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Cover Picture



Nanocarriers acting on *Aedes aegypti* could be a new strategy to new nanomaterials as insecticide and/or as antivirals, as described on this review. Details are presented in the Review **Nanobiotechnology Solutions against *Aedes aegypti*** by Nelson Durán, German A. Islan, Marcela Durán and Guillermo R. Castro on page 1139.

Contents

Editorial

- 1137 On Top of a Mining Disaster, Coping with Ethical Issues
Vanessa Hatje

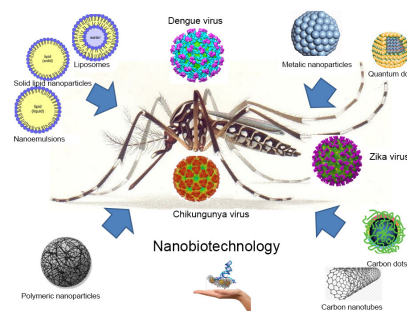
Review

1139 Nanobiotechnology Solutions against *Aedes aegypti*

Nelson Durán, German A. Islan, Marcela Durán and Guillermo R. Castro

Graphical Abstract

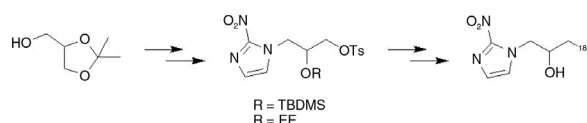
Nanostructures such as liposomes, solid lipid nanoparticles, nanoemulsions, polymeric nanoparticles, metallic nanoparticles, carbon dots and carbon nanotubes appeared as important nanocarriers acting on *Aedes aegypti* control. Some of them have effective antiviral properties that open a new strategy for mosquito control.



Articles

1150 Facile and Efficient Synthesis of [^{18}F]Fluoromisonidazole Using Novel 2-Nitroimidazole Derivatives

Young-Do Kwon, Yongju Jung, Seok Tae Lim, Myung-Hee Sohn
SI online and Hee-Kwon Kim



Graphical Abstract

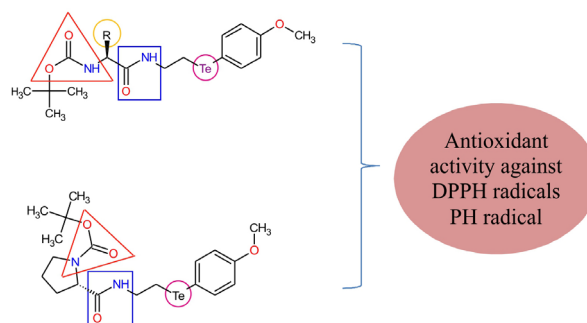
Synthesis of [^{18}F]fluoromisonidazole ([^{18}F]FMISO) using novel precursors prepared from 2,2-dimethyl-1,3-dioxolane-4-methanol was achieved.

1157 Synthesis, Characterization and *in vitro* Antioxidant Activity of New Chiral *N*-boc Organotellurium Compounds, $(\text{CH}_3)_3\text{OC}(\text{O})\text{NHCH}(\text{R})\text{C}(\text{O})\text{NHCH}_2\text{-CH}_2\text{-Te-C}_6\text{H}_4\text{-4-OCH}_3$, Containing Carbamate and Peptide Groups

Rajegowda H. Revanna, Raghavendra K. Panchangam, Udaya Bhanu and Suresh Doddavenkatanna

Graphical Abstract

Synthesis, analytical and spectroscopic characterization and *in vitro* antioxidant activity of chiral *N*-boc organotellurium compounds containing carbamate and peptide groups derived from *L*-*N*-boc amino acids and organotellurated amine is reported here.



1165 Pesticide Residues Method Validation by UPLC-MS/MS for Accreditation Purposes

Ionara R. Pizzutti, Jonatan V. Dias, André de Kok, Carmem D. Cardoso and Giovana M. E. Vela

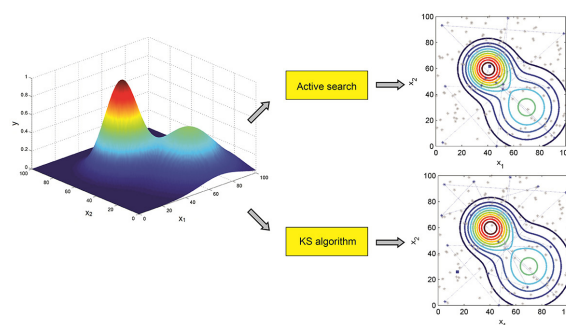
Graphical Abstract

Accreditation is a way to demonstrate the technical competence through reliable results achieved from validated scope. A multi-residue method was developed to determine pesticides residues in tomato in order to demonstrate the laboratory ability and conformity with the NBR ISO/IEC 17025:2005 norm.



