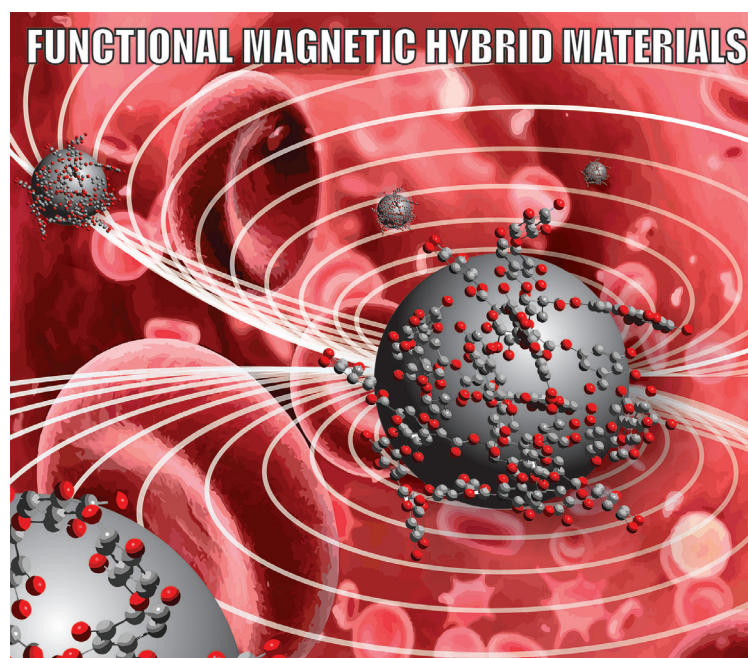


Cover Picture



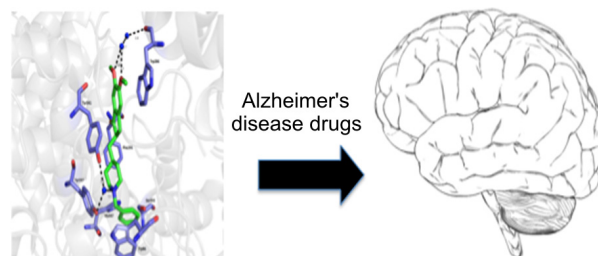
Through molecular recognition and self-assembly processes, we developed new hybrid nanomaterial composed of tannic acid and magnetite. Combining experimental and theoretical analyses, we studied the physico-chemical properties of this material as well as the fundamentals of interaction between the organic and inorganic phases. The interaction of these two materials resulted in a final product able to be easily dispersed in water. Using the magnetic property of magnetite and biocompatibility of tannic acid, this material is attracting for applications whose aiming is reaching specific and localized targets in biological media. Details are presented in the Article **Hybrid Self-Assembled Materials Constituted by Ferromagnetic Nanoparticles and Tannic Acid: a Theoretical and Experimental Investigation** by *Anderson F. M. Santos, Lucyano J. A. Macedo, Mariana H. Chaves, Marisol Espinoza-Castañeda, Arben Merkoçi, Francisco das Chagas A. Lima and Welter Cantanhêde* on page 727.

Contents

Review

641 Current Approaches Against Alzheimer's Disease in Clinical Trials

Kamil Kuca, Ondrej Soukup, Petra Maresova, Jan Korabecny, Eugenie Nepovimova, Blanka Klimova, Jan Honegr, Teodorico C. Ramalho and Tanos C. C. França



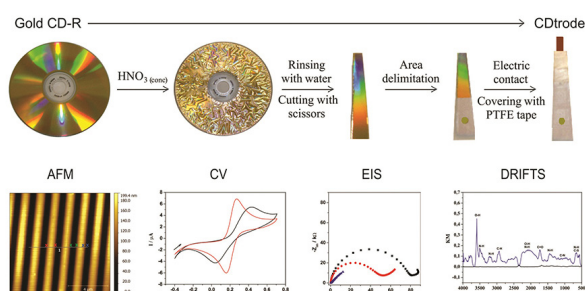
Graphical Abstract

Different approaches for treatment of Alzheimer's disease (AD) are presented

Articles

650 Comparison of Gold CD-R Types as Electrochemical Device and as Platform for Biosensors

Marcos V. Foguel, Glaucio P. dos Santos, Antonio A. P. Ferreira, Marina Magnani, Marcello Mascini, Petr Skladal, Assis V. Benedetti and Hideko Yamanaka



