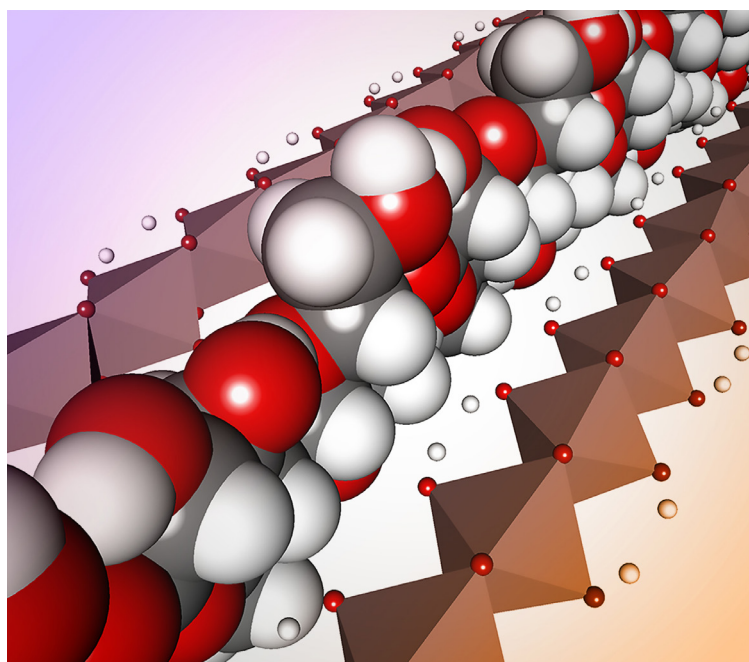


Cover Picture



Bundles of cellulose secreted by *Gluconacetobacter xylinus* bacteria comprise a random net-like three dimensional network. This material, known as bacterial cellulose (BC), also presents large pores when hydrated, resulting in a vast interface for interactions that can influence the inorganic particles growing. In view of bioinspired routes to materials synthesis, BC was used as a template for preparation of layered double hydroxides (LDHs), a versatile class of materials applied in catalysis, adsorption, polymer and pharmaceutical fields. The BC presence in the inorganic layers formation process (involving the sharing of $M(OH)_6$ octahedra) changes the LDH particles shape and increases the surface area. Details are presented in the Article **Bacterial Cellulose as a Template for Preparation of Hydrotalcite-Like Compounds** by Gustavo F. Perotti, Hernane S. Barud, Sidney J. L. Ribeiro and Vera R. L. Constantino on page 1647.

Contents

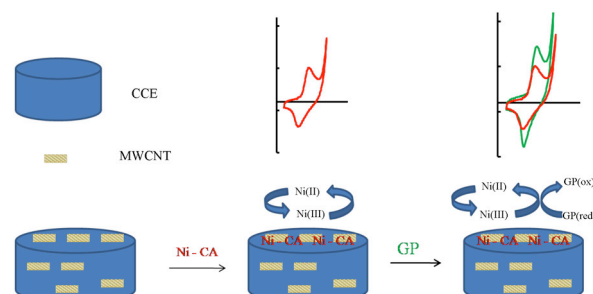
Articles

1537 Voltammetric Determination of Gabapentin by a Carbon Ceramic Electrode Modified with Multiwalled Carbon Nanotubes and Nickel-Catechol Complex

Fahimeh Jalali, Zahra Hassanvand and Parisa S. Dorraji

Graphical Abstract

Nickel-catechol complex (Ni-CA) was deposited electrochemically on the surface of a multiwalled carbon nanotube-modified carbon ceramic electrode (MWCNT-CCE) at pH 13. Cyclic voltammetry showed a quasi-reversible behavior for the redox pair of Ni(III)/Ni(II). The modified electrode had electrocatalytic activity in the oxidation of gabapentin (GP)



