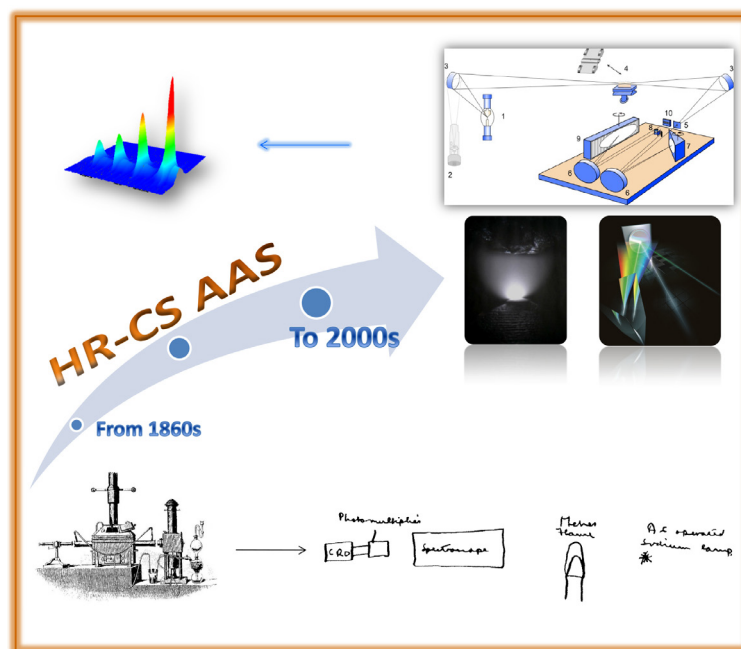


Cover Picture



This review article covers 1½ centuries of history of continuum source atomic absorption spectrometry (CS AAS). It discusses the major advantages of modern high-resolution (HR-CS AAS). The advantages of this new technique are outstanding, such as the three-dimensional imaging of absorbance spectra, the unsurpassed background correction capabilities, and the possibility to determine non-metals via the absorption of their diatomic molecules. The dream to overcome the stigma of AAS as a one-element-at-a-time technique has not yet been realized, but there is hope that it will not take too long to also reach that goal. Details are presented in the Review **Continuum Source Atomic Absorption Spectrometry: Past, Present and Future Aspects – A Critical Review** by Bernhard Welz, Maria Goreti R. Vale, Éderson R. Pereira, Ivan N. B. Castilho and Morgana B. Dessuy on page 799.

Contents

Editorial

797 Internationalizing a Prestigious Brazilian Scientific Journal
Rogerio Meneghini

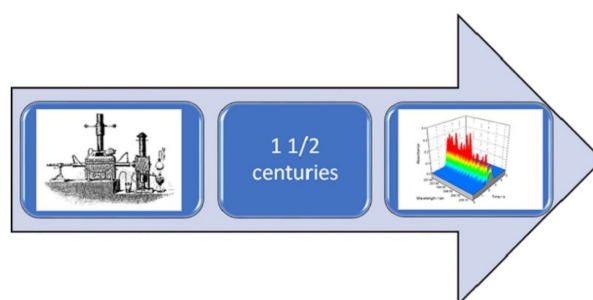
Review

799 Continuum Source Atomic Absorption Spectrometry: Past, Present and Future Aspects – A Critical Review

Bernhard Welz, Maria Goreti R. Vale, Éderson R. Pereira, Ivan N. B. Castilho and Morgana B. Dessuy

Graphical Abstract

The history of using continuum sources for absorption measurements started in the 1860s; it was re-discovered in the 1960s and first instruments became available early this century. The literature about features and recent applications is reviewed