1177 An Active Search Method for Finding Objects with Near-Optimal Property Values within a Given Set

Cláudia E. da Matta, Henrique M. Paiva, Roberto K. H. Galvão, Mário C. U. Araújo, Sófacles F. C. Soares, Karen C. Weber and Luiz A. Pinto

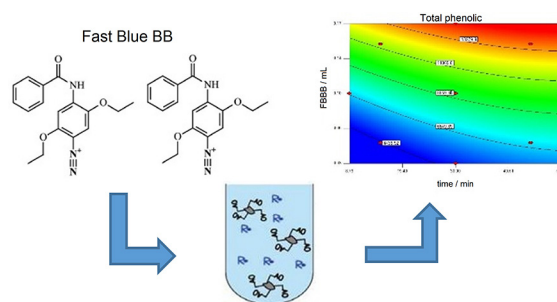


Graphical Abstract

Active search method aimed at finding objects with optimal or near-optimal y-property values on the basis of x-variables obtained by indirect, less costly methods.

1188 Optimization of a New Methodology for Determination of Total Phenolic Content in Rice Employing Fast Blue BB and QUENCHER Procedure

Sylvio V. Palombini, Thiago Claus, Swami A. Maruyama, Fabiana Carbonera, Paula F. Montanher, Jesuí V. Visentainer, Sandra T. M. Gomes and Makoto Matsushita

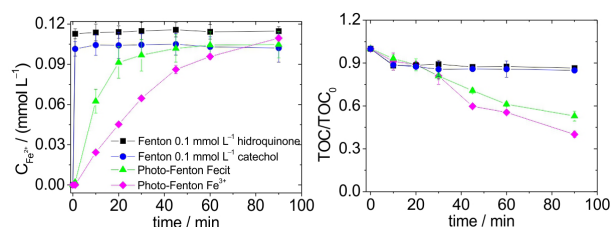


Graphical Abstract

Optimization of a new method for specific determination of total phenolic compounds through direct QUENCHER procedure paired with Fast Blue BB reagent.

1195 Contribution of Irradiation and Dihydroxybenzenes on Iron(III) Reduction in Fenton Process

Beatriz Costa e Silva and Raquel F. P. Nogueira



Graphical Abstract

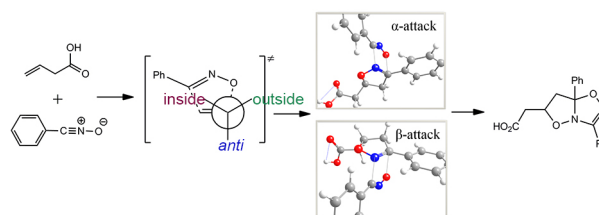
Hydroquinone and catechol are very effective for Fe^{III} reduction, however higher mineralization is obtained under irradiation of either complexed or free iron.

1202 The 1,3-Dipolar Cycloaddition of Nitrile Oxide to Vinylacetic Acid: Computational Study of Transition States Selectivity, Solvent Effects, and Bicyclo Formation



SI online

Josene M. Toldo, Aloir A. Merlo and Paulo F. B. Gonçalves



Graphical Abstract

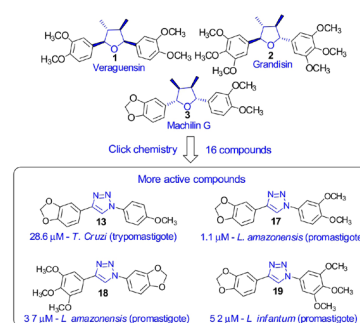
Computational study of the reaction mechanism of two successive [3 + 2] 1,3-dipolar cycloaddition reactions involving benzonitrile oxide give rise to a bicycle.