1545 Kinetics and Mechanism of Oxidation of Glycine and Alanine by Oxone® Catalyzed by Bromide Ion

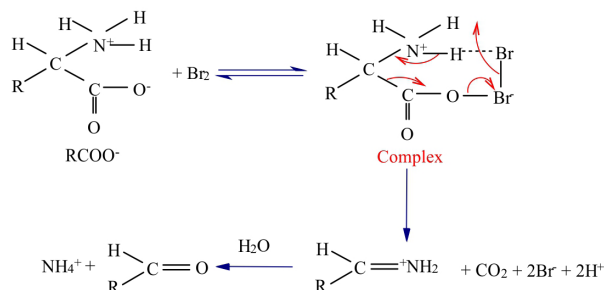


Malharrao R. Thombare and Gavisiddappa S. Gokavi

SI online

Graphical Abstract

Oxidation of glycine and alanine by bromine generated *in situ* by Oxone®-bromide mixture proceeds through complex formation between bromine and the anion of the amino acid

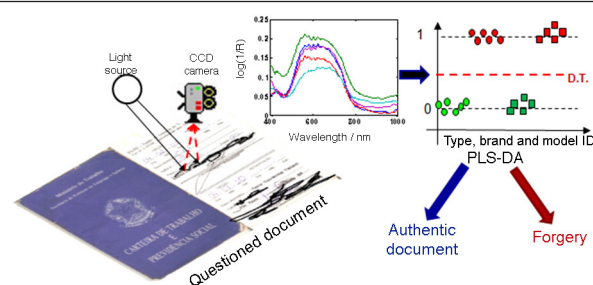


1552 Discrimination of Black Pen Inks on Writing Documents Using Visible Reflectance Spectroscopy and PLS-DA

Verônica A. G. da Silva, Márcio Talhavini, Jorge J. Zacca, Bruno R. Trindade and Jez W. B. Braga

Graphical Abstract

Fast and nondestructive ink identification in handwritten questioned documents by visible spectroscopy and chemometric analysis

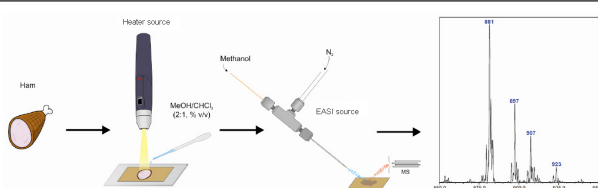


1565 TAG, DAG and FFA Profiles of Dry-Cured Ham by Easy Ambient Sonic-Spray Ionization Mass Spectrometry After Thermal Imprinting

Gabriel D. Fernandes, Wenceslao Moreda, Daniel Barrera-Arellano, Guilherme C. N. Z. Ruiz, Pedro L. Ferreira, Marcos N. Eberlin and Rosana M. Alberici

Graphical Abstract

Thermal imprinting easy ambient sonic-spray ionization mass spectrometry (TI-EASI-MS) was applied to direct lipid analysis of dry-cured ham. Triacylglycerols, diacylglycerols and free fatty acids were identified, according to the process and the rearing systems of pigs



1571 Validation Method to Determine Metals in Atmospheric Particulate Matter by Inductively Coupled Plasma Optical Emission Spectrometry

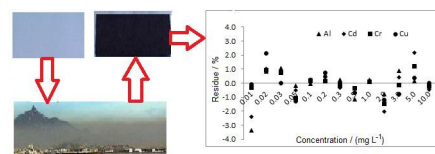


Luciana M. B. Ventura, Beatriz S. Amaral, Kristine B. Wanderley, José M. Godoy and Adriana Gioda

SI online

Graphical Abstract

Filters were placed in high-volume sampler to capture atmospheric particles for subsequent validation of methodology in order to determine concentrations of metals such as Cd, Cu, Pb, V and others that can cause health problems

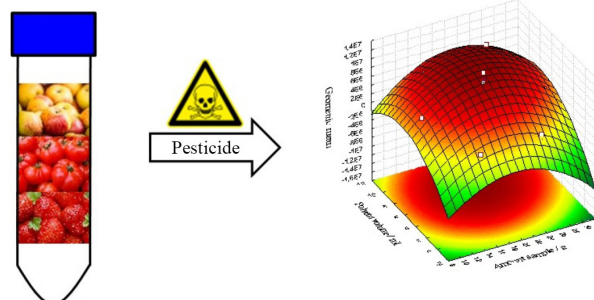


1583 Multivariate Optimization of the QuEChERS-GC-ECD Method and Pesticide Investigation Residues in Apples, Strawberries, and Tomatoes Produced in Brazilian South