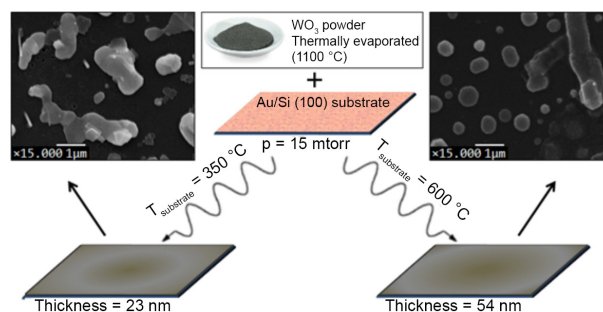
Articles

822 Tungsten Oxide Thin Films Grown by Thermal Evaporation with High Resistance to Leaching

Diogo S. Corrêa, Julia C. O. Pazinato, Maurício A. de Freitas, Lucio S. Dorneles, Claudio Radtke and Irene T. S. Garcia

Graphical Abstract

Tungsten oxide thin films were obtained by thermal evaporation under reduced oxygen pressure. The composition of the films, structuring mode and crystalline lattice were investigated. Resistance to leaching and performance as photocatalyst were also evaluated in this work

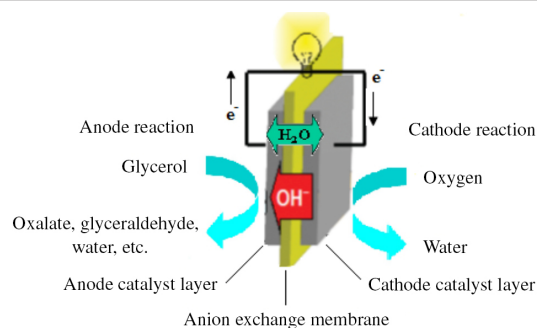


831 Glycerol Electrooxidation in Alkaline Medium Using Pd/C, Au/C and PdAu/C Electrocatalysts Prepared by Electron Beam Irradiation

Adriana N. Geraldes, Dionisio F. Silva, Júlio C. M. Silva, Rodrigo F. B. Souza, Estevam V. Spinacé, Almir O. Neto, Marcelo Linardi and Mauro C. Santos

Graphical Abstract

This study concerns glycerol electrooxidation in single alkaline direct glycerol fuel cell (ADGFC). *In situ* ATR-FTIR analyses were performed for the Pd/C and PdAu/C electrocatalysts at different atomic ratios, identifying oxalate, glycerate ion, 1,3-dihydroxy-2-propanone, glyceraldehyde and glycolate as major products of glycerol electrooxidation



841 Ehrlich and Sarcoma 180 Tumour Characterisation and Early Detection by ¹H NMR-Based Metabonomics of Mice Serum

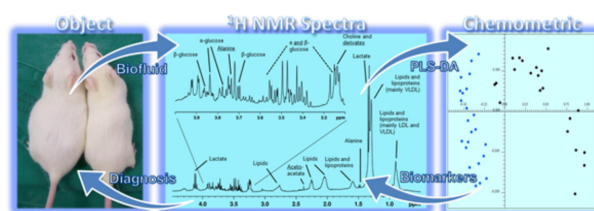
Caroline W. P. da S. Grandizoli, Luise Z. B. Carrenho, Thais M. G. de Francisco, Arquimedes P. de Santana Filho, Guilherme L. Sassaki, Fabio Simonelli, Noemi Nagata, Maria R. O. Kreuger, Francinete R. Campos and Andersson Barison



SI online

Graphical Abstract

This work shows that NMR-based metabonomics on the chemical composition of biofluids can be a valuable tool to evaluate tumour onset and its progress. Through chemometric analysis of ¹H NMR spectra from serum it was possible to diagnose tumours in mice as well as to recognize the biomarkers indicative of the disease



853 Nondestructive Determination of Allergenic and Toxic Elements in Jewelry: a Comparison of Benchtop and Portable Energy Dispersive X-Ray Fluorescence Spectrometers



SI online José Augusto Da-Col, Maria Izabel M. S. Bueno and Fábio Luiz Melquiades



Graphical Abstract

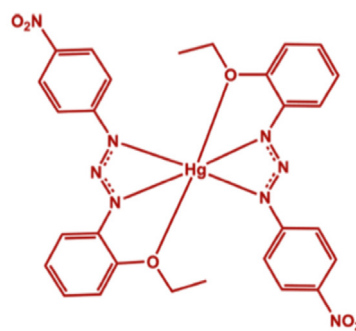
Fast, nondestructive and clean characterization of toxic and allergenic elements in jewelry by EDXRF

