Antimicrobial resistance is a global concern because it is present in every country. Bacterial biofilm is associated with many persistent infections and increased resistance to antibiotics. Diguanylate cyclase enzymes (DGC) are an attractive target for antibiofilm drug intervention. Drug repurposing strategy resulted in DGC inhibitors discovery from therapeutics drugs using the integration of computational and biochemical assays. Details are presented in the Article Identification of Anti-Inflammatory and Anti-Hypertensive Drugs as Inhibitors of Bacterial Diguanylate Cyclases by Helton J. Wiggers, Édson Crusca, Éverton E. D. Silva, Juliana Cheleski, Naiara U. Torres and Marcos V. A. S. Navarro on page 297.
A Novel Electrochemical Aptamer Biosensor Based on DNAzyme Decorated Au@Ag Core-Shell Nanoparticles for Hg$^{2+}$ Determination

Yanling Zhao and Xianmei Xie

Graphical Abstract

Based on thymine-Hg$^{2+}$-thymine binding mode (T-Hg$^{2+}$-T), a sensitive aptamer biosensor was constructed by utilizing functionalized Au@Ag core-shell nanoparticles as labels for detection of Hg$^{2+}$.

Nanoporous Gold Surface: An Efficient Platform for Hydrogen Evolution Reaction at Very Low Overpotential

Anandhakumar Sukeri and Mauro Bertotti

Graphical Abstract

A nanostructured porous gold based electrocatalyst was fabricated via a facile electrochemical approach and an excellent activity with good stability for hydrogen evolution reaction was noticed.

Binary Blends of Biodiesel from Macauba (Acromia aculeata) Kernel Oil with Other Biodiesels

Willian L. G. da Silva, Acacia A. Salomão, Patricia T. de Souza, Marina Ansolin and Matthieu Tubino

Graphical Abstract

The oil from the kernel of macauba presents high stability to oxidation, property that is transferred to its biodiesel, which also presents low cold filter plugging point. Such properties are inherited by its blends with biodiesels obtained from other vegetable oils.

Evaluation of Crocins in Cheeses Made with Saffron by UHPLC

Mena Ritota, Maria Mattera, Maria Gabriella Di Costanzo and Pamela Manzi

Graphical Abstract

Cheeses made with saffron are expected to provide an added value for consumers, due to saffron bioactive compounds. This UHPLC method seems to be useful to detect saffron crocins in dairy products.
258 Synthesis of 3,5-Diarylisoxazole Derivatives and Evaluation of in vitro Trypanocidal Activity
Aline A. N. de Souza, Viviane F. Xavier, Gleicekelly S. Coelho, Policarpo A. Sales Junior, Alvaro J. Romanha, Silvane M. F. Murta, Claudia M. Carneiro and Jason G. Taylor

Graphical Abstract
A series of novel substituted isoxazoles were prepared and tested for in vitro anti T. cruzi activity. The lead compound is equally as potent as reference drug benzonidazole.

269 Use of Amphiphilic Composites based on Clay/Carbon Nanofibers as Fillers in UHMWPE
Claudilene R. Silva, Rochel M. Lago, Helena S. Veloso and Patrícia S. O. Patricio

Graphical Abstract
The more efficient interaction of the fillers based on hydrophobic surface nanostructures with the hydrophobic UHMWPE chains leading to a much higher dispersion of the filler particles throughout the polymeric matrix.

285 Evaluation of the Concentration of Cu, Zn, Pb and Cr in Different Fish Species from the São Gonçalo Channel in Pelotas-RS, Brazil
Marcelo M. Alves, Aline L. Medina, Ane Martiele T. Pinto, Ana Clara N. Antunes, Pedro José Sanches Filho, Anderson S. Ribeiro and Mariana A. Vieira

Graphical Abstract
The concentration of Cu, Zn, Cr and Pb in different species of fish collected in the estuarine and limnic regions of the São Gonçalo channel in Pelotas City were determined.
310 Surface Imprinting of Silica Gel by Methyldopa and Its Application in the Solid Phase Extraction Procedure
Mohammad Taghi Vardini and Leila Mardani

Graphical Abstract
Surface of the activated silica gel was grafted with the complex of MTD-APS. The custom made holes to the MTD remain on the surface of molecularly imprinted adsorbent.

320 Functionalization of Bentonite and Vermiculite after the Creation of Structural Defects through an Acid Leaching Process
Dorsan S. Moraes, Lucas C. R. Miranda, Rômulo S. Angélica, Geraldo N. Rocha Filho and José R. Zamian

Graphical Abstract
Schematic model of a 2:1 layer structure of the organofunctionalized materials present in this work, suggesting the superficial acid sites created.
334  
**Preparation of Tetraethylenepentamine Modified Magnetic Graphene Oxide for Adsorption of Dyes from Aqueous Solution**

*Xiaosheng Tang, Ping Tang and Liangliang Liu*

**Graphical Abstract**

Tetraethylenepentamine modified magnetic graphene oxide nanomaterial was prepared and it had a good adsorption ability to remove dyes in wastewater.

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343  
**Synthesis, Antioxidant Activity, Acetylcholinesterase Inhibition and Quantum Studies of Thiosemicarbazones**

*Larissa Sens, Aldo S. de Oliveira, Alessandra Mascarello, Inês M. C. Brighente, Rosendo A. Yunes and Ricardo J. Nunes*

**Graphical Abstract**

The current study investigated the antioxidant activity, acetylcholinesterase inhibition and quantum studies of thiosemicarbazones.