1217 Synthesis and Antitrypanosomastid Activity of 1,4-Diaryl-1,2,3-triazole Analogues of Neolignans Veraguensin, Grandisin and Machilin G

SI online Tatiana B. Cassamale, Eduarda C. Costa, Diego B. Carvalho, Nadla S. Cassemiro, Carolina C. Tomazela, Maria C. S. Marques, Mariáh Ojeda, Maria F. C. Matos, Sérgio Albuquerque, Carla C. P. Arruda and Adriano C. M. Baroni

Graphical Abstract

In this work, sixteen 1,4-diaryl-1,2,3-triazole analogues of neolignans veraguensin, grandisin and machilin G were synthesized, and biological activity was evaluated for antitrypanosomastid against *Leishmania amazonensis*, *Leishmania infantum* and *Trypanosoma cruzi*.

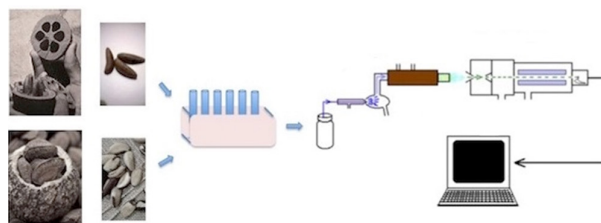


1229 An Evaluation of the Use of Formic Acid for Extraction of Trace Elements from Brazil Nut and Babassu Coconut and Its Suitability for Multi-Element Determination by ICP-MS

Gisele S. Lopes, Francisco L. F. Silva, Patricia Grinberg and Ralph E. Sturgeon

Graphical Abstract

Evaluation of formic acid as an extraction medium for characterizing trace elements in whole nut, oil and defatted fractions of Brazil nut and babassu coconut by inductively coupled plasma mass spectrometry (ICP-MS).

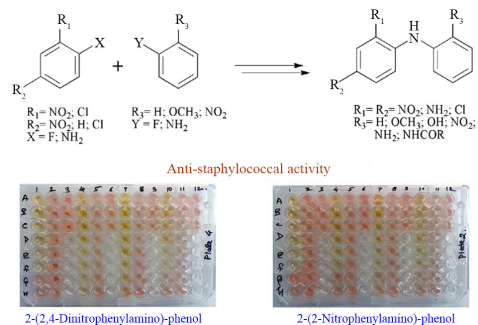


1236 Synthesis and Anti-Staphylococcal Activity of 2,4-Disubstituted Diphenylamines

SI online Ramandeep K. Mehton, Vineet Meshram, Sanjai Saxena and Manmohan Chhibber

Graphical Abstract

Diphenyl amines were synthesized using an efficient procedure and evaluated for their *in vitro* anti-bacterial activity against eight standard Gram-positive and Gram-negative strains. Most of the synthesized compounds displayed good anti-*Staphylococcal* activity. Potential compounds were further evaluated against resistant strains of *Staphylococcus aureus*. Compounds 2-(2,4-dinitrophenylamino)-phenol and 2-(2-nitrophenylamino)-phenol demonstrated promising results in initial studies.



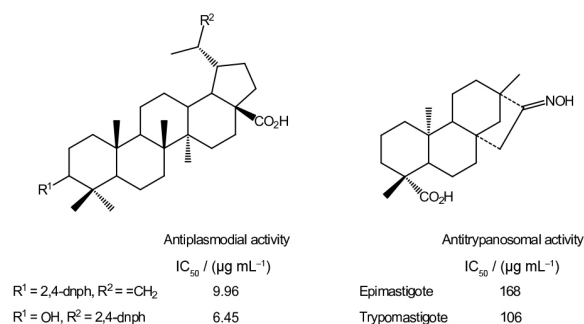
1245 Preparation of Derivatives of Betulinic Acid, Steviol and Isosteviol and Evaluation of Antitrypanosomal and Antimalarial Activities

SI online Asad Ullah, Leopoldo C. Baratto, Renata C. Paula, Luz Helena V. Silva, Maurilio J. Soares and Brás H. Oliveira

Graphical Abstract

Derivatives of betulinic acid, steviol and isosteviol were prepared and tested *in vitro* against *Plasmodium falciparum* and *Trypanosoma cruzi*.