861 A New Triazene Ligand Immobilized on Triacetylcellulose Membrane for Selective Determination of Mercury Ion

Hossein Tavallali, Homa Shafiekhani, Mohammad Kazem Rofouei, and Mahmood Payehghadr

Graphical Abstract

In the title compound, $[\text{Hg}(\text{C}_{14}\text{H}_{13}\text{N}_4\text{O}_3)_2]$, the central Hg atom is six-coordinated by two tridentate triazene ligands through two N and one O atoms. Spectrophotometric study of complex formation between this ligand and Hg^{2+} in DMF solution indicated a large stability constant for the mercury ion complex

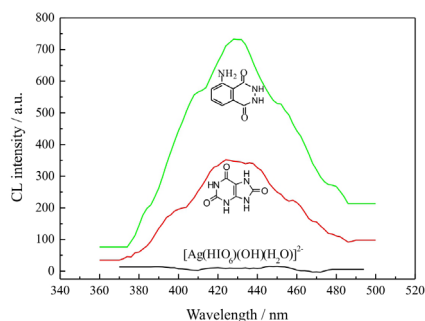


867 Investigation of a Novel Ag(III) Chemiluminescence System and its Mechanism for Determination of Uric Acid in Human Urine

Li Ma, Lingmei Niu, Wei Wang, Weijun Kang and Hongmei Shi

Graphical Abstract

Using a novel luminol-Ag(III) complex chemiluminescence system for determination of uric acid was presented. Possible reaction mechanisms for the CL system were suggested based on the UV absorption spectra, CL spectra, and the free radical trapping experiment



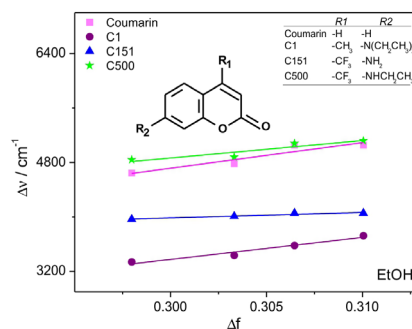
873 Photophysical Properties of Coumarin Compounds in Neat and Binary Solvent Mixtures: Evaluation and Correlation Between Solvatochromism and Solvent Polarity Parameters



SI online Leonardo M. Moreira, Mirian M. de Melo, Priscila A. Martins, Juliana P. Lyon, Ana Paula Romani, Lúcia Codognoto, Sandra C. dos Santos and Hueder P. M. de Oliveira

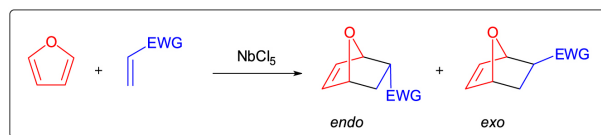
Graphical Abstract

The fluorescent and solvatochromic properties of coumarin and its derivatives were studied to understand the excited state behavior of the molecule in solvent mixtures



882 Niobium(V) Chloride as Catalyst in Diels-Alder Reaction of Furan Ring

Deborah A. dos Santos, Ludmila R. Rodrigues, Bruno H. Arpini, Valdemar Lacerda Jr., Sandro J. Greco, Reginaldo B. dos Santos, Álvaro C. Neto, Wanderson Romão and Eustaquio V. R. de Castro

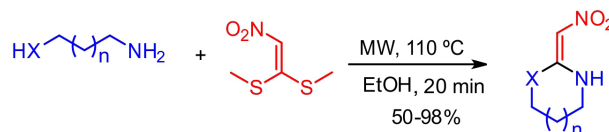


Graphical Abstract

The catalytic activity of NbCl_5 was tested in a solvent-free Diels-Alder reaction with furan. Good yields were obtained in the catalyzed reaction using methyl acrylate as the dienophile. We achieved higher *exo* adduct rates in furan reactions with 2-chloro-acrilonitrile

887 Microwave-Assisted Synthesis of N-Heterocycles and Their Evaluation Using an Acetylcholinesterase Immobilized Capillary Reactor

