

- 1427 Particulate matter in the indoor environment of museums in the megacity of São Paulo

Andrea Cavicchioli, Ericka P. Morrone and Adalgiza Fornaro

Graphical Abstract

In heavily polluted São Paulo (Brazil), indoor air quality in museums is impacted to varying degrees by particulate matter (PM) and black carbon (BC) particles that originate outdoors, primarily from motor vehicle emissions.

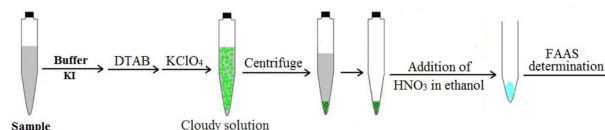


- 1436 Preconcentration of copper from natural water samples using ligand-less *in situ* surfactant-based solid phase extraction prior to FAAS determination

Sayed Z. Mohammadi, Daryoush Afzali, Fatemeh Sabermahani and Samira Afshari

Graphical Abstract

Ligand-less *in situ* surfactant-based solid phase extraction for the preconcentration of copper from natural water samples prior to FAAS determination.

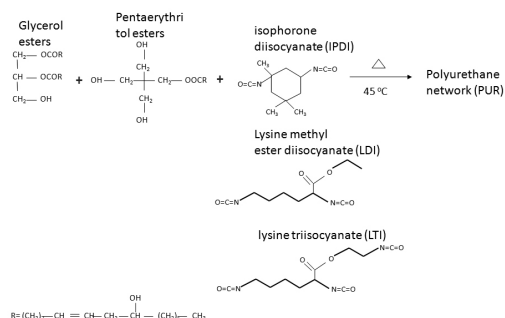


- 1441 Poliuretanos obtenidos a partir de aceite de higuera modificado y poli-isocianatos de lisina: síntesis, propiedades mecánicas y térmicas y degradación *in vitro*

Manuel F. Valero y Luis E. Díaz

Graphical Abstract

Biodegradable polyurethanes (PUR) were prepared from polyols derived from castor oil by transesterification of pentaerythritol-modified castor oil and lysine polyisocyanates (LDI and LTI). This study aims to examine the effect of the structure and functionality of diisocyanate on the mechanical properties and *in vitro* degradation of the material.

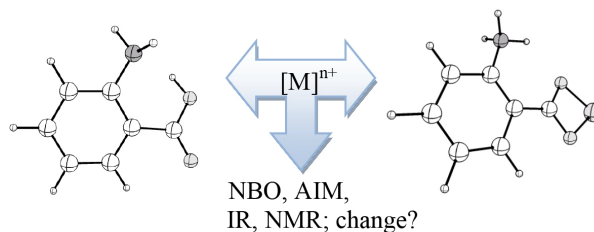


- 1446 Modulating the electronic structure of amino acids: interaction of model Lewis acids with anthranilic acid

Tareq Irshaidat

Graphical Abstract

Interaction of a Lewis acid with an amino acid weakens the H-O bond of the carboxylic acid group and results in a spontaneous proton transfer to the nitrogen generating a zwitterion structure that incorporates a strong stabilizing N-H...O hydrogen bonding.

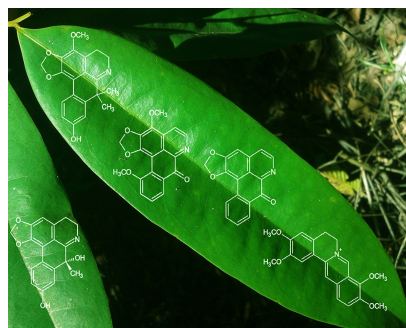


- 1453 Alcaloides isoquinolínicos e investigação das atividades antiplasmódica e antibacteriana de *Guatteria citriodora* (Annonaceae)

Diego de M. Rabelo, Maria L. B. Pinheiro, Andersson Barison, Kahlil S. Salomé, Emmanoel V. Costa, Felipe M. A. da Silva, Yury O. Chaves e Ivanildes dos S. Bastos

Graphical Abstract

Phytochemical investigations of the stem bark, leaves and twigs of *Guatteria citriodora* resulted in the isolation of aporphinoids and protoberberine alkaloids. The results for antiplasmodial and antibacterial activities were promising and attributed to alkaloidal constituents.

