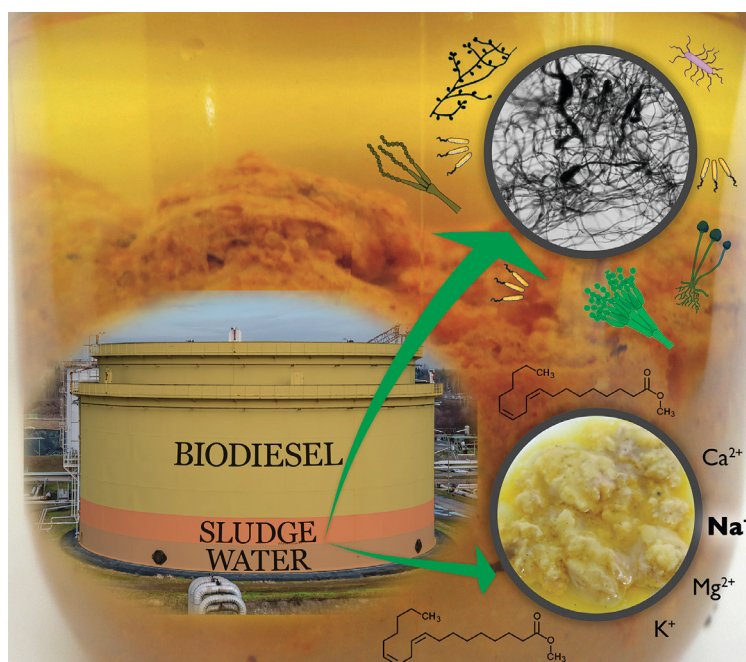


Cover Picture



Biodiesel can leave industry along with contaminants from production system. A sediment present in the bottom of biodiesel storage tanks of pure soybean was evaluated and fatty acids esters, metal ions and a microbial community were detected. The species found were already described as deteriogenics, however, according to the conditions established during 60 days growth evaluation, the microorganisms did not exhibit biodiesel degradation potential. Details are presented in the Article **Nature of Insoluble Material Found in the Bottom of Soybean Biodiesel Storage Tank: Chemical and Microbiological Approach** by Juciana C. Cazarolli, Gabriela Boelter, Amanda M. D. L. de Lima, Thaisa Hengles, Camila Correa, Maria do Carmo R. Peralba, Marco F. Ferrão, Eduardo H. S. Cavalcanti, Márcia V. Bisol, Kelly S. Bezerra, Nelson R. Antoniosi Filho and Fátima M. Bento on page 2034.

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Editorial

- 1981 It is Necessary to React
Aldo José Gorgatti Zarbin

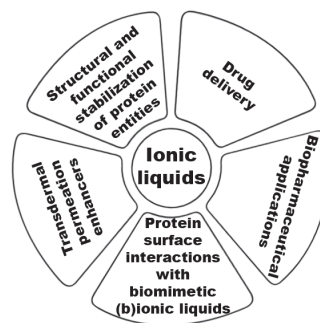
Reviews

1983 Insights into Protein-Ionic Liquid Interactions Aiming at Macromolecule Delivery Systems

Lilam K. Harada, Jorge F. B. Pereira, Welida F. Campos, Erica C. Silva, Carla G. Moutinho, Marta M. D. C. Vila, José M. Oliveira Jr., José A. Teixeira, Victor M. Balcão and Matthieu Tubino

Graphical Abstract

Potential for application of ionic liquids in biomimetic drug delivery systems, due to their high compatibility with enzymes and other proteins, promotion of higher selectivities, faster reaction rates and greater enzyme stabilities in biocatalytic reactions, and providing a path for the structural and functional stabilization of protein entities.

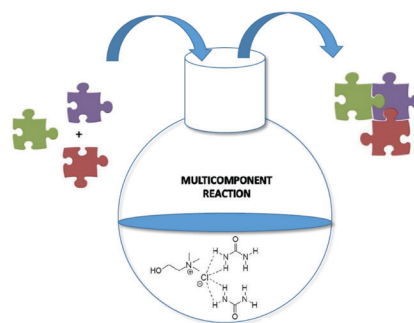


1999 Deep Eutectic Solvents as Unconventional Media for Multicomponent Reactions

Luiz S. Longo Jr. and Marcus V. Craveiro

Graphical Abstract

This review article describes the use of deep eutectic solvents (DES) as both solvent and/or catalyst in multicomponent reactions.