Dinitrophenylhydrazones derivatives of betulinic acid were the most active antiplasmodium compounds whereas the oxime of isosteviol was the most active against *T. cruzi*.

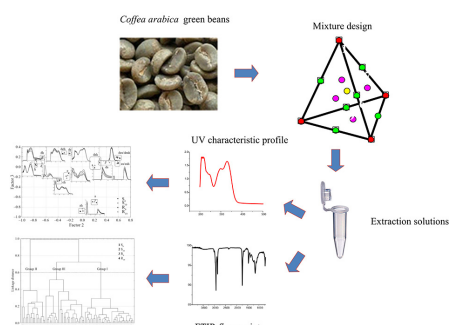


1254 Chemometric Analysis of UV Characteristic Profile and Infrared Fingerprint Variations of *Coffea arabica* Green Beans under Different Space Management Treatments

Amélia E. Terrile, Gustavo G. Marcheafave, Guilherme S. Oliveira, Miroslava Rakocevic, Roy E. Bruns and Ieda S. Scarminio

Graphical Abstract

Ultraviolet (UV) characteristic profiles and Fourier transform infrared (FTIR) spectroscopic fingerprints of green bean extracts of *Coffea arabica* L., cultivated in two planting patterns and at two different densities, were analyzed with principal component and hierarchical cluster analyses. The results show that chlorogenic acids and caffeine differentiated the UV and FTIR fingerprints of these treatments.

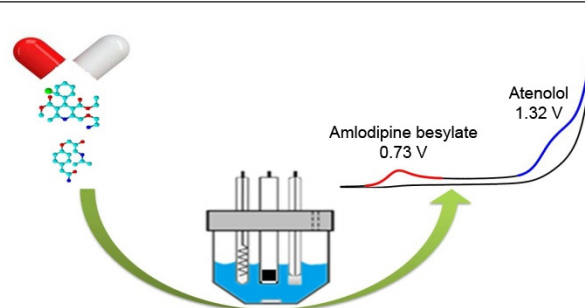


1264 Simultaneous Voltammetric Determination of Antihypertensive Drugs Amlodipine and Atenolol in Pharmaceuticals Using a Cathodically Pretreated Boron-Doped Diamond Electrode

Jaqueline T. Moraes, Ana P. P. Eisele, Carlos A. R. Salamanca-Neto, Jessica Scremin and Elen R. Sartori

Graphical Abstract

A simple and sensitive electroanalytical method for the simultaneous determination of amlodipine besylate and atenolol is reported for the first time. Square-wave voltammetry along with a cathodically pretreated boron-doped diamond electrode were used in this new procedure.

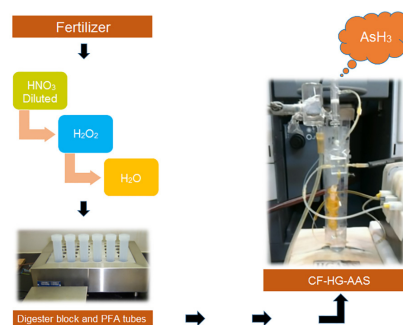


1273 Strategy of Sample Preparation for Arsenic Determination in Mineral Fertilizers

Raquel C. Machado, Edenir R. Pereira-Filho and Ana Rita A. Nogueira

Graphical Abstract

Sample preparation based on diluted acid and digester block with perfluoroalkoxy (PFA) tubes for arsenic determination in mineral fertilizers by continuous flow hydride generation atomic absorption spectrometry (CF-HG-AAS).

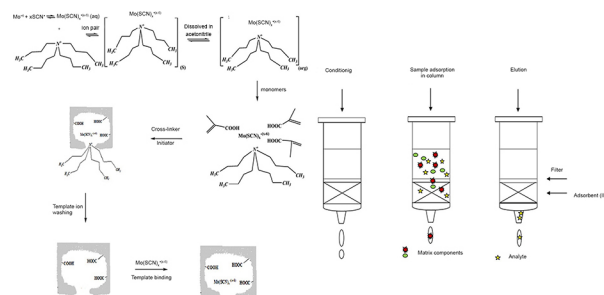


1279 Synthesis and Characterization of Nanopore Mo^{VI}-Imprinted Polymer and Its Application as Solid Phase for Extraction, Separation and Preconcentration of Molybdenum Ions from Water Samples