Juliana G. Lorenz, Léa L. F. Costa, Eliane A. Suchara and Ernani S. Sant'Anna

Graphical Abstract

Multivariate optimization of important variables of the QuEChERS method coupled to GC-ECD and investigation of the levels of pesticide residues in fruits and vegetables commercialized in Santa Catarina state, South of Brazil

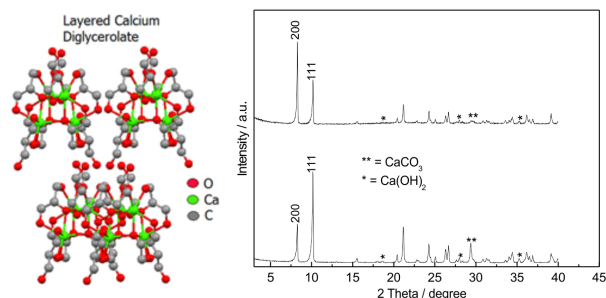


1592 Metal Glycerolates as Catalysts in the Transesterification of Refined Soybean Oil with Methanol under Reflux Conditions

Fábio da Silva Lisboa, Fabiano Rosa da Silva, Claudiney Soares Cordeiro, Luiz Pereira Ramos and Fernando Wypych

Graphical Abstract

Layered divalent metal glycerolates were synthesized, characterized and used as catalyst in the transesterification of refined soybean oil. Almost complete conversions were obtained under mild reaction conditions and calcium diglycerolate preserved the structure up to three cycles of use

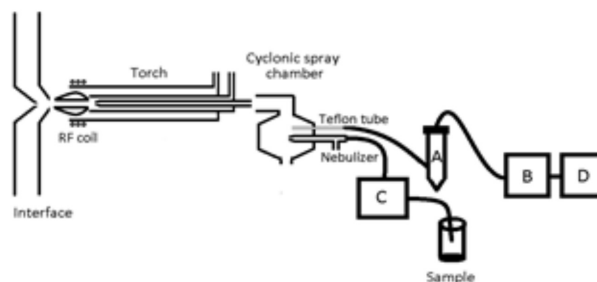


1601 Application of a Low Pressure Spray Chamber for the Determination of Mercury Concomitantly to other Trace Elements by Inductively Coupled Plasma Mass Spectrometry

Jefferson S. de Gois and Daniel L. G. Borges

Graphical Abstract

Mercury determination by inductively coupled plasma mass spectrometry using conventional sample introduction systems is affected by significant memory effect. In order to overcome this difficulty, a new sample introduction setup employing a low pressure spray chamber was developed

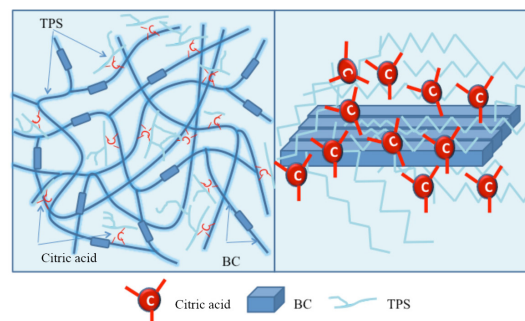


1607 Synthesis of Thermoplastic Starch-Bacterial Cellulose Nanocomposites via *in situ* Fermentation

Marlon A. Osorio, David Restrepo, Jorge A. Velásquez-Cock, Robin O. Zuluaga, Ursula Montoya, Orlando Rojas, Piedad F. Gañán, Diana Marin and Cristina I. Castro

Graphical Abstract

Chemical crosslinking. Citric acid attaches to the thermoplastic starch (TPS) chains and bacterial cellulose (BC) nanoribbons through covalent bonds

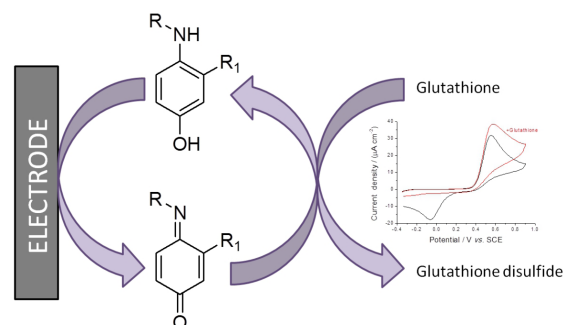


1614 Electrocatalytic Detection of Glutathione - the Search for New Mediators

Denise Lowinsohn, Patricia T. Lee and Richard G. Compton

Graphical Abstract

Electrocatalytic reaction between electrochemically generated quinoneimines and glutathione and the resulting voltammograms