Graphical Abstract

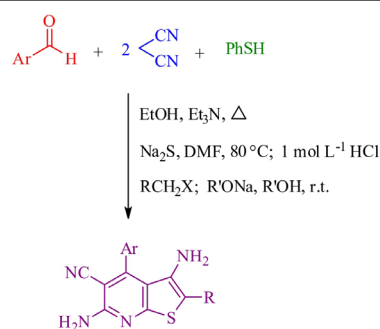
Construction and characterization of electrode using 3 kinds of gold recordable compact discs for biosensor development

663 Cascade Synthesis of Thieno[2,3-*b*]pyridines by Using Intramolecular Cyclization Reactions of 3-Cyano-2-(organylmethylthio)pyridines



SI online

Fatemeh Alinaghizadeh, Mahboobeh Zahedifar, Mohammad Seifi and Hassan Sheibani

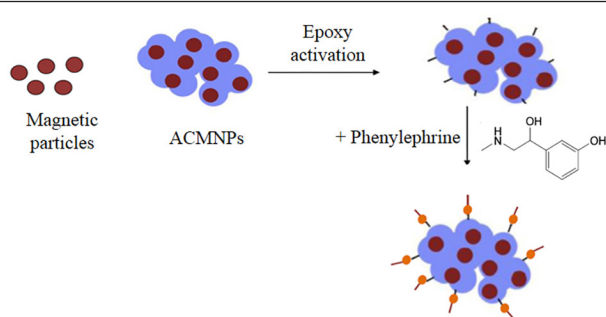


Graphical Abstract

Synthesis of thieno[2,3-*b*]pyridine derivatives via intramolecular cyclization reactions of 3-cyano-2-(organylmethylthio)pyridines in excellent yields and in a short reaction time

670 Agarose Based Magnetic Solid-Phase Extraction-Magnetic Field Agitation for Determination of Trace Amounts of Molybdenum in Beans

Narges Poursheikhi, Payman Hashemi, Mehdi Safdarian, Fariba Nazari Serenjah and Faezeh Hesami

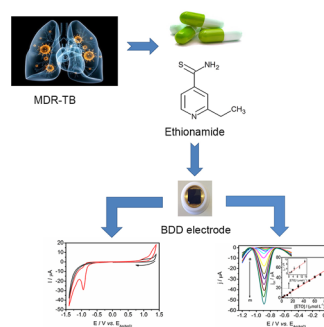


Graphical Abstract

Preparation of agarose coated magnetic nano particles and their activation and functionalization by phenylephrine

677 Voltammetric Determination of Ethionamide in Pharmaceutical Formulations and Human Urine using a Boron-Doped Diamond Electrode

Bruno R. L. Ferraz, Fernando R. F. Leite, Bruna L. Batista and Andréa R. Malagutti



Graphical Abstract

The ethionamide has been used in the treatment of drug-resistance tuberculosis (MDR-TB) and its quantification in pharmaceuticals and urine by square wave voltammetry boron-doped diamond electrode (SWV-BDDE) has been shown

685 Acid Decomposition of Yerba Mate (*Ilex paraguariensis*) Using a Reflux System for the Evaluation of Al, Ca, Cd, Cr, Cu, Fe, K, Mg, Mn, Na, Pb and Zn Contents by Atomic Spectrometric Techniques

SI online

Camila C. Pereira, Alexander O. Souza, Eliézer Q. Oreste, Mirla J. A. Cidade, Solange Cadore, Anderson S. Ribeiro and Mariana A. Vieira



Graphical Abstract

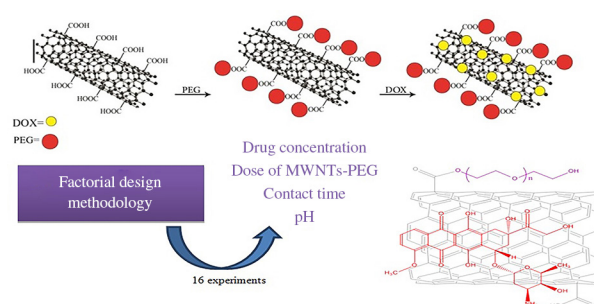
Evaluation of Al, Ca, Cd, Cr, Cu, Fe, K, Mg, Mn, Na, Pb and Zn contents in yerba mate (*Ilex paraguariensis*) by atomic spectrometric techniques

