy transfers



CONHNH<sub>2</sub>



Clerodane Diterpenes from Bark of Croton urucurana Baillon Moacir G. Pizzolatti, Adailton J. Bortoluzzi, Ines M. C. Brighente, Analice Zuchinalli, Francieli K. Carvalho, Ana C. S. Candido and SI online Marize T. L. P. Peres

**Graphical Abstract** 

The new clerodane diterpene methyl 3-oxo-12-epibarbascoate was isolated from the stem barks of Croton urucurana together with the known diterpene methyl 12-epibarbascoate. Their structures were identified by spectroscopic techniques and the structure of 3-oxo-12-epibarbascoate was confirmed by X-ray diffraction. Graphical abstract adapted from the site http://www.tropicos.org/Image/52765, Tropicos Missouri Botanical Garden, July 11, 2012. The license terms are found at http://creativecommons.org/licenses/by-nc-sa/3.0/deed.en

#### 615 **Electron and Photon Stimulated Ion Desorption from Poly(thiophene)**

J. R. Santa Rita, B. G. A. L. Borges, B. Beck, Y. Garcia-Basabe, L. S. Roman and M. L. M. Rocco

**Graphical Abstract** 

The response of poly(thiophene) to the impact of electron and photon beams at different energies was investigated. The mechanism of formation of the principal ionic species was elucidated by the ion desorption yield analysis. The effect of the thickness of the films on the desorption process was investigated by photodesorption analysis

621 An Enhanced Electrochemical Sensing Platform Integrated with Graphene Oxide and Iron Hydroxide Colloid for Sensitive Determination of Phloroglucinol

Junhua Li, Daizhi Kuang, Yonglan Feng, Mengqin Liu, Fuxing Zhang and Peihong Deng

## **Graphical Abstract**

A novel electrochemical sensing platform for phloroglucinol was fabricated with graphene oxide and iron hydroxide colloid. Due to the high surface area and the excellent electrical conductivity of the nanohybrid, the prepared electrochemical sensor has preeminent electrocatalytic activity towards the oxidation of phloroglucinol



Development of a Fast Method for the Determination of the Insecticide Fipronil and its Metabolites in Environmental Waters by SPE and GC-ECD

Sl online Márcia H. S. Kurz, Samile Martel, Fábio F. Gonçalves, Osmar D. Prestes, Manoel L. Martins, Renato Zanella and Martha B. Adaime

# **Graphical Abstract**

The use of pesticides in rice cultivation in flooded paddy fields generates great environmental impact and new methods for simultaneous determination of pesticides and metabolites are required

639 Application of Low Density Homogeneous Liquid-Liquid Extraction Combined with GC for TPH and PAH **Determination in Semi-micro Solid Samples** Jalal Hassan, Mohadeseh Izadi and Soma Homayonnejad

## **Graphical Abstract**

The proposed method avoids using chlorinated solvents and expensive apparatus that are commonly used in other extraction methods. This method is very simple and suitable for extraction of organic pollutants from sediment samples













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A short chain alcohol aqueous two-phase system (ATPS) coupled with high performance liquid chromatography (HPLC) was developed to extract and analyse chloramphenicol (CAM) in livestock meat samples



Novel 3-(Aminomethyl)naphthoquinone Mannich Base-Platinum(IV) Complexes: Synthesis, Characterization, Electrochemical and Cytotoxic Studies

Gustavo B. da Silva, Amanda P. Neves, Maria D. Vargas, SI online Wagner A. Alves, José D. B. Marinho-Filho, Cláudia Pessoa, Manoel O. Moraes and Letícia V. Costa-Lotufo

Graphical Abstract Hydrogen bond interaction between the naphthoquinone 2-hydroxyl group and an axially Pt4+-coordinated hydroxide ligand in novel 1b-3b has been proposed to favor the Pt4+/Pt2+ reduction, and thus 1b-3b show similar cytotoxicity to their Pt<sup>2+</sup> counterparts

#### 685 2"-Ethyl-furanoflavone Derivatives from the Stems of Cassia fistula and their Cytotoxicity

Xue-Mei Gao, Yan-Qiong Shen, Xiang-Zhong Huang, Sl online Li-Ying Yang, Li-Dan Shu, Qiu-Fen Hu and Gan-Peng Li

**Graphical Abstract** Two new 2"-ethyl-furanoflavones and six known furanoflavones were isolated from the stems of Cassia fistula. All the compounds were evaluated for their cytotoxicity against five human tumor cell lines. One of the compounds showed potent cytotoxicity against SHSY5Y and MCF7 cells with  $IC_{50}$  values of 2.7 and 2.6 µmol L<sup>-1</sup>, respectively

# Short Reports \_\_\_\_

690 Evaluation of As(III) and Sb(III) Adsorption to Paddy Soils from Irrigated Rice Fields in Bangladesh Dominik Weiss and Roulin Khondoker









# **Graphical Abstract** The preliminary study suggested that Sb(III) adsorption on paddy soils

was stronger than As(III), which could explain the low Sb concentrations found in well waters in Bangladesh. No strong evidence was found for competitive behaviour between Sb(III) and As(III)

695 Electrochemical Behavior of Hydroquinone and Catechol at a Silsesquioxane-Modified Carbon Paste Electrode Paulo S. da Silva, Bianca C. Gasparini, Hérica A. Magosso and Almir Spinelli





## Graphical Abstract

The simultaneous detection of hydroguinone and catechol was attained using a simple, easy to prepare, silsesquioxane-modified carbon paste electrode associated to differential pulse voltammetry

700 Optimization Method for Sequential Determination of Cu and Fe in Airborne Particulate Matter Collected on Glass Fiber Filters by Slurry Sampling FAAS

Tarcísio S. de Almeida, Mirna O. Sant'Ana, Jersica M. Cruz, Luciano Tormen, Adilson J. Curtius, José do Patrocínio H. Alves, Carlos A. B. Garcia, Pericles A. Santos and Rennan G. O. Araujo

## **Graphical Abstract**

A slurry sampling flame atomic absorption spectrometric (FAAS) method is proposed for the sequential determination of copper and iron in airborne particulate matter (APM) collected on glass fiber filters