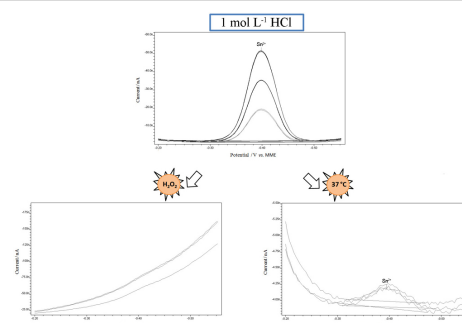


1621 Determination of Sn^{2+} in Lyophilized Radiopharmaceuticals by Voltammetry, Using Hydrochloric Acid as Electrolyte

Adilio S. Dadda, Ariane C. Teixeira, Paula K. Feltes, Maria M. Campos, Carlos E. Leite and Cristina M. Moriguchi-Jeckel

Graphical Abstract

This paper describes a method for selective determination of Sn^{2+} by voltammetry, using 1 mol L^{-1} hydrochloric acid as electrolyte

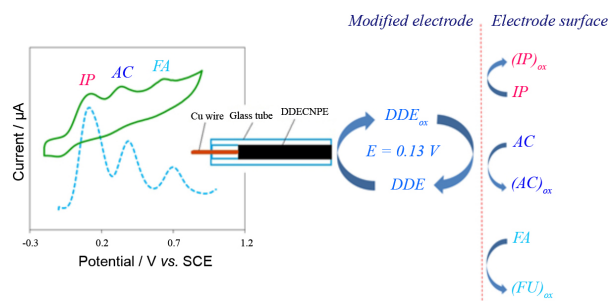


1630 Simultaneous Determination of Isoproterenol, Acetaminophen and Folic Acid Using Nanostructured Electrochemical Sensor Based on Benzofuran Derivative and Carbon Nanotubes

Mohammad Mazloum-Ardakani, Seyyed H. Ahmadi, Zohal S. Mahmoudabadi and Alireza Khoshroo

Graphical Abstract

A carbon paste electrode chemically modified with multiwall carbon nanotubes was prepared and used as a selective electrochemical sensor for the simultaneous determination of isoproterenol, acetaminophen and folic acid

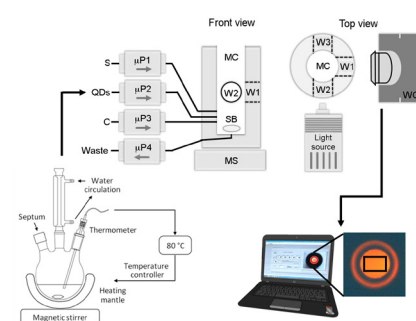


1638 Using Webcam, CdTe Quantum Dots and Flow-Batch System for Automatic Spectrofluorimetric Determination of *N*-Acetyl-L-cysteine in Pharmaceutical Formulations

Marcelo B. Lima, Inakã S. Barreto, Stéfani Iury E. Andrade, Luciano F. Almeida and Mário César U. Araújo

Graphical Abstract

A flow-batch system using cadmium telluride quantum dots (CdTe QDs) and webcam for spectrofluorimetric determination of *N*-acetyl-L-cysteine in pharmaceutical formulations

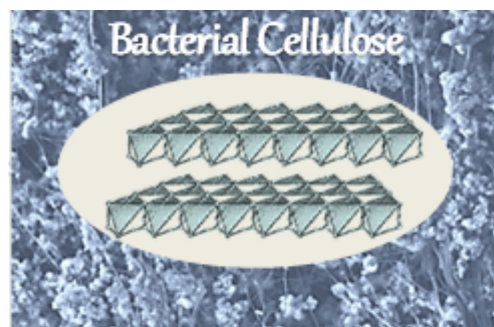


1647 Bacterial Cellulose as a Template for Preparation of Hydrotalcite-Like Compounds

Gustavo F. Perotti, Hernane S. Barud, Sidney J. L. Ribeiro and Vera R. L. Constantino