694 Functionalized Multi Walled Carbon Nanotubes as a Carrier for Doxorubicin: Drug Adsorption Study and Statistical Optimization of Drug Loading by Factorial Design Methodology

Bahman Vasheghani Farahani, Gholamreza Rezaei Behbahani and Nasrin Javadi

Graphical Abstract

Adsorption potential of functionalized multi walled carbon nanotubes (MWNTs) studied in Doxorubicin in water model system. Significant factors were evaluated using 2^4 full factorial design. Thermodynamic and kinetic parameters were also studied



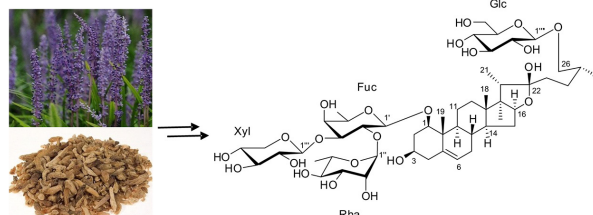
706 A New Steroidal Saponin from the Tubers of *Ophiopogon japonicus* and Its Protective Effect Against Cisplatin-Induced Renal Cell Toxicity

SI online

Seoung Rak Lee, Ju-Yeon Han, Hee Rae Kang, Hye Lim Lee, Hyung-Jun Noh, Jae-Soon Cha, Ki Sung Kang, Chan-Jung Lee and Ki Hyun Kim

Graphical Abstract

A new furostanol saponin, ophiopogonin T, was isolated from the tubers of *Ophiopogon japonicus*. This compound showed a significant protective effect against cisplatin-induced cytotoxicity in porcine kidney (LLC-PK1) cells



712 Feasibility of Using AAS for the Characterization of a Tuna Fish Candidate Reference Material for Total Hg and Methyl-Hg Measurement

Rodrigo Chelegão, Vivian M. O. Carioni, Juliana Naozuka and Cassiana S. Nomura

Graphical Abstract

A simple and fast procedure for total Hg and methyl Hg measurement by graphite furnace atomic absorption in tuna fish candidate reference material produced in Brazil is proposed

	MHg	Hg	MHg	Hg
Sample	Analyte mass fraction \pm standard deviation / (mg kg ⁻¹) (CV, %); n = 3			
	Total Hg	Methyl-Hg		
Raw fish tissue	2.66 \pm 0.48 (18)	2.36 \pm 0.40 (17)		
Freeze-dried fish tissue	2.78 \pm 0.22 (8)	2.13 \pm 0.41 (19)		
Final material	2.75 \pm 0.13 (5)	2.33 \pm 0.10 (4)		
Non-fractionated	2.85 \pm 0.20 (7.0)	2.32 \pm 0.02 (0.9)		

719 Chemical Profiling of Street Cocaine from Different Brazilian Regions

Adriano O. Maldaner, Élvio D. Botelho, Jorge J. Zacca, Raimundo C. A. Melo, José L. Costa, Ivomar Zancanaro, Celinalva S. L. Oliveira, Leonardo B. Kasakoff and Thiago R. L. C. Paixão

SI online

Graphical Abstract

Street cocaine samples seized in five different Brazilian States (AC, BA, FD, GO and SP) were analyzed by the Federal Police chemical profiling program



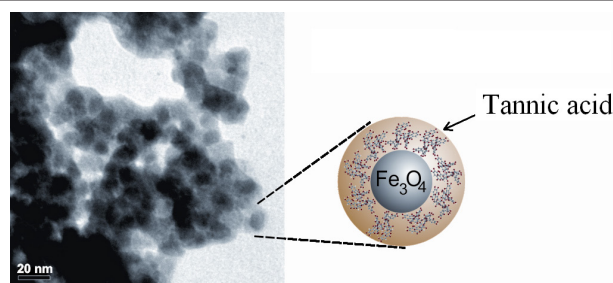
727 Hybrid Self-Assembled Materials Constituted by Ferromagnetic Nanoparticles and Tannic Acid: a Theoretical and Experimental Investigation