Articles

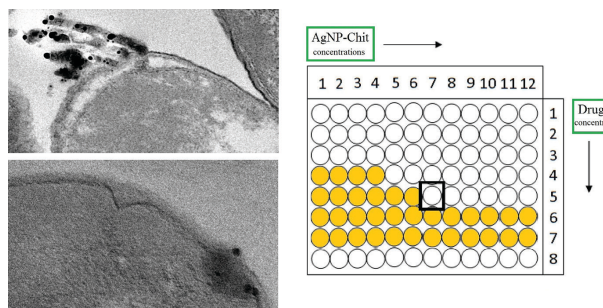
2026 Synergism in the Antibacterial Action of Ternary Mixtures Involving Silver Nanoparticles, Chitosan and Antibiotics

Marcelo S. L. Brasil, Aline L. Filgueiras, Marina B. Campos, Mariana S. L. Neves, Mateus Eugênio, Lúcia A. Sena, Celso B. Sant'Anna, Vânia L. da Silva, Cláudio G. Diniz and Antonio C. Sant'Ana

SI online

Graphical Abstract

The combined antimicrobial action of the ternary mixture of silver nanoparticles, chitosan and antibiotics against four bacterial strains proved synergic. The pH conditions for the biological assays were carefully defined to exclude the acid effect in the antimicrobial action, preserving chitosan solubility.

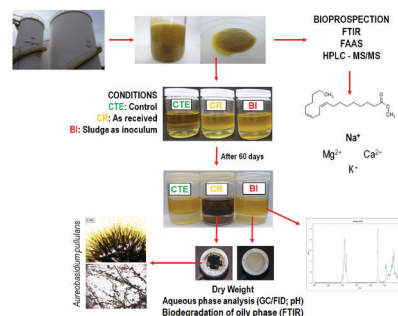


2034 Nature of Insoluble Material Found in the Bottom of Soybean Biodiesel Storage Tank: Chemical and Microbiological Approach

Juciana C. Cazarolli, Gabriela Boelter, Amanda M. D. L. de Lima, Thaís Hengles, Camila Correa, Maria C. R. Peralba, Marco F. Ferrão, Eduardo H. S. Cavalcanti, Márcia V. Bisol, Kelly S. Bezerra, Nelson R. Antoniosi Filho and Fátima M. Bento

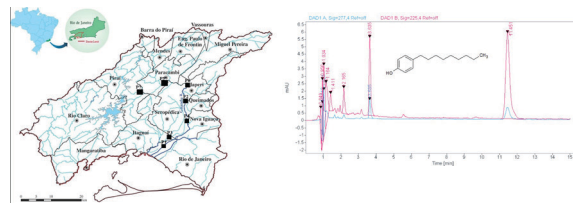
Graphical Abstract

Sediment from the bottom of biodiesel storage tanks was characterized by chemical and microbiological techniques. Fatty acids esters and metal ions were detected, as well as bacteria and fungi, which after 60 days in incubation did not exhibit biodiesel deteriorogenic potential.



2046 Determination of 4-Nonylphenol in Surface Waters of the Guandu River Basin by High Performance Liquid Chromatography with Ultraviolet Detection

Frederico G. de Araujo, Glaucio F. Bauerfeldt and Yara P. Cid



Graphical Abstract

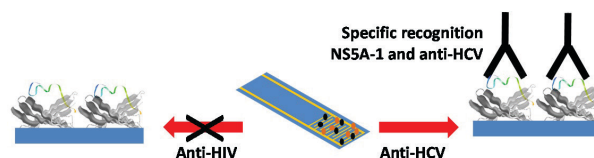
Solid-phase extraction and liquid chromatography coupled with an ultraviolet detector were used for the detection and quantification of 4-nonylphenol in samples of surface water collected in the basin of the Guandu River.