Diego P. Sangi, Julia L. Monteiro, Kenia L. Vanzolini, Quezia B. Cass, Marcio W. Paixão and Arlene G. Corrêa

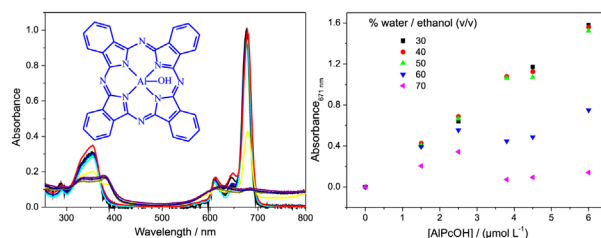


Graphical Abstract

Transition-metal-free annulations of 1,1-bis(thiomethyl)-2-nitroethylene with hydroxyalkylamines or alkyldiamines providing imidazolidines, oxazolidines and benzoxazoles have been reported. These compounds were evaluated as acetylcholinesterase inhibitors by using an enzyme immobilized capillary reactor-tandem mass spectrometry

890 Aggregation of Aluminum Phthalocyanine Hydroxide in Water/Ethanol Mixtures

Tayana M. Tsubone, Gustavo Braga, Bruno H. Vilsinski, Adriana P. Gerola, Noboru Hioka, André L. Tessaro and Wilker Caetano

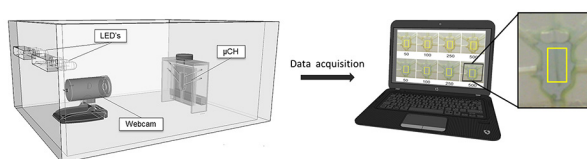


Graphical Abstract

Aluminum phthalocyanine hydroxide is important in various fields. However, their high hydrophobicity promotes the aggregation in aqueous media. Studies have shown that aggregation process is complex in water/ethanol mixtures

898 A Micro-Flow-Batch Analyzer using Webcam for Spectrophotometric Determination of *Ortho*-phosphate and Aluminium(III) in Tap Water

Marcelo B. Lima, Stéfani I. E. Andrade, Maria S. Silva Neta, Inakã S. Barreto, Luciano F. Almeida and Mário César U. Araújo

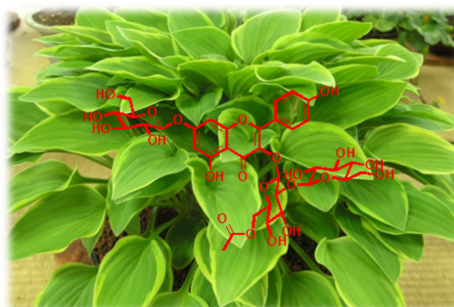


Graphical Abstract

A micro-flow-batch analyzer (μFBA) using webcam for spectrophotometer determination of *ortho*-phosphate and aluminium(III) in tap water is proposed

907 Flavonoid Glycosides from *Hosta longipes*, Their Inhibition on NO Production, and Nerve Growth Factor Inductive Effects

Chung Sub Kim, Oh Wook Kwon, Sun Yeou Kim and Kang Ro Lee



Graphical Abstract

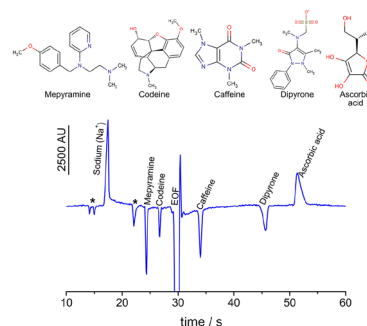
Flavonoid glycosides were isolated from the leaves of *Hosta longipes* and they showed moderate anti-neuroinflammatory activity by suppressing the release of NO in LPS-stimulated microglial cells and by inducing NGF secretion in C6 glioma cells

913 Ultra-Fast Determination of Scopolamine, Orphenadrine, Mepyramine, Caffeine, Dipyrone, and Ascorbic Acid by Capillary Electrophoresis with Capacitively Coupled Contactless Conductivity Detection