Graphical Abstract

Polysaccharide bacterial cellulose (BC) was used as a template for preparation of Hydrotalcite-type compounds or layered double hydroxides (LDHs) by a bio-inspired route. The changes in LDH particles morphology and the improvement in surface area can be driven by the cation-binding on the BC surface. Novel synthetic routes that lead to materials with particular morphology and surface area are interesting to produce catalysts and drug delivery systems



1656 Simple Method to Determine Residual Cypermethrin and Deltamethrin in Bovine Milk

Thais Hernandes, Eliana F. G. C. Dore, Maria L. Ribeiro, Paulo A. Rossignoli and Olaf Malm

Graphical Abstract

This article presents a simple method, applied to a complex matrix for quantification of fat-soluble pesticides. The validated method was applied to twenty milk samples collected in small dairy farms in the Municipality of Chapada dos Guimarães, Mato Grosso, Brazil, a Brazilian understudied region

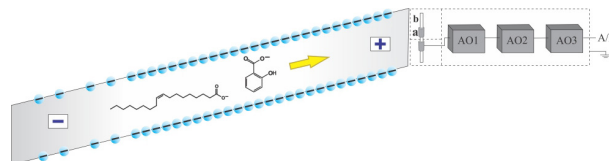


1662 Direct Determination of Oleic Acid in Soybean Oil by Capacitively Coupled Contactless Conductivity Detection Capillary Electrophoresis in an Oil-Miscible KOH/1-Propanol/Methanol Medium

Wolmir José Böckel, Yara Patrícia da Silva, Carla R. B. Mendonça, Ernesto F. Simó-Alfonso, Guillermo Ramis-Ramos and Clarisse M. S. Piatnicki

Graphical Abstract

Capillary electrophoresis with capacitively coupled contactless conductivity detection for the direct determination of oleic acid content in soybean oil using salicylic acid as internal standard. Under negative polarity, the anionic solutes moved faster than the electro osmotic flow

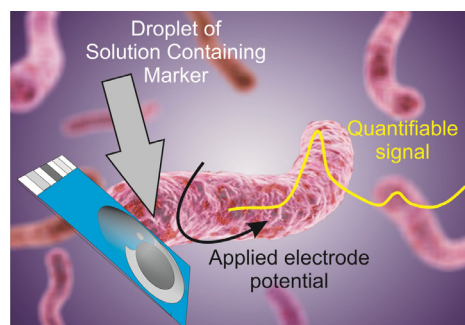


1667 Fingerprinting Breath: Electrochemical Monitoring of Markers Indicative of Bacteria *Mycobacterium tuberculosis* Infection

Jonathan P. Metters, Dimitrios K. Kampouris and Craig E. Banks

Graphical Abstract

Exploring the potential electrochemical determination of markers (methyl phenyl acetate, methyl *p*-anisate, methyl nicotinate and 2-methoxybiphenyl) proposed to be indicative of *Mycobacterium tuberculosis* infection

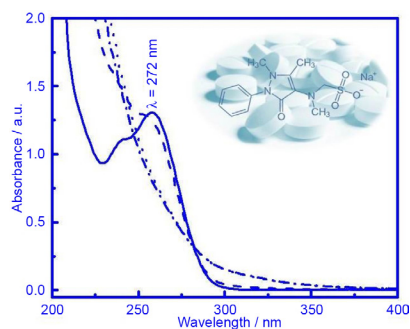


1673 Degradation of Dipyrone by the Electro-Fenton Process in an Electrochemical Flow Reactor with a Modified Gas Diffusion Electrode

Willyam R. P. Barros, Michelle P. Borges, Rafael M. Reis, Robson S. Rocha, Rodnei Bertazzoli and Marcos R. V. Lanza

Graphical Abstract

The GA represents the molecular structure of dipyrone as well as the commercial capsules drug. It is also shown the UV-Vis spectrum of the initial aqueous solution of 50 mg L⁻¹ of dipyrone and after 90 min of electrochemical treatment, where the maximum absorption occurs at around 1.2 at wavelength 262 nm