2054 Electrical Immunosensor Made with Antigenic Peptide NS5A-1 Immobilized onto Silk Fibroin for Diagnosing Hepatitis C



SI online

Lais R. Lima, Alem-Mar B. Gonçalves, Fernando V. Paulovich, Osvaldo N. Oliveira Jr., Sidney J. L. Ribeiro and Marli L. Moraes



Graphical Abstract

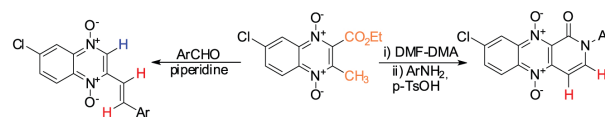
Electrical response of the immunosensor solutions containing the specific antibody anti-hepatitis C virus (HCV) could be clearly distinguished and for unspecific antibody anti-human immunodeficiency virus (HIV) no significant change has been observed.

2060 Synthesis and Characterization of Newly Fused 1,2-Dihydropyrido[3,4-b], Bridged Oxadiazol-2-yl, 4-Substituted-benzylidene Hydrazide and Arylidene 6-Chloroquinoxaline 1,4-Dioxides



SI online

Samy B. Said, Fawzia Z. El-Ablack and Hani M. Elbeheiry

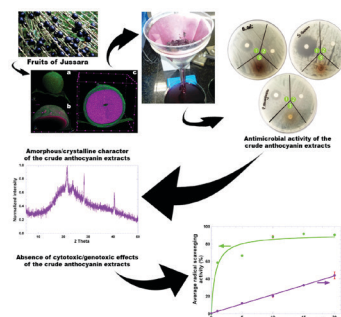


Graphical Abstract

Some new unexpected arylidene and fused heterocyclic 6-chloroquinoxaline 1,4-dioxide are synthesized from the precursor 6-chloro-3-(ethoxycarbonyl)-2-methylquinoxaline 1,4-dioxide.

2072 Physicochemical Characterization of a Crude Anthocyanin Extract from the Fruits of Jussara (*Euterpe edulis* Martius): Potential for Food and Pharmaceutical Applications

Laura I. L. Favaro, Victor M. Balcão, Liliam K. H. Rocha, Erica C. Silva, José M. Oliveira Jr., Marta M. D. C. Vila and Matthieu Tubino

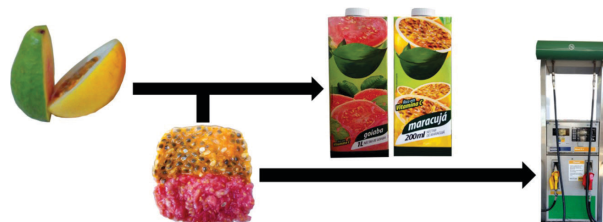


Graphical Abstract

Anthocyanins are attracting the interest of researchers and industry due to potential as a coloring agent and beneficial effects for health. The crude anthocyanin extract produced exhibited slight antimicrobial activity against *Staphylococcus aureus*, strong antioxidant activity and generalized amorphous behavior.

2089 Extraction and Characterization of Passion Fruit and Guava Oils from Industrial Residual Seeds and Their Application as Biofuels

Oswaldo K. Iha, Guilherme B. C. Martins, Erick Ehlert, Mateus A. Montenegro, Renata R. Sucupira and Paulo A. Z. Suarez



Graphical Abstract

Guava and passion fruit waste generated by the juice industry were taken and treated to obtain the seed oils, which were characterized and used to produce biofuels.

2096 Amperometric Electrochemical Platform for Hydrazine Determination Exploiting Reduced Graphene Oxide, Co(Salophen) and DNA: Application in Pharmaceutical Formulations Samples

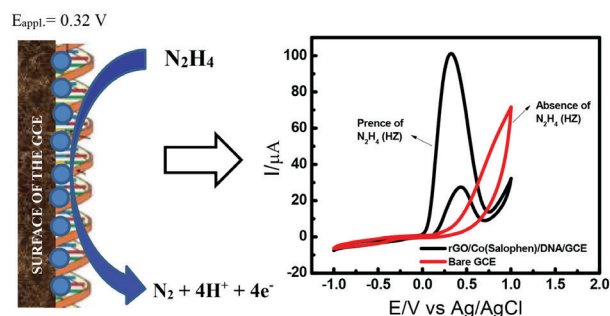
Ludymila V. Freitas, Kayni C. M. S. Lima, Saimon M. Silva, Fernando R. F. Leite, Ridvan N. Fernandes, Wallans T. P. Santos, Flavio S. Damos and Rita C. S. Luz