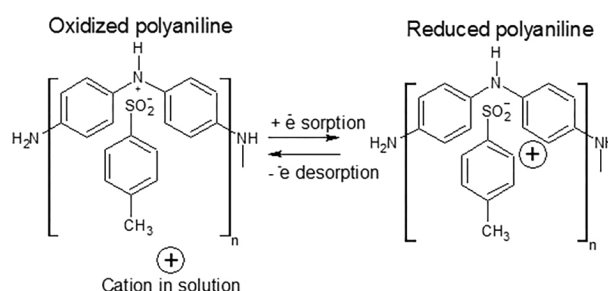


- 1459 Modificação do polímero condutor polianilina para uso como trocador catiônico

Rafael L. Zornitta, Guilherme Pincelli e Luís A. M. Ruotolo

Graphical Abstract

Polyaniline was modified with the large anion *p*-toluenesulfonate to obtain cation-exchange properties.

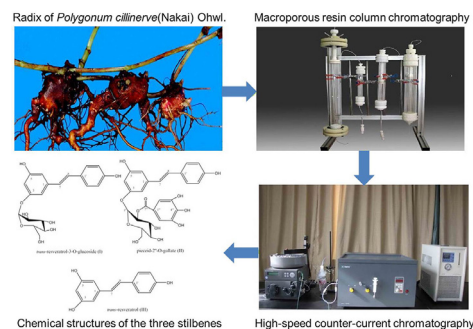


- 1465 Separation and purification of three stilbenes from the radix of *Polygonum cillinerve* (Nakai) Ohwi by macroporous resin column chromatography combined with high-speed counter-current chromatography

Xiaofeng Chi, Yuxiu Xing, Yuancan Xiao, Qi Dong and Fengzu Hu

Graphical Abstract

trans-resveratrol-3-O-glucoside, pieceid-2''-O-gallate and *trans*-resveratrol were separated and purified from the radix of *Polygonum cillinerve* (Nakai) Ohwi by macroporous resin column chromatography combined with high-speed counter-current chromatography.

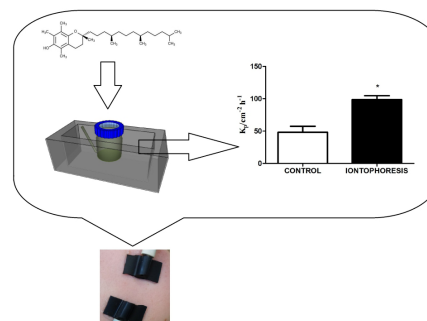


- 1469 Comportamento eletroquímico e avaliação da difusão *in vitro* do α -tocoferol associado à iontoforese

Elisa Paludo, Laís Bresciani, Maurício Hilgemann, João A. Tassinari e Simone Stülpe

Graphical Abstract

Iontophoresis is a method of administering substances through the skin, which uses electrical current or potential to promote transdermal delivery. This paper showed that iontophoresis increased the diffusion and degradation of α -tocopherol.

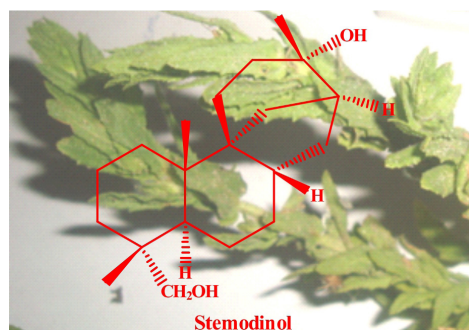


1474 Phytochemical study, antioxidant and antibacterial activities of *Stemodia maritima*

Francisca R. L. da Silva, Francisco E. A. Rodrigues, Aldenia R. S. Gomes, Angela M. C. Arriaga, Jair Mafezoli, Telma L. G. Lemos, Macia C. S. de Almeida, Gilvandete M. P. Santiago, Raimundo Braz-Filho, José G. M. da Costa, Fabiola F. G. Rodrigues and Henrique D. M. Coutinho

Graphical Abstract

Stemodinol, a new natural compound, was isolated from leaves of *Stemodia maritima*, and the structure was unambiguously established by 1D and 2D NMR techniques. The antioxidant and antimicrobial activities of other compounds from *Stemodia maritima* were investigated.