Anderson F. M. Santos, Lucyano J. A. Macedo, Mariana H. Chaves, Marisol Espinoza-Castañeda, Arben Merkoçi, Francisco das Chagas A. Lima and Welter Cantanhêde

SI online

Graphical Abstract

Hybrid magnetic nanomaterials with interest for biomedical applications were developed and studied through several techniques, including density functional theory

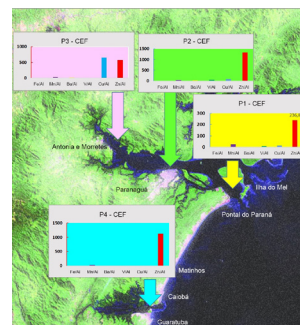


735 Preliminary Study about the Origin of Trace Elements in the Atmospheric Deposition in Two Brazilian Subtropical Estuaries

Eunice C. Machado, Priscilla R. Arévalo, Maria R. O. Casartelli, Maurício G. Camargo and Emmanoel V. Silva-Filho

Graphical Abstract

Estimated crustal enrichment factors (CEF) indicate that atmospheric Zn is derived from anthropogenic sources and that atmospheric deposition may be a main input of this element in subtropical estuarine systems of Southern Brazil

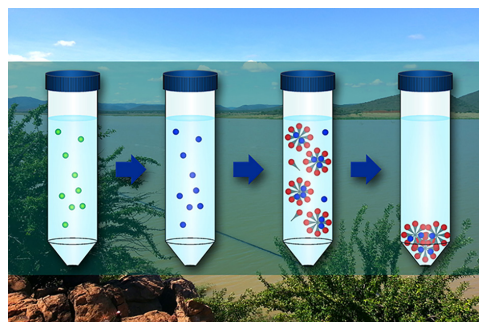


745 Multivariate Optimization of a Simultaneous Cloud Point Extraction Procedure of Cd, Cu and Ni from Sediments Samples and Determination by ICP OES

Leandro dos Santos, Queila O. dos Santos, Islania Moreno, Cléber G. Novaes, Márcio J. S. dos Santos and Marcos A. Bezerra

Graphical Abstract

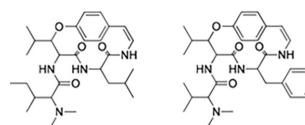
Cloud point extraction was applied to preconcentration of cadmium, copper and nickel from sediments after the procedure optimization using Doehlert and constrained mixture designs



753 Ixorine, a New Cyclopeptide Alkaloid from the Branches of *Ixora brevifolia*

Rebeca P. Medina, Ivânia T. A. Schuquel, Armando M. Pomini,
Cleuza C. Silva, Cecília M. A. Oliveira, Lucília Kato,
Celso V. Nakamura and Silvana M. O. Santin*

SI online



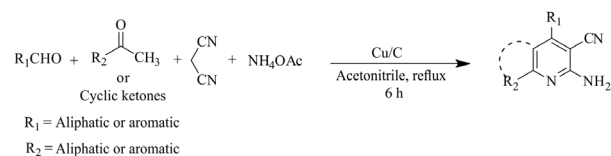
Graphical Abstract

The new cyclic peptide alkaloid ixorine, along with known alkaloid frangulanine, were isolated from the branches of *Ixora brevifolia*. The isolation of frangulanine is first reported from Rubiaceae. The alkaloids showed activity against *Leishmania amazonensis*

759 A Multicomponent Synthesis of 2-Amino-3-cyanopyridine Derivatives Catalyzed by Heterogeneous and Recyclable Copper Nanoparticles on Charcoal

Reza Khalifeh and Mahdiyeh Ghamari

SI online



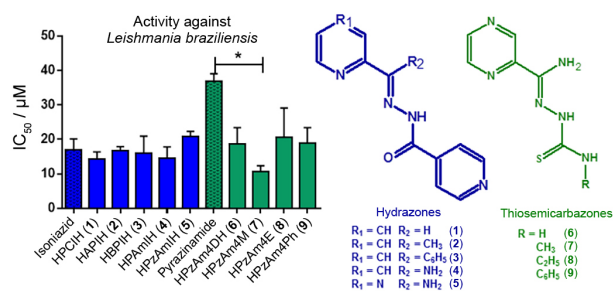
Graphical Abstract

In the present work, novel procedure for synthesis of 2-amino-3-cyanopyridine derivatives has been reported by using copper nanoparticles on charcoal (Cu/C) as heterogeneous catalyst