SI online

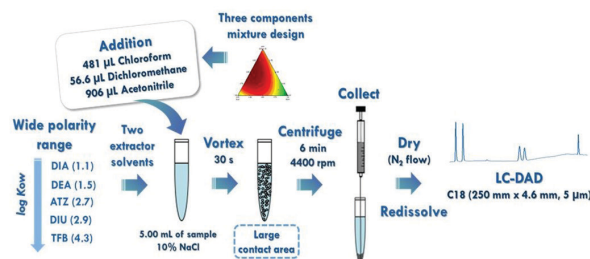
Graphical Abstract

Oxidation of hydrazine on the rGO/Co(Salophen)/DNA modified electrode and cyclic voltammograms for the oxidation of hydrazine on the unmodified glassy carbon electrode (red voltammogram) and rGO/Co(Salophen)/DNA modified glassy carbon electrode.



2104 Binary Solvent Dispersive Liquid-Liquid Microextraction for the Determination of Pesticides in Natural Water Samples

Priscila L. S. Estevão, Patricio Peralta-Zamora and Noemi Nagata

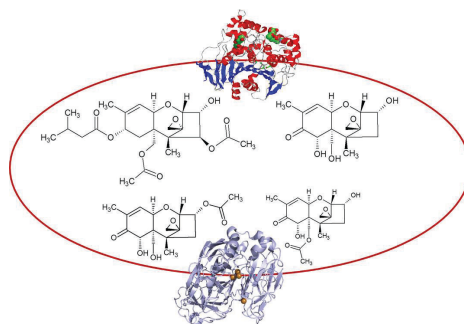


Graphical Abstract

The binary solvent dispersive liquid-liquid microextraction was used for the simultaneous quantification of pesticides with a broad polarity range.

2117 Evaluation of the Suitability of Analytical Methods in Trichothecene A and B Degradation

Ana Carla P. Feltrin, Karen V. M. Sibaja, Cintia Tusnski, Sergiane S. Caldas, Ednei G. Primel and Jaqueline Garda-Buffon



Graphical Abstract

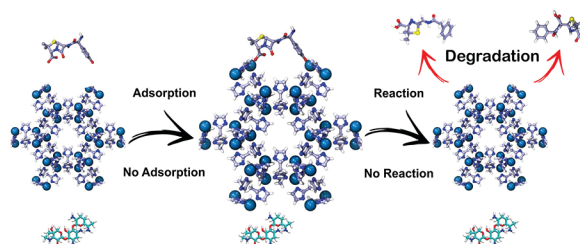
Analytical methods were applied in trichothecenes degradation by enzymatic action resulting in a reduction of 68.4% for DON (deoxynivalenol), 45.4% for 15-ADON (15-acetyldeoxynivalenol), 50.2% for 3-ADON (3-acetyldeoxynivalenol) and 12.3% for T-2 toxin.

2127 Metal Organic Frameworks for Selective Degradation of Amoxicillin in Biomedical Wastes

Marcos V. Paula, Amanda L. Barros, Kaline A. Wanderley, Gilberto F. de Sá, Marcos Eberlin, Thereza A. Soares and Severino Alves Jr.

Graphical Abstract

Molecular docking calculations predict the adsorption of widely used antibiotic amoxicillin, but not gentamicin, to the Zn-based metal organic frameworks zeolitic imidazolate framework-8 (ZIF-8) and Zn(1,4-benzenedicarboxylate) (ZnBDC). Mass spectrometry measurements further demonstrate the degradation of amoxicillin upon contact with the Zn-containing frameworks.

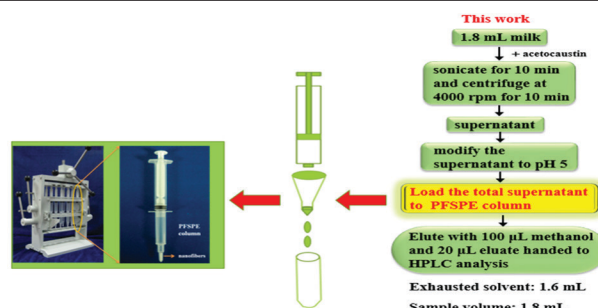


2137 Determination of Estrogens in Milk Using Polypyrrole Fiber-Mediated Solid-Phase Extraction Followed by High Performance Liquid Chromatography

Lanlan Wei, Yan Yan, Jianjun Deng, Yuqin Ma, Yu Wang, Xiaoxiao Wu and Xuejun Kang

Graphical Abstract

The schematic representation of packed-fiber solid-phase extraction (PFSP) device and the determination method proposed in this paper.