Mariana C. Marra, Polyana L. Silva, Rodrigo A. A. Muñoz and Eduardo M. Richter

Graphical Abstract

Simultaneous determination of several active ingredients in less than 1 minute by capillary electrophoresis with capacitively coupled contactless conductivity detection (CE-C⁴D)

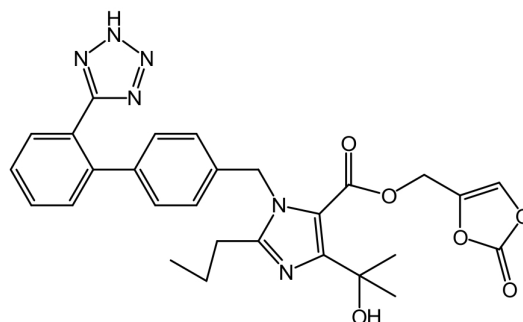


920 Electrochemical Studies of Olmesartan Medoxomil and its Detection in Pharmaceutical Dosage Forms and Biological Fluids by Cathodic Adsorptive Stripping Voltammetric Method

Funda Öztürk, Semahat Küçükkolbaşı, Ceren Kaçar and Esma Kılıç

Graphical Abstract

This adsorptive character of the molecule was used to develop a new fully validated, rapid, selective and simple diferential pulse cathodic adsorptive stripping voltammetric (DPCAdSV) method for the direct determination of OLME

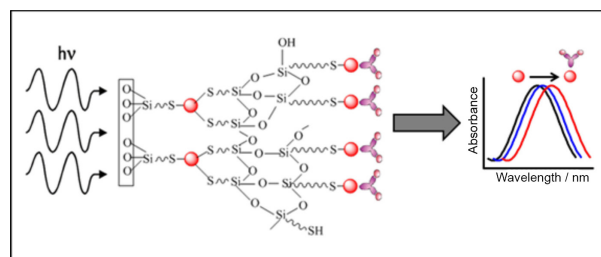


928 SPR Biosensors Based on Gold and Silver Nanoparticle Multilayer Films

Antônio L. C. M. da Silva, Marony G. Gutierrez, Anderson Thesing, Rafael M. Lattuada and Jacqueline Ferreira

Graphical Abstract

Surface binding detection for cysteamine-biotin-streptavidin system using a plasmonic sensor based on nanoparticle multilayer films



935 Conformational Analysis of 2,2'-arylmethylene bis(3-hydroxy-5,5-dimethyl-2-cyclohexene-1-one) by NMR and Molecular Modeling

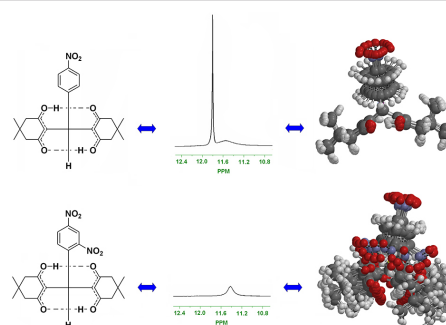


SI online

Marcelle de S. Ferreira and José D. Figueroa-Villar

Graphical Abstract

Effects of R groups at the *para* and *ortho* position on the aromatic ring of 2,2'-arylmethylene-bis(3-hydroxy-5,5-dimethyl-2-cyclohexene-1-ones) determined by three-dimensional structure and conformational analysis using NMR and molecular modeling



947 Corrosion Protection of Aluminum by Hydrophobization Using Nanoparticle Polymer Coatings Containing Plant Oil

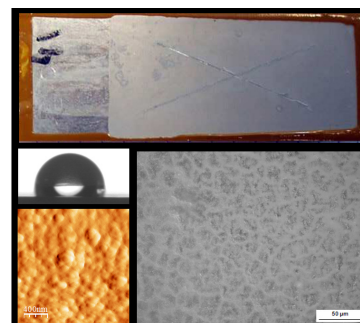


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Pieter Samyn

Graphical Abstract

A hydrophobic and anti-corrosion coating on aluminum substrates, including organic nanoparticles with vegetable oil, carnauba wax and latex, having a water contact angle of 109°

