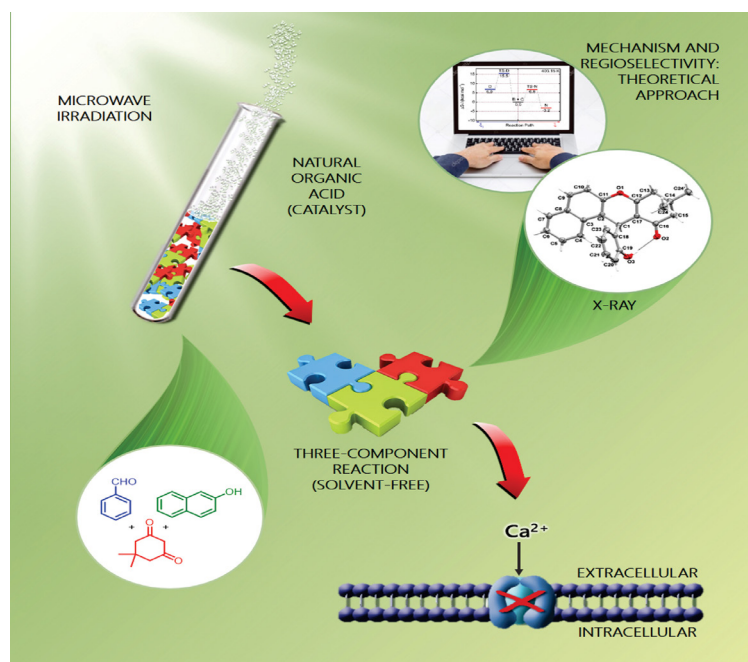


Cover Picture



Natural organic acids (NOAs) were efficient as green catalysts for the eco-friendly synthesis of xanthenones (up to 93% of yield) via one-pot reaction and under solvent-free conditions. Theoretical calculations to evaluate this reaction mechanism and regioselectivity as well as the potential anti-calcium blockers properties of xanthenones were described for the first time. Details are presented in the Article **Natural Organic Acid as Green Catalyst for Xanthenones Synthesis: Methodology, Mechanism and Calcium Channel Blocking Activity** by Bruna S. Terra, Aura M. B. Osorio, Aline de Oliveira, Rebeca P. M. Santos, Andressa P. Mouro, Natália F. de Araújo, Cameron C. da Silva, Felipe T. Martins, Luciene B. Vieira, Daniella Bonaventura, Heitor A. de Abreu, Antonio F. C. Alcântara and Ângelo de Fátima on page 2313.

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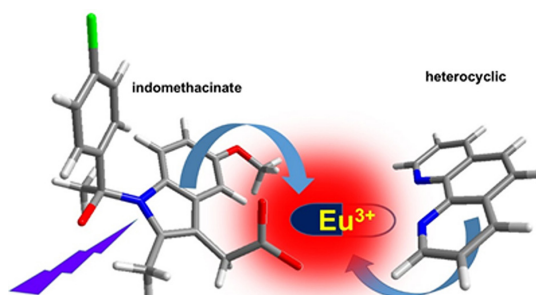
2281 Rare Earth-Indomethacinate Complexes with Heterocyclic Ligands: Synthesis and Photoluminescence Properties


João Batista M. Resende Filho, Paulo R. Santos, Juliana A.

SI online Vale, Wagner M. Faustino, Danyelle S. Farias, Hermi F. Brito, Maria C. F. C. Felinto and Ercules E. S. Teotonio

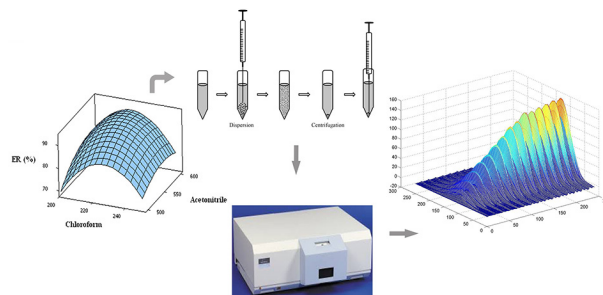
Graphical Abstract

Photophysical properties of the complexes were evaluated from luminescence data. It is proposed two intramolecular energy transfer mechanisms, which involve the participation of excited electronic states of the heterocyclic ligands as intermediate ones.