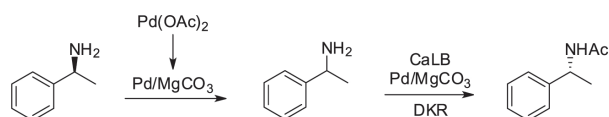


2144 Preparation, Characterization and Catalytic Activity of Palladium Catalyst Supported on MgCO_3 for Dynamic Kinetic Resolution of Amines

Marina M. M. Ferreira, Camila R. Cabreira, Pedro H. K. Chaves, Gabriela M. Labussière, Renata C. Zimpeck, Sania M. de Lima and Fernanda A. de Siqueira

Graphical Abstract

This paper reports the preparation of Pd/MgCO_3 . The composition and size particle were obtained by X-ray diffraction (XRD) and transmission electron microscopy (TEM), respectively. The catalytic activity was studied for racemization of (S)-(-)-1-phenylethylamine and dynamic kinetic resolution (DKR) of a series of primary amines.

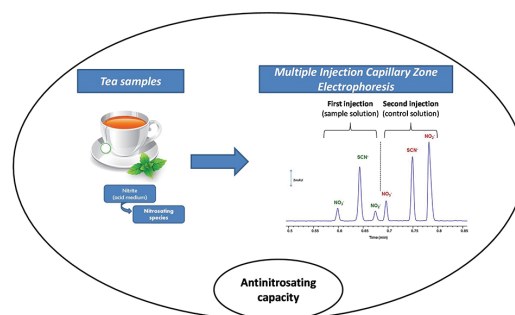


2150 Multiple-Injection Capillary Zone Electrophoresis as a Fast Strategy to Determine Antinitrosating Capacity of Commercial Teas

Ana P. Ruani, Luciano Vitali and Gustavo A. Micke

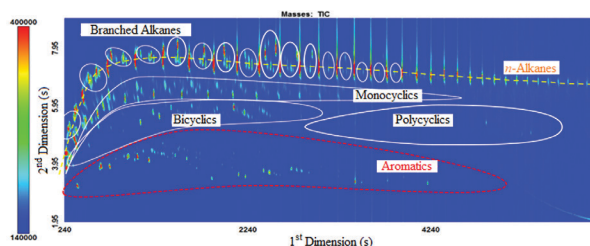
Graphical Abstract

A multiple-injection capillary electrophoresis method was developed to determine antinitrosating capacity of nine commercial teas through nitrite quantification.



2158 Wax Behavior in Crude Oils by Pour Point Analyses

Lize M. S. L. Oliveira, Rita C. P. Nunes, Ygor L. L. Ribeiro,
Dayane M. Coutinho, Débora A. Azevedo, Júlio C. M. Dias and
Elizabete F. Lucas


Graphical Abstract

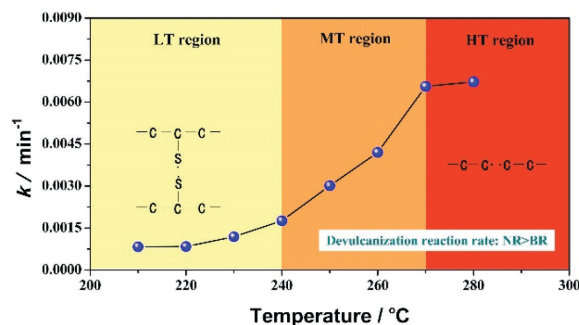
Two-dimensional gas chromatography of a crude oil sample.

