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**Cover Picture** 



Model water-in-oil emulsions were prepared with different asphaltenes subfractions. The influence of these fractions on the stability of petroleum model emulsions and on the efficiency of demulsifiers were evaluated by Bottle test and measurements of the interfacial tension. Details are discussed in the Article **The Influence of Asphaltenes Subfractions on the Stability of Crude oil Model Emulsions** by *Siller O. Honse, Claudia R. E. Mansur and Elizabete F. Lucas* on page 2204.

# Contents

## **Editorial**

2131 Journal of the Brazilian Chemical Society: an Example of Success in the Brazilian Chemistry Angelo C. Pinto and Jailson B. de Andrade 2133 Isolation and Amino Acid Sequencing by MALDI-TOF-MS/ MS of a Novel Antimicrobial Anionic Peptide from the Skin Secretion of Osteocephalus taurinus (Anura, Hylidae) Túlio O. G. Costa, Richardson A. Almeida, Jorge T. Melo, Hector H. F. Koolen, Felipe M. A. da Silva, José Roberto S. A. Leite, Maura V. Prates, Carlos Bloch Jr. and Angelo C. Pinto

#### **Graphical Abstract**

From the crude skin secretion of the *Osteocephalus taurinus* frog a novel peptide named otacidin was isolated. The *de novo* sequencing of this peptide was made by MALDI-TOF-MS/MS analysis, which revealed to be an anionic peptide, being only the second report of this type of peptide from an amphibian. Otacidin was tested against some bacteria presenting slight antimicrobial activity

### Reviews

## 2137 Metal-Catalyzed Asymmetric Aldol Reactions

Luiz C. Dias, Emílio C. de Lucca Jr., Marco A. B. Ferreira and Ellen C. Polo





#### Graphical Abstract

This review focuses on the development of metal-mediated chiral catalysts in Mukaiyama-type aldol reactions, reductive aldol reactions, direct aldol reactions and the application of these catalysts in the total synthesis of complex molecules

2159 The Oxidative Stability of Biodiesel and its Impact on the Deterioration of Metallic and Polymeric Materials: a Review Ernesto C. Zuleta, Libia Baena, Luis A. Rios and Jorge A. Calderón



#### **Graphical Abstract**

During the oxidation process of biodiesel, methyl esters of fatty acids form a radical which quickly binds with oxygen in the air forming volatile products such as aldehydes, ketones, lactones, and formic, acetic, propionic and caproic acids. Products formed during the autoxidation of biodiesel can increase their corrosivity and stimulate the degradation of materials

### Articles

2176 Adapting the Reducing Sugars Method with Dinitrosalicylic Acid to Microtiter Plates and Microwave Heating Anamaria Negrulescu, Viorica Patrulea, Manuela M. Mincea, Cosmin Ionascu, Beatrice A. Vlad-Oros and Vasile Ostafe



### Graphical Abstract

For the assay of sugars with DNS reagent, using microtiter plates, the heating step can be performed in a water bath accommodated in a microwave oven

2183 Structure-Activity Relationship Study of Rutaecarpine Analogous Active Against Central Nervous System Cancer Gabriel R. Martins, Hamilton B. Napolitano, Lilian T. F. M. Camargo and Ademir J. Camargo

#### Graphical Abstract

The partial charges derived from electrostatic potential on atoms C<sub>4</sub> and H<sub>23</sub> and the bond orders between atoms C<sub>2</sub> and C<sub>4</sub>, C<sub>3</sub> and C<sub>6</sub>, and C<sub>10</sub> and N<sub>15</sub> explain correctly the biological activity of a set of 21 rutaecarpine derivatives synthesized and tested against central nervous system cancer





In enzymatic reaction, cholest-4-en-3-one and hydrogen peroxide form. The oxidation current of hydrogen peroxide can be detected at applied potential and the current is proportional to the concentration of cholesterol



# **Graphical Abstract**

The chemical and mineralogical composition of the rainwater in Araraquara City, Brazil, is influenced by diversity sources of atmospheric pollutants such as (a) pre-harvest burning of sugar cane crops, (b) resuspended dust derived from soils and (c) vehicle emissions



Synthesis and Phytotoxicity of 4,5 Functionalized Tetrahydrofuran-2-ones Gabriela C. Resende, Elson S. Alvarenga,

SI online Juan C. G. Galindo and Francisco A. Macias



Araraquara

#### **Graphical Abstract**

We report a versatile synthesis of fourteen  $\gamma$ -lactones structurally related, which had their phytotoxic activity evaluated in vitro by the influence on the growth of wheat (Triticum aestivum) coleoptiles. 5-Isopropoxyfuran-2(5H)-one presented 76% inhibition of the coleoptiles at 1000 mmol L<sup>-1</sup> compared to the control