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353  
**Alkaline Solubilization of Chicken Tissues Monitored by Raman Spectroscopy Followed by Pb Determination by GF AAS**

*Náira S. Campos, Marcone A. L. de Oliveira, Celly M. S. Izumi and Rafael A. de Sousa*

**Graphical Abstract**

Lead content was evaluated in chicken viscera by GF AAS after solubilization with tetramethylammonium hydroxide (TMAH). Sample preparation was monitored by Raman spectroscopy and SEM-EDS.

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363  
**Morpho/Proteomic Comparative between High Grade Pleomorphic Sarcoma and Metastasis Diagnosed in an Old Captive Common Hippo**

*Adriana R. Silva, José E. J. G. de Lacerda, Bernadete Faria, Isabela W. da Cunha, Vitor P. de Andrade and Nilson A. Assunção*

**Graphical Abstract**

Mass spectrometry analysis as additional tool for description and differentiation of tumor physiopathology: a comparative proteomic study between pleomorphic sarcoma, metastasis and healthy tissues.
371  Effect of Selenite and Selenate Application on Mineral Composition of Lettuce Plants Cultivated Under Hydroponic Conditions: Nutritional Balance Overview Using a Multifaceted Study
Emanuelli do Nascimento da Silva, Mirla Cidade, Gabriel Heerdt, Rafael L. Ribessi, Nelson H. Moron and Solange Cadore

Graphical Abstract
Selenate and selenite enrichment in the Veneza Roxa lettuce was carried out and the mineral composition was evaluated using ICP OES, PCA and molecular modeling. Selenate-biofortified lettuce showed a synergetic effect with S and Mo while selenite-biofortified lettuce showed a synergetic effect with Mn, P, Mg and Ca.

380  Suspended and Immobilized TiO$_2$ Photocatalytic Degradation of Estrogens: Potential for Application in Wastewater Treatment Processes
Marcus V. de Liz, Rubia M. de Lima, Bianca do Amaral, Belisa A. Marinho, Jessica T. Schneider, Noemi Nagata and Patricio Peralta-Zamora

Graphical Abstract
Photocatalytic degradation of estrogens by suspended and immobilized TiO$_2$ were compared in aqueous and wastewater samples. The EE2 degradation products were monitored by GC-MS/MS.

390  Comparative Study of the Lipid Profiles of Oils from Kernels of Peanut, Babassu, Coconut, Castor and Grape by GC-FID and Raman Spectroscopy
William S. Martini, Brenda L. S. Porto, Marcone A. L. de Oliveira and Antonio C. Sant’Ana

Graphical Abstract
A fast evaluation of the degree of unsaturation and the presence of oxidized products in oil samples by Raman spectroscopy, through the identification of marker bands, assigned by supporting of GC-FID analyses of standard fatty acids.

398  Absolute Configuration of Solenopsis Piperidines is a Tool to Classify Fire Ants (Formicidae: Myrmicinae)
Francisca D. S. Araújo, Marcela A. Botelho, José R. Trigo and Anita J. Marsaioli

Graphical Abstract
Chiral GC chromatogram of the peak discrimination of 2-methyl-6-undecylpiperidine trifluoroacetamide stereoisomers (synthetic standard mixture).
404 Thermal Properties and Kinetics of Al/\(\alpha\)-MnO\(_2\), Nanostructure Thermite

Jia-Xing Song, Xiang Fang, Tao Guo, Feng-Li Bei, Wen Ding, Xiao-Nan Zhang, Miao Yao and Hong-Jun Yu

Graphical Abstract
Thermal properties and kinetics of Al/\(\alpha\)-MnO\(_2\), nanostructure thermite was reported in this work. According to DSC curves, the heat release and onset temperature were measured. Then the changes of activation energy on extent of conversion (\(\alpha\)) for kinetics of Al/\(\alpha\)-MnO\(_2\), thermite were obtained by using isoconversional method.

412 Catalytic Behaviors of Co\(^{II}\) and Mn\(^{II}\) Compounds Bearing \(\alpha\)-Diimine Ligands for Oxidative Polymerization or Drying Oils

Gilvan E. S. Lima, Everton V. Nunes, Roberta C. Dantas, Carlos A. de Simone, Mario R. Meneghetti and Simoni M. P. Meneghetti

Graphical Abstract
Metal carboxylate complex modified with nitrogen ligands used as catalyst to oxidative polymerization of drying oils.

419 Enantiomeric Ratio Changes of Terpenes in Essential Oils from Hybrid Eucalyptus grandis \(\times\) E. tereticornis and its Pure Species

Cecilia Naspi, Agustín A. Costa, Alejandro Lucia, Paola G. Audino and Hector M. Masuh

Graphical Abstract
Fractionation of essential oils from Eucalyptus grandis \(\times\) E. tereticornis, and its parental taxa, by HPLC followed by GC-MS analysis using two columns in series, allowed to determine the enantiomeric excesses of selected monoterpenes. Significant differences were found in the enantiomeric ratios in monoterpenoid alcohols between the three essential oils.

430 Fast Screening of Solvents for Simultaneous Extraction of Furfural, 5-Hydroxymethylfurfural and Levulinic Acid from Aqueous Solution Using SMD Solvation Free Energies

Ellen V. Dalessandro and Josefredo R. Pliego Jr.

Graphical Abstract
Automated computational screening of 178 solvents for extraction of organic chemicals from aqueous phase.