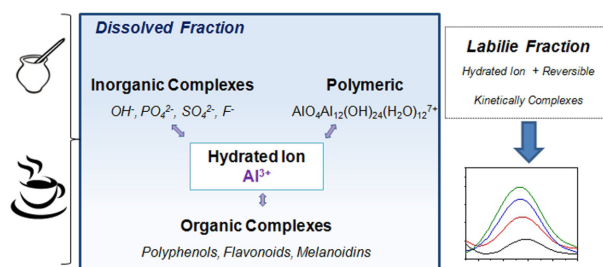


1479 Avaliação da labilidade de alumínio em infusões de erva-mate empregando voltametria adsorbtiva de redissolução catódica

Bruna K. de Campos, Jéssica P. dos Prazeres, Yohandra R. Torres, Vanessa E. dos Anjos e Sueli P. Quináia

Graphical Abstract

A sensitive method was developed to measure aluminum lability by employing Absorptive Cathodic Stripping Voltammetry. The bioavailable (labile) fraction of Al was determined in yerba mate infusions.

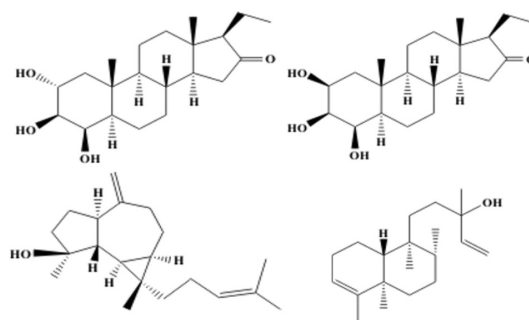


1487 Estudo químico das folhas de *Trichilia silvatica* (Meliaceae)

Aloízio de O. Soares, Adrienn G. L. Ferreira, Luzinátia R. Soares, Joaquim Corsino, Fernanda R. Garcez e Walmir S. Garcez

Graphical Abstract

Phytochemical study of *Trichilia silvatica* led to the isolation of pregnanes and diterpenes. Clerodanes are considered potential insecticides and therefore might be responsible, along with steroids, for the larvicidal activity of the extract from leaves of *T. silvatica*.



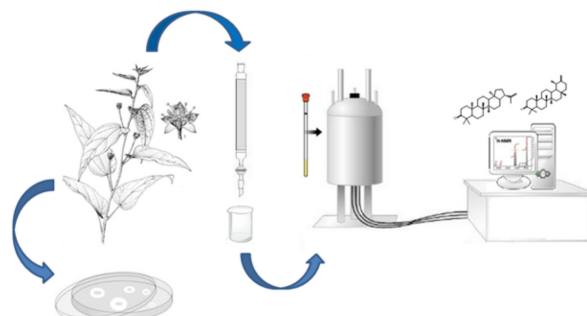
1491 Phytochemical investigation of *Wissadula periplocifolia* (L.)

C. Presl and evaluation of its antibacterial activity

Yanna C. F. Teles, Roosevelt A. Gomes, Micaelly da S. Oliveira, Kaio L. de Lucena, José S. do Nascimento, M^a de Fátima Agra, John O. Igoli, Alexander I. Gray and M^a de Fátima V. de Souza

Graphical Abstract

This is a phytochemical study on the *Wissadula* genus. The isolated compounds were obtained by usual chromatographic techniques and identified by spectroscopic analysis. The fractions and compounds from *Wissadula periplocifolia* showed antibacterial activity.

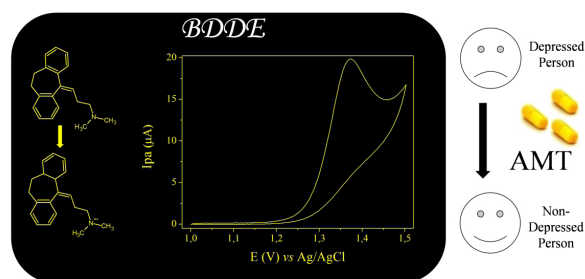


- 1496 Determinação voltamétrica de amitriptilina em formulações farmacêuticas com eletrodo de diamante dopado com boro explorando medidas em meio ácido

Eduardo H. Duarte, Felipe A. Gorla, Elen R. Sartori e César R. T. Tarley

Graphical Abstract

The proposed method, based on electrooxidation of amitriptyline at a boron-doped diamond electrode, is stable for several measures and demonstrates desirable features, such as good precision (intra- and inter-day) and accuracy, for routine analyses.