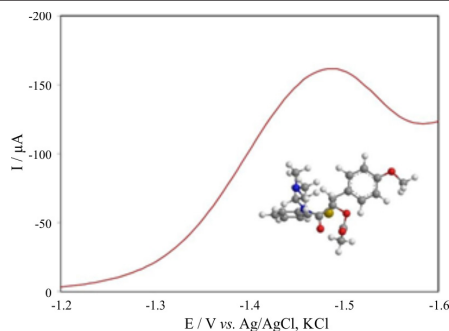


961 Cathodic Voltammetric Detection of Diltiazem at a Bismuth Film Electrode: Application to Human Urine and Pharmaceuticals

Rita I. L. Catarino, M. Fernanda C. Leal, Adriana M. Pimenta, M. Renata S. Souto and Joana R. T. Lopes

Graphical Abstract

Novel application of BiFE for the determination of the calcium-channel blocker diltiazem by square wave cathodic voltammetry in human urine and pharmaceuticals (phosphate buffer; pH 7.4; 0.25 mol L⁻¹)

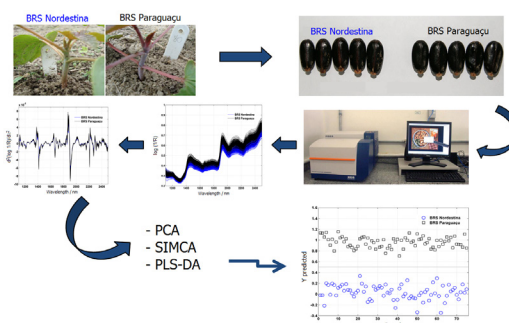


969 Non-Destructive NIR Spectrometric Cultivar Discrimination of Castor Seeds Resulting from Breeding Programs

Maria B. H. Santos, Adriano A. Gomes, Welma T. S. Vilar, Pollyne B. A. Almeida, Máira Milani, Márcia B. M. Nóbrega, Everaldo P. Medeiros, Roberto K. H. Galvão and Mário C. U. Araújo

Graphical Abstract

A non-destructive NIR spectrometric method is proposed for cultivar discrimination of castor seeds resulting from breeding programs



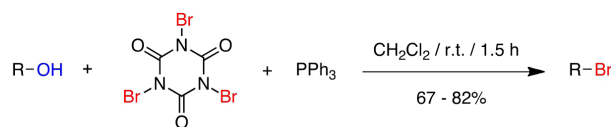
Short Reports

975 Tribromoisocyanuric Acid/Triphenylphosphine: a New System for Conversion of Alcohols into Alkyl Bromides

Vitor S. C. de Andrade and Marcio C. S. de Mattos



SI online



R = primary, secondary, benzyl, allyl

Graphical Abstract

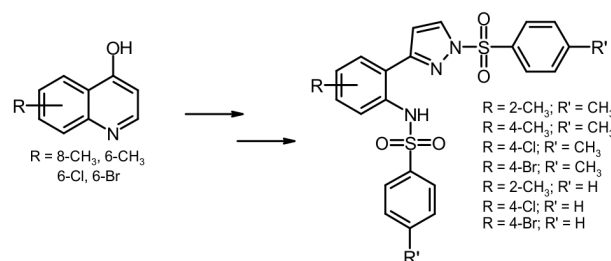
This paper proposes a very convenient route for the preparation of primary and secondary alkyl bromides from alcohols under neutral conditions

980 Synthesis and *in vitro* Evaluation of New Benzenesulfonamides as Antileishmanial Agents

Julio C. Borges, Adriana V. Carvalho, Alice M. R. Bernardino, César D. Oliveira, Luiz C. S. Pinheiro, Roberta K. F. Marra, Helena C. Castro, Solange M. S. V. Wardell, James L. Wardell, Veronica F. Amaral, Marilene M. Canto-Cavalheiro, Leonor L. Leon and Marcelo Genestra



SI online



Graphical Abstract

Seven new pyrazolyl benzenesulfonamide derivatives were prepared and evaluated against *Leishmania amazonensis*