2169 Effect of Temperature on Devulcanization of Waste Sidewall Rubber by Supercritical Ethanol

Xiang Li, Xiao-Qing Deng and Chao Dong

Graphical Abstract

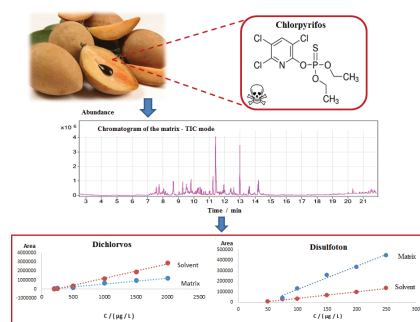
In the low temperature (LT) region, the devulcanization happened due to the breakage of crosslinked bonds. Supercritical ethanol beyond the critical temperatures (medium temperatures (MT) and high temperatures (HT)) could strongly promote the devulcanizing reaction; the breakage of main chains predominated in the devulcanizing process. The devulcanizing reaction rate of natural rubber was faster than that of butadiene rubber.


2180 Organophosphorus Pesticide in Sapodilla (*Manilkara zapota*) Fruit

Daniel B. Alcântara, Mario S. O. Paz, Tigressa H. S. Rodrigues,
Tatiana S. M. Fernandes, Pablo G. A. Barbosa, Adonay R. Loiola,
Patricia Grinberg, Guilherme J. Zocolo, Edy S. de Brito and
Ronaldo F. do Nascimento

Graphical Abstract

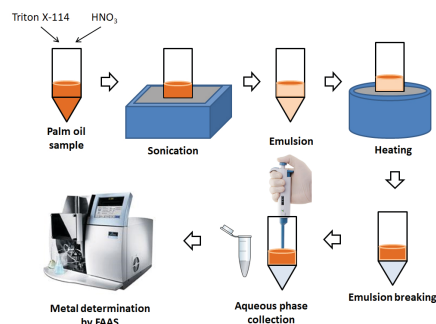
A methodology for the determination of organophosphorus pesticides in sapodilla fruit based on QuEChERS (quick, easy, cheap, effective, rugged, and safe) extraction and gas chromatography-mass spectrometry (GC-MS) detection is described. Strong matrix effects could be observed and was overcome with the use of matrix match calibration. Chlorpyrifos, a level II toxic compound, was found in several commercial samples.


2189 Use of Constrained Mixture Design in the Optimization of a Method Based on Extraction Induced by Emulsion Breaking for the Determination of Ca, Mg, Mn, Fe and Zn from Palm Oil by Flame Atomic Absorption Spectrometry

Gisseli S. Valasques, Ana M. P. dos Santos, Darllen G. da Silva,
Juscelia P. S. Alves and Marcos A. Bezerra

Graphical Abstract

Constrained mixture design was used in the development of a method for Ca, Mg, Mn, Fe and Zn determination from palm oil samples.

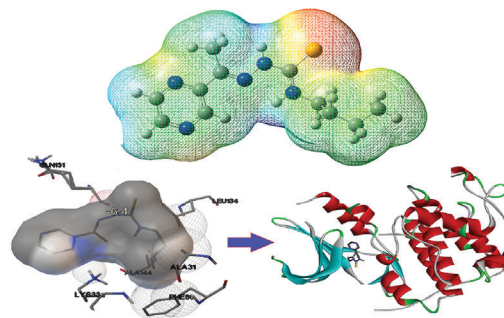


2197 Synthesis, Characterization and Preliminary Study on Acetylpyrazine N(4)Butylthiosemicarbazone as a Potential CDK2 Inhibitor Combined with DFT Calculations

Erna Normaya, Mohammad N. Ahmad, Yang Farina and Ku H. K. Bulat

Graphical Abstract

The graphical abstract shows the 3D plots of molecular electrostatic potential of optimized structure and the interaction of acetylpyrazine N(4)butylthiosemicarbazone (APBT) with amino acid residues in cyclin-dependent kinase 2 (CDK2) macromolecule. Calculation within the grid box size of $30 \times 30 \times 30 \text{ \AA}^3$ showed the formation of stable complex with binding affinity value of $-6.4 \text{ kcal mol}^{-1}$.



Short Report

2207 Degradation Products of Lambda-Cyhalothrin in Aqueous Solution as Determined by SBSE-GC-IT-MS

Renata Colombo, Janete H. Yariwake and Marcos R. V. Lanza

Graphical Abstract

Lambda-cyhalothrin derivative products were identified by stir bar sorptive extraction and gas chromatography using liquid and thermal desorption.