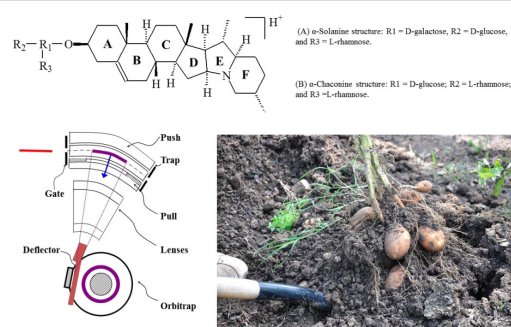


1681 Liquid Chromatography-Orbitrap Mass Spectrometry Method for the Determination of Toxic Glycoalkaloids and their Aglycons in Potato Upper Soil

Giovanni Caprioli, Michael G. Cahill, Kevin J. James and Sauro Vittori

Graphical Abstract

α -solanine and α -chaconine are the two main potato glycoalkaloids, toxic at certain levels, that may be persistent in the terrestrial environment. A new analytical method that uses liquid chromatography Orbitrap mass spectrometry has been developed for the analysis of the two glycoalkaloids and their aglycons in potato upper soils



1688 Synthesis of Unsymmetrical Aryl-Ethynylated Benzenes via Regiocontrolled Sonogashira Reaction of 1,3,5-Tribromobenzene

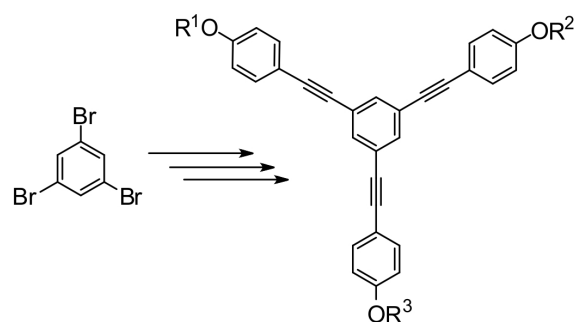


SI online

Kamal M. Dawood, Hamdi M. Hassaneen, Hyam A. Abdelhadi, Mohamed S. M. Ahmed and Mohamed A.-M. Mohamed

Graphical Abstract

Regiocontrolled Sonogashira cross-coupling of 1,3,5-tribromobenzene with the terminal (4-alkoxyaryl)acetylenes yielded mono-, di- and tri-alkynylated benzene derivatives in moderate to good yields

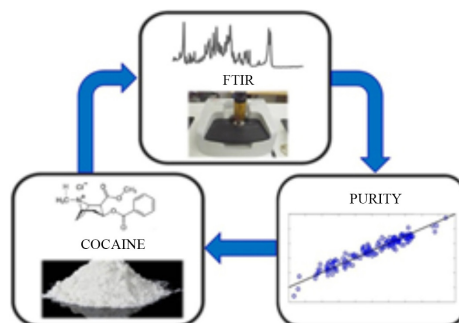


1696 Quantification of Cocaine Hydrochloride in Seized Drug Samples by Infrared Spectroscopy and PLSR

Tatiane S. Grobério, Jorge J. Zacca, Marcio Talhivini and Jez W. B. Braga

Graphical Abstract

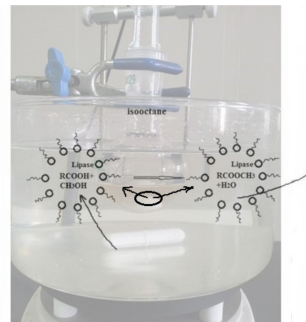
Direct analysis of cocaine hydrochloride in drug samples without any sample preparation by infrared and PLS analysis



1704 Production of Biodiesel Catalyzed by *Candida rugosa* Lipase at Interface of w/o Microemulsion System

Zhongqin Tan, Miaoli Fang, Huan Du, Lelian Song, Dahai Ren, Xiujuan Tang, Xiaoxiang Han and Xinle Liang

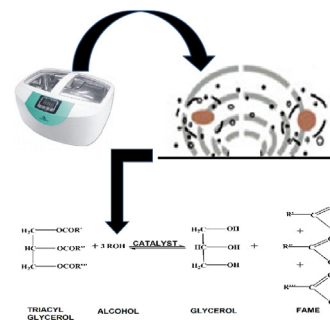
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Graphical Abstract

