The number of antibiotic-resistant microbes increases each year, whereas the number of new antibiotics does not follow the same rate, encouraging different surveys focusing on new active substances. From an expedition into the Amazon Rain Forest different green-tree frog (*Hypsiboas cinerascens*) specimens were captured and chemically studied aiming the discovery of new antimicrobial substances. Details are presented in the Article *Cinerascetins, New Peptides from Hypsiboas cinerascens: MALDI LIFT-TOF-MS/MS de novo Sequence and Imaging Analysis* by Richardson A. Almeida, Marcelo Gordo, Felipe M. A. da Silva, Rafael C. de Araújo, Marcelo H. S. Ramada, Fernando Y. Abrão, Túlio O. G. Costa, Hector H. F. Koolen, Afonso D. L. de Souza and Carlos Bloch Jr. on page 2290.
Communication

2171 Metal Oxide/Gold Hybrid Nanocomposites as Electrocatalysts for Alkaline Air Electrodes

Francisco C. Oliveira, Francisca E. R. Oliveira, Fabio H. B. Lima

Graphical Abstract

MoCo₂O₄/Au exhibited a synergistic effect boosting the oxygen reduction and evolution. In situ X-ray absorption near edge structure (XANES) revealed that Mn³⁺-Co²⁺ play a role in the reduction. Au induced the increase in the Co²⁺ amount, favoring the oxygen evolution.

Review

2175 Zinc, Lithium and Magnesium Carbenoids: Chemical Properties and Relevant Applications in Organic Synthesis

Rodolfo H. V. Nishimura, Valter E. Murie, Rafael A. Soldi, João L. C. Lopes and Giuliano C. Clososki

Graphical Abstract

The ambiphilic character of carbenoids, represented by the chinese yin yang, shows how apparently opposite forces can be complementary in organic synthesis.

Articles

2189 Volatile Organic Compounds from Filamentous Fungi: a Chemotaxonomic Tool of the Botryosphaeriaceae Family


Graphical Abstract

Volatile organic compounds from ten endophytic fungal species belonging to the Botryosphaeriaceae family were extracted by headspace-solid phase micro-extraction (HS-SPME) and analyzed by gas chromatography-mass spectrometry (GC-MS).

2195 Binary Micellar Solutions of Poly(Ethylene Oxide)-Poly(Sterrene Oxide) Copolymers with Pluronic® P123: Drug Solubilisation and Cytotoxicity Studies


Graphical Abstract

P123 and EmSn binary micelles presented thermoreversible gelation, low critical micelle concentration (cmc), good drug solubilisation capacity and no cytotoxicity.

2205 Determination of Parabens in Surface Water from Mogi Guáçu River (São Paulo, Brazil) Using Dispersive Liquid-Liquid Microextraction Based on Low Density Solvent and LC-DAD

Carlos A. Galinaro, Fabiana M. Pereira and Eny M. Vieira

Graphical Abstract

This study has demonstrated the successful analysis of parabens on surface water samples, collected from Mogi Guáçu River (São Paulo state, Brazil), by dispersive liquid-liquid microextraction (DLLME) based on low density solvent (LDS) combined with liquid chromatography with diode array detection (LC-DAD)
2214 Facile Method to Tune the Particle Size and Thermal Stability of Magnetite Nanoparticles
Louishambam H. Singh, Sudhanshu S. Pati, Maria J. A. Sales, Edi M. Guimarães, Aderbal C. Oliveira and Vijayendra K. Garg

Graphical Abstract
Zeolite confines the growth of the magnetite nanoparticles and provides stability, which prevents from agglomeration and oxidation leading to structural transformation.

2224 Effects of Methyl-Substituted Phenanthrolines on the Performance of Ruthenium(II) Dye-Sensitizers
Andressa V. Müller, Poliana S. Mendonça, Stéphane Parant, Thibaut Duchanois, Philippe C. Gros, Marc Beley and André S. Polo

Graphical Abstract
Cis-[Ru(Me₄-phen)(dcbH₂)(NCS)]₂ was prepared, characterized and employed in dye-sensitized solar cells. The presence of four methyl groups on 1,10-phenanthroline modulates its ground and excited states and the ability to convert sunlight into electrical energy.

2233 Essential Oil from Flowers of Solanum stipulaceum: Composition, Effects of γ-Radiation, and Antileukemic Activity
Aura M. B. Osorio, Thiago M. Silva, Lucinstead V. Duarte, Vany P. Ferraz, Márcio T. Pereira, Maria O. Mercadante-Simões, Fernanda C. G. Evangelista, Adriano P. Sabino and Antônio F. C. Alcântara

Graphical Abstract
The essential oil composition of γ-irradiated flowers of Solanum stipulaceum was analyzed by gas chromatography (GC). The cytotoxicity of essential oils from non-irradiated and irradiated flowers was also studied.

2241 Discrimination of Annona muricata and Rollinia mucosa Extracts by Using Multivariate Curve Resolution and Partial Least-Squares Regression of Liquid Chromatography-Diode Array Data
Sabrina Afonso, Pablo L. Pisano, Fabiano B. Silva, Ieda S. Scamimio and Alejandro C. Olivieri

Graphical Abstract
Discrimination of Annona muricata and Rollinia mucosa samples processed by multivariate curve resolution-alternating least-squares (MCR-ALS) and discriminant-unfolded partial least-squares (D-UPLS) of high-performance liquid chromatography with diode array detection (HPLC-DAD) data.