769 Cytotoxicity and Leishmanicidal Activity of Isoniazid-Derived Hydrazones and 2-Pyrazineformamide Thiosemicarbazones

Raquel S. Amin, Gisele S. S. Firmino, Ana C. P. D. Rego,
Adriane L. Nery, Silvia A. G. Da-Silva, Marcus V. N. de Souza,
Claudia Pessoa, Jackson A. L. C. Resende,
José D. Figueroa-Villar and Josane A. Lessa

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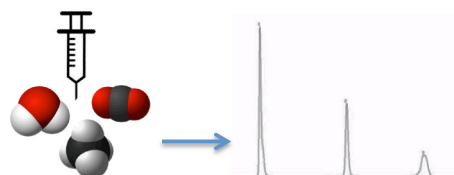
Graphical Abstract

Isoniazid-derived hydrazones are the most cytotoxic compounds, whereas the thiosemicarbazones are more selective against *L. braziliensis* strains

778 Determination of CO₂, CH₄ and N₂O: a Case Study for the City of Rio de Janeiro Using a New Sampling Method

Cleyton M. Silva, Sergio M. Corrêa and Graciela Arbilla

SI online



Graphical Abstract

A new sampling method, using polypropylene syringes and gas chromatography analysis was proposed and applied to determine greenhouse gases in the city of Rio de Janeiro

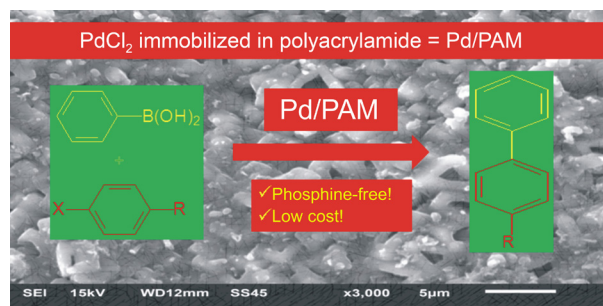
787 PdCl₂ Immobilized in Polyacrylamide: a Low Cost and Eco-Friendly Catalyst for Suzuki-Miyaura Reactions



Glademir Alvarenga, Caroline P. Ruas, Juliano R. M. Vicenti,
SI online Fábio A. Duarte, Marcos A. Gelesky and Gilber R. Rosa

Graphical Abstract

Pd/polyacrylamide (PAM) proved to be an efficient catalyst for Suzuki-Miyaura cross-coupling of ArI and ArBr in eco-friendly conditions



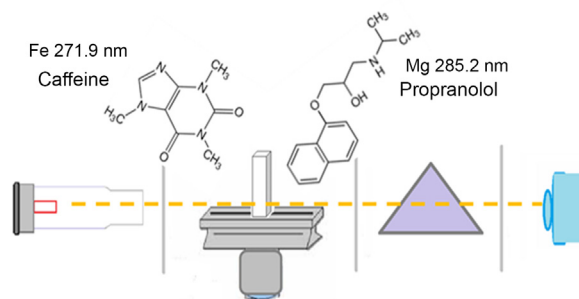
Short Reports

794 Exploring the Versatility of an Atomic Absorption Spectrometer: Application to Direct Molecular Determination of Caffeine and Propranolol

Bruno L. Ferreira, Luciano Vitali and Eduardo S. Chaves

Graphical Abstract

A simple strategy for the application of an atomic absorption spectrometer to the direct determination of molecular compounds



799 Simultaneous Determination of Thorium and Uranium in Mineral Fertilizers by Inductively Coupled Plasma Optical Emission Spectrometry



Sidnei O. Souza, Dayara V. L. Ávila, Adnivia S. C. Monteiro,
SI online Carlos Alexandre B. Garcia, José P. H. Alves,
Tatiane A. Maranhão and Rennan G. O. Araujo

Graphical Abstract

The optimized analytical method was efficient, specific and selective for simultaneous determination of Th and U by inductively coupled plasma optical emission spectrometry (ICP OES) in mineral fertilizers