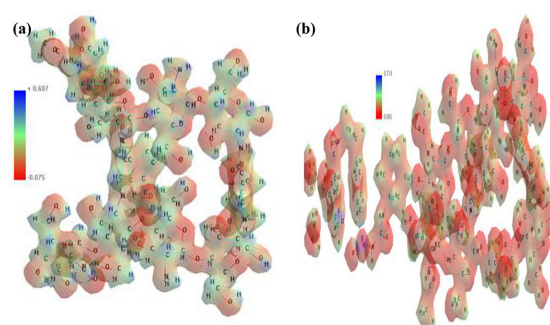


- 1503 Interactions of chitosan/genipin hydrogels during drug delivery: a QSPR approach

Nancy L. Delgadillo-Armendariz, Norma A. Rangel-Vazquez, Edgar A. Marquez-Brazon and Blanca Rojas-De Gascue

Graphical Abstract

Molecular electrostatic potential (MESP) of (a) chitosan/genipin and (b) chitosan (genipin)/glibenclamide calculated using the AM1 method.

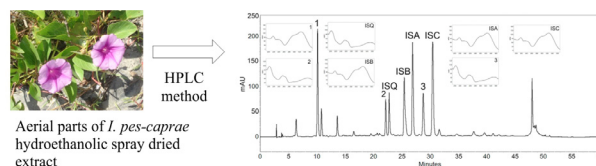


- 1510 Simultaneous determination of four phenolic compounds in extracts of aerial parts of *Ipomoea pes-caprae* (L.) R. Br. (Convolvulaceae) by HPLC-UV

Daniela M. Dutra, Cristiane da S. Barth, Luciana C. Block, Nara L. M. Quintão, Angélica G. Couto, Valdir Cechinel Filho and Tania M. B. Bresolin

Graphical Abstract

An HPLC-UV method for the determination of isoquercitrin (ISQ) and isochlorogenic acids A, B and C (ISA, ISB and ISC) in a hydroethanolic spray-dried extract of *Ipomoea pes-caprae* was validated and applied to study the stability of herbal drugs and extractive solutions.



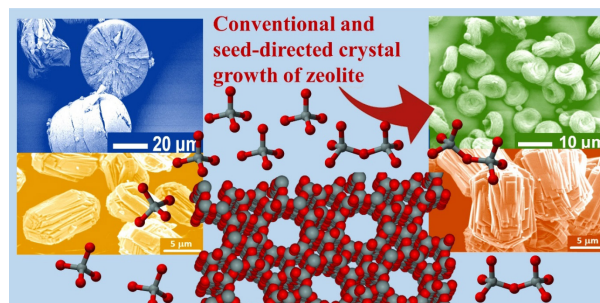
Revisão

- 1515 Cristalização convencional de zeólitas e induzida por sementes

Luiz H. Vieira, Mariana V. Rodrigues e Leandro Martins

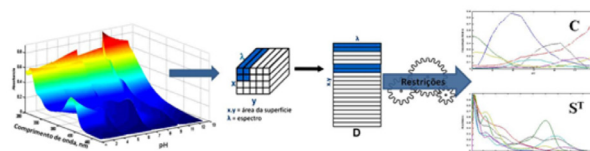
Graphical Abstract

Seed-assisted synthesis of zeolites diminishes crystallization time and enables the industrial use of certain zeolites.



- 1525 Resolução multivariada de curvas com mínimos quadrados alternantes: descrição, funcionamento e aplicações

Paulo H. Março, Patricia Valderrama, Guilherme L. Alexandrino, Ronei J. Poppi e Romã Tauler



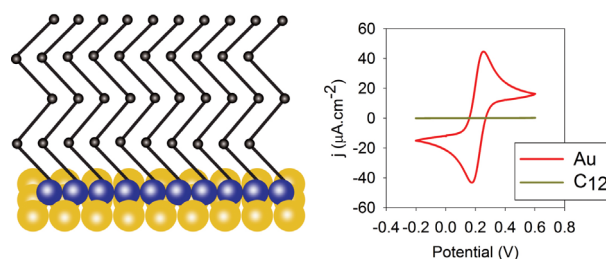
Graphical Abstract

A powerful tool for the resolution, identification and quantification of target compounds in the presence of interferences is described: MCR-ALS applications and the most recent advances, evolution, advantages and drawbacks besides new applications are provided.