In this study, lipase showed a good activity in the w/o microemulsion system, which served as a host for water-soluble enzymes

1712 A Simple, Fast and Efficient Method for Transesterification of Fatty Acids in Foods Assisted by Ultrasound Energy

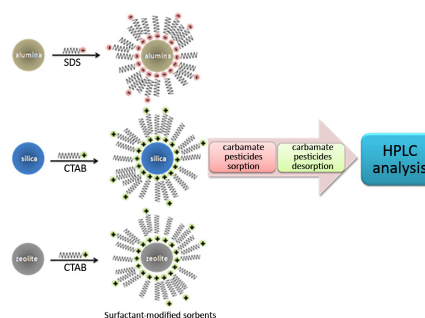
Oscar O. Santos Júnior, Paula F. Montanher, Elton G. Bonafé, Ivanor N. do Prado, Swami A. Maruyama, Makoto Matsushita and Jesuí V. Visentainer


Graphical Abstract

Through the combination of alkaline and acid catalysts, low frequency ultrasound, and response surface methodology, a new fatty acid methylation method with minimal ester oxidation was developed, optimized and validated

1720 Retention of Carbamate Pesticides by Different Surfactant-Modified Sorbents: a Comparative Study

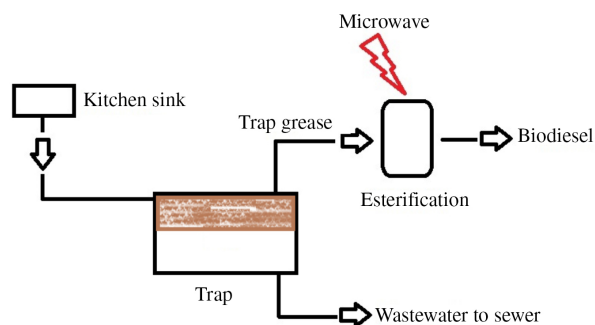
Prapha Arnnok and Rodjana Burakham


Graphical Abstract

Three surfactant-modified sorbents were created for carbamate pesticides sorption and their application for the extraction of carbamate pesticides prior to HPLC analysis was demonstrated

1730 Microwave Assisted Biodiesel Production from Trap Grease

Paulo S. R. Fernandes, Luiz E. P. Borges, Carlos E. G. de Carvalho and Rodrigo O. M. A. de Souza


Graphical Abstract

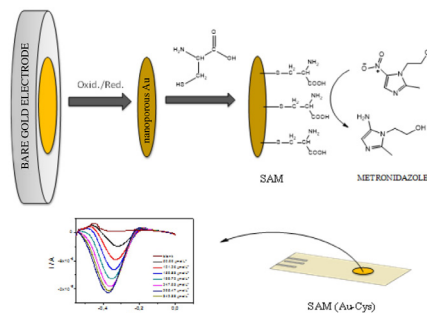
In this paper, trap grease catalytic esterification with methanol was performed under microwave irradiation providing high conversion with relatively short reaction time

1737 Nanostructured Screen-Printed Electrodes Modified with Self-Assembled Monolayers for Determination of Metronidazole in Different Matrices

Bryan C. Huayhuas-Chipana, Juan C. M. Gomero and Maria D. P. T. Sotomayor

Graphical Abstract

A technique was successfully developed for the determination of metronidazole in pharmaceutical and biological samples using a sensor based on a nanostructured screen-printed gold electrode obtained using a simple metal pre-treatment process followed by modification with a SAM of cysteine. The proposed sensor is a potential candidate for mass construction and miniaturization



1746 Continuous Production of Biodiesel in Supercritical Ethanol: A Comparative Study between Refined and Used Palm Olein Oils as Feedstocks

Somkiat Ngamprasertsith, Chafi-ee Laetoheem and Ruengwit Sawangkeaw

Graphical Abstract

After use of refined palm oil for frying chicken, level of free fatty acid (FFA) and unsaturated fatty acids (UFAs) increased. Due to the antagonistic effect of UFAs and FFA, the ester content of used palm oil biodiesel was slightly lower than for refined palm oil biodiesel