Fatemeh Ardestani, Majid Haji Hosseini, Majid Taghizadeh, Mohammad Reza Pourjavadi and Mohammad Rezaee

Graphical Abstract

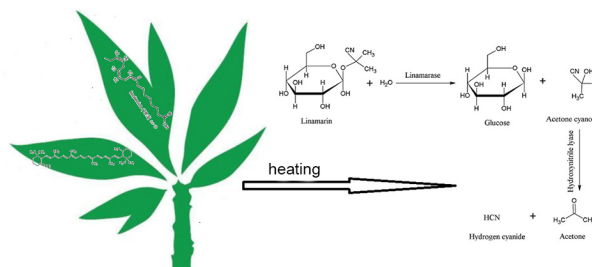
Schematic representation of the preparation process of Mo-ion imprinted polymer and conditioning that consists of passing 20 mL deionized water at a flow rate of 1.5 mL min⁻¹. Sample adsorption in column: 35 mL of the sample was passed through the column at flow rate of 1.5 mL min⁻¹. Elution: washing with 7 mL distilled water at a flow rate of 1.5 mL min⁻¹.



- 1290 Easy Method for Removal of Cyanogens from Cassava Leaves with Retention of Vitamins and Omega-3 Fatty Acids**
Iasmine G. Pereira, Julianna M. Vagula, Denis F. Marchi, Carlos E. Barão, Gleice R. S. Almeida, Jesuí V. Visentainer, Swami A. Maruyama and Oscar O. Santos Júnior

Graphical Abstract

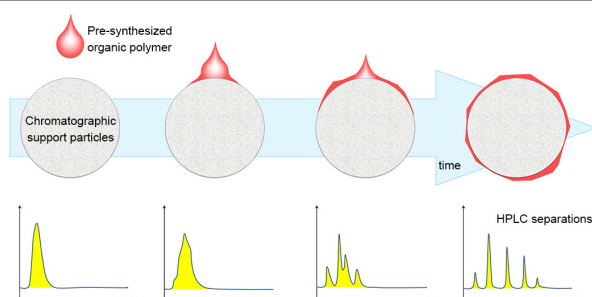
Through the combination of temperature and time, low heating, and response surface methodology, a new cyanide elimination method for cassava leaves was developed with focus on reducing elimination time while avoiding substantial losses of omega-3 fatty acids and β -carotene.



- 1297 Self-Immobilization of Poly(methyltetradecylsiloxane) onto Metalized Silica Particles as Stationary Phases for HPLC**
Giselle O. Carvalho, Carol H. Collins and Anizio M. Faria

Graphical Abstract

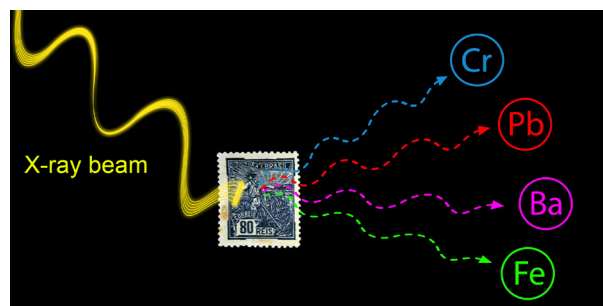
Self-immobilization of a pre-synthesized organic polymer on metalized silica particles and their potential use as efficient and chemically stable stationary phases for reversed-phase liquid chromatography (RP-LC).



- 1305 Energy Dispersive X-Ray Fluorescence Profile of Some Brazilian Postage Stamps**
Nicolas V. Schwab, José Augusto Da-Col, Peter Meyer, Maria I. M. S. Bueno and Marcos N. Eberlin

Graphical Abstract

Energy dispersive X-ray fluorescence analysis of postage stamps printed in Brazil between 1850-1922 for the study of elementary profile and detection of counterfeit samples.



- 1311 Structural Model and De-Intercalation Kinetics of Kaolinite-Methanol-Sodium Stearate Intercalation Compound**
Sen Wang, Xiaochao Zuo, Hongfei Cheng, Yongjie Yang and Qinfu Liu

Graphical Abstract

Ka-MeOH-SS was synthesized via intercalation and displacement of kaolinite with DMSO, methanol and sodium stearate.