Nota Técnica

- 1533 Efeitos da rugosidade superficial nas propriedades de passivação de monocamadas orgânicas automontadas

Tiago A. Benites, Willian C. Ribeiro, Márcio S. Góes, Antonio A. P. Ferreira e Paulo R. Bueno

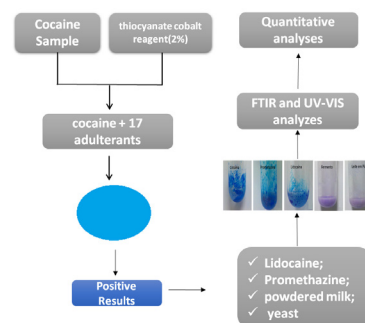


Graphical Abstract

The degree of compression of the monolayer (SAMs) properties of formation and reproducibility of the electrochemical response depends on the roughness factor, with values closer to the unit being better.

- 1538 Estudo do teste de Scott via técnicas espectroscópicas: um método alternativo para diferenciar cloridrato de cocaína e seus adulterantes

Vitor N. Conceição, Lindamara M. Souza, Bianca B. Merlo, Paulo R. Filgueiras, Ronei J. Poppi e Wanderson Romão



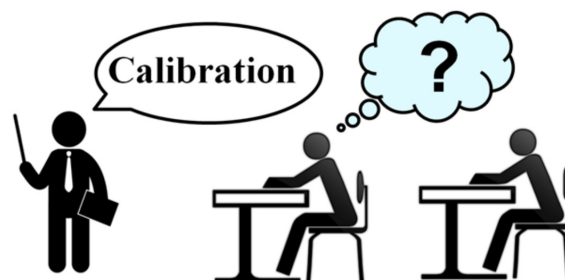
Graphical Abstract

Attenuated total reflection Fourier transform infrared and ultraviolet-visible spectroscopies for distinguishing between cocaine and other adulterants (lidocaine, promethazine, powdered milk and yeast) that yield positive results on the Scott test are described.

Educação

- 1545 Experimento utilizando grãos para explorar a calibração em análises químicas

Daniel M. Silvestre, Juliana Naozuka, Paulo R. M. Correia e Cassiana S. Nomura



Graphical Abstract

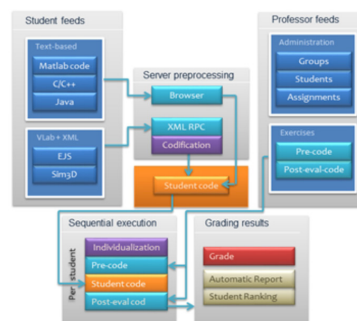
The conceptual understanding of calibration is no easy task for undergraduate students. The differences, similarities and proper application of external calibration, standard addition calibration and internal standard calibration can be explored with a simple experiment using grains.

1550 Automatic evaluation and data generation for analytical chemistry instrumental analysis exercises

Arsenio M. de la Peña, David M. de la Peña, María P. Godoy-Caballero, David González-Gómez, Fabio Gómez-Estern and Carlos Sánchez

Graphical Abstract

Goodle Grading Management System (GMS) is a completely different evaluation method facilitating automatic data generation and grading for complex exercises, which enables students to independently complete personalized exercises and submit their solutions online, while receiving immediate feedback.



1559 Textos científicos de autoria de graduandos em química: análise dos professores

Jane R. S. de Oliveira e Salete L. Queiroz

Graphical Abstract

Aspects of scientific language considered by chemistry professors in the evaluation of scientific texts authored by undergraduate chemistry students.

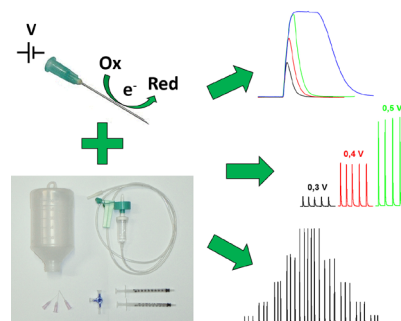


1566 Desenvolvimento de um sistema de análise por injeção em fluxo utilizando materiais alternativos de baixo custo para fins didáticos

Bruna C. S. Moreira, Regina M. Takeuchi, Eduardo M. Richter e André L. Santos

Graphical Abstract

Low-cost materials from hospital applications were used to build an FIA system, which was able to demonstrate the influence of the main operational parameters on the transient signals. Thus, this system can be regarded as an efficient and accessible didactic tool for teaching FIA principles.



1573 Dinâmicas de inquiry no estudo de perturbações a um estado de equilíbrio químico

Hugo Vieira, Carla Morais e João Paiva

Graphical Abstract

What are the best ways to teach Science nowadays so as to serve contemporary students and society? Here we present one such approach, inquiry Modules, an inquiry dynamic, along with an example, available in full from a website, applied to teach Le Chatelier's Principle.