2249 Removal of Lead(II), Copper(II) and Zinc(II) Ions from Aqueous Solutions Using Magnetic Amine-Functionalized Mesoporous Silica Nanocomposites
Ali Mehdinia, Sahar Shegefti and Farzaneh Shemirani

Graphical Abstract
Fe₃O₄ nanoparticles were coated with mesoporous silica, MCM-41, and then amino-functionalization was performed on the MCM-41 surface by 3-aminopropyltriethoxysilane through the silylation reaction with hydroxyl groups of MCM-41. Fe₃O₄@MCM-41-NH₂ was used for extraction of some toxic metal ions from aqueous solutions.
2258 Catalytic Activity of a Titanium(IV)/Iron(II) Heterometallic Alkoxide in the Ring-Opening Polymerization of e-Caprolactone and rac-Lactide

Siddhartha O. K. Giese, Cristianio Egevad, André Luís Rüdiger, Eduardo L. Sá, Thiago Alessandre Silva, Sónia F. Zawadzki, Jafa S. Soares and Giovana G. Nunes

Graphical Abstract
The heterometallic complex [FeCl(Ti(OiPr)9)] was employed as initiator of ring-opening polymerization of e-caprolactone and rac-lactide in bulk and in solution. The catalytic performance of the heterometallic complex was compared to the activities of other titanium(IV) and iron(II) complexes.

2269 Monitoring of Pesticide Residues in Surface and Subsurface Waters, Sediments, and Fish in Center-Pivot Irrigation Areas


Graphical Abstract
This work is about a study of pesticide residue contamination in surface and subsurface waters, sediments and fish of center-pivot irrigation areas. Atrazine was observed below the method quantitation limit in subsurface water.

2279 Synthesis and Insecticidal Activity of Lactones Derived from Furan-2(5H)-one

Milena G. Teixeira, Elson S. Alvarenga, Mirian F. Pimentel and Marcelo C. Picanço

Graphical Abstract
Besides the efficiency against insect pests, novel agrochemicals should preferably provide selectivity to non-target species. Therefore, the lactones synthesized in this work are promising as potential novel agrochemicals for the integrated pest management.

2289 Cinerasetins, New Peptides from Hypsiboas cinerascens: MALDI LIFT-TOF-MS/MS de novo Sequence and Imaging Analysis


Graphical Abstract
In this work, new peptides named cinerasetins were identified from skin secretion of the Hypsiboas cinerascens. Imaging analysis localized the peptides on the dorsal tissue. Synthetic cinerasetin-01 was tested against some bacteria and fungi presenting satisfactory antimicrobial activities.

2298 Synthesis of 3-(1H-1,2,3-Triazol-1-yl)-2-(arylselenyl) pyridines by Copper-Catalyzed 1,3-Dipolar Cycloaddition of 2-(Arylselenyl)-3-azido-pyridines with Terminal Alkynes

Ricardo F. Schumacher, Patrick B. Von Laer, Eduardo S. Betin, Roberta Cargnelutti, Gelson Perin and Diego Alves

Graphical Abstract
The synthesis of 3-(1H-1,2,3-triazol-1-yl)-2-(arylselenyl)pyridines by copper-catalyzed cycloaddition reaction is presented here.
2307 Chemical Constituents of the Seeds of *Raphanus sativus* and their Biological Activity
Ki Hyun Kim, Eunjuang Moon, Seoung Rak Lee, Kyoungh Jin Park, Sun Yeou Kim, Sang Un Choi and Kang Ro Lee

**Graphical Abstract**

Fifteen constituents, including a new phenolic compound, were isolated from the seeds of *Raphanus sativus*. Some of the isolated compounds showed moderate antiproliferative activities and significant anti-neuroinflammatory effects.

2313 Electrosynthesis and Characterisation of Polymer Nanowires from Thiophene and its Oligomers
María Angelica del Valle, Andrea C. Ramos, Fernando R. Diaz and Manuel A. Gacitúa

**Graphical Abstract**

Polythiophene was electrosynthesised as nanowires from the monomer and some of its oligomers on a Pt electrode previously modified with a template.

2321 Piperamides from *Piper ottonoides* by NMR and GC-MS Based Mixture Analysis
Thiago Wolff, Priscila F. P. Santos, Lígia M. M. Valente, Alvicer Mogalhães, Luciene W. Tisooco, Rita C. A. Pereira and Elsie F. Guimarães

**Graphical Abstract**

A new and five known piperamides were unequivocally characterized in mixture from few amounts of semi-purified fractions from fruits, leaves, stems and roots of *Piper ottonoides* by using nuclear magnetic resonance and gas chromatography-mass spectrometry.

2331 Evaluation of Monolithic and Core-Shell Columns for Separation of Triazine Herbicides by Reversed Phase High Performance Liquid Chromatography
Ricardo P. Urio and Jorge C. Masini

**Graphical Abstract**

Monolithic and core-shell chromatographic columns were evaluated for separation of triazines and some of their metabolites in ultrasound extracted soil.

2339 Facile Microwave-Assisted Synthesis of Lanthanide Doped CaTiO₃ Nanocrystals
Sandra C. Pereira, Alberthmeiry T. Figueiredo, Cristiano M. Barrado, Marcelo H. Stoppa, Yashashchandra Dwivedi, Maximo S. Li and Elson Longo

**Graphical Abstract**

Fast synthesis of lanthanide doped CaTiO₃ produces a microcube-like structure and a region without well-defined morphology. The structural disorder and observed photoluminescence emission are correlated.
2362 Mechanism of Hop-Derived Terpenes Oxidation in Beer
Natália E. C. de Almeida, Inara de Aguiar and Daniel R. Cardoso

Graphical Abstract
The oxidation of hop-derived terpenes in beer has been shown to occur through a hydrogen atom abstraction by 1-hydroxyethyl radical rather than by an electron transfer mechanism.