2291 Application of Response Surface Modeling and Chemometrics Methods for the Determination of Ofloxacin in Human Urine Using Dispersive Liquid-Liquid Microextraction Combined with Spectrofluorimetry

Farah Assadian and Ali Niazi



Graphical Abstract

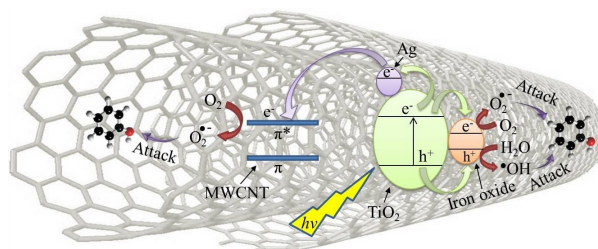
Dispersive liquid-liquid microextraction (DLLME) and spectrofluorimeter coupled with chemometrics methods were applied for trace determination of ofloxacin in urine sample. Three-dimensional multivariate calibration was used for analysis of DLLME data.

2301 Synthesis, Characterization and Enhanced Photocatalytic Activity of Iron Oxide/Carbon Nanotube/Ag-doped TiO₂ Nanocomposites



SI online

José O. Marques Neto, Carlos R. Bellato, Carlos H. F. de Souza, Renê C. da Silva and Pablo A. Rocha



Graphical Abstract

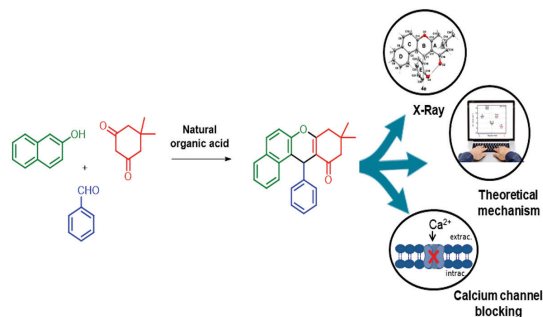
The 10-Fe/MWCNT/TiO₂-Ag-9 catalyst presents higher activity under longer wavelength light than pure TiO₂. With good stability after 10 cycles, the catalyst has promising potential for practical applications.

2313 Natural Organic Acid as Green Catalyst for Xanthenones Synthesis: Methodology, Mechanism and Calcium Channel Blocking Activity



SI online

Bruna S. Terra, Aura M. B. Osorio, Aline de Oliveira, Rebeca P. M. Santos, Andressa P. Mouro, Natália F. de Araújo, Cameron C. da Silva, Felipe T. Martins, Luciene B. Vieira, Daniella Bonaventura, Heitor A. de Abreu, Antonio F. C. Alcântara and Ângelo de Fátima



Graphical Abstract

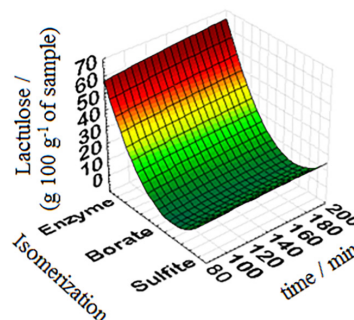
The eco-friendly synthesis of a series of xanthenones (up to 93% of yield) using natural organic acids as catalysts is reported.

2326 Application of Factorial Design for Optimization of the Synthesis of Lactulose Obtained from Whey Permeate



SI online

Fernanda C. Zimmer, Aloisio H. P. Souza, Ana F. C. Silveira, Maristela R. Santos, Makoto Matsushita, Nilson E. Souza and Angela C. Rodrigues



Graphical Abstract

Response surface for the concentration of lactulose according to the type of isomerization and reaction time.

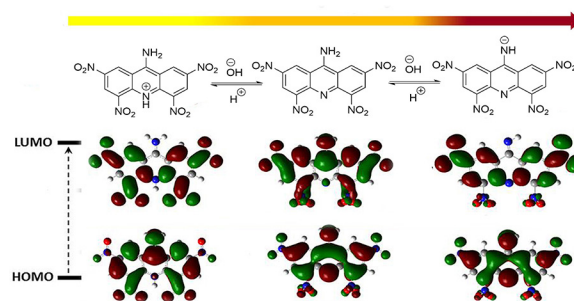
2334 New 9-Aminoacridine Derivative: Synthesis, Study and Potential Application as pH Indicator in Organic Solvents

Pedro H. F. Stroppa, Nicolas Glanzmann, Lucas M. Duarte, Renata T. Sato, Marcone A. L. de Oliveira and Adilson D. da Silva

SI online

Graphical Abstract

Optimized TNA structures in ethanol: their HOMO/LUMO molecular orbitals and different colors according to the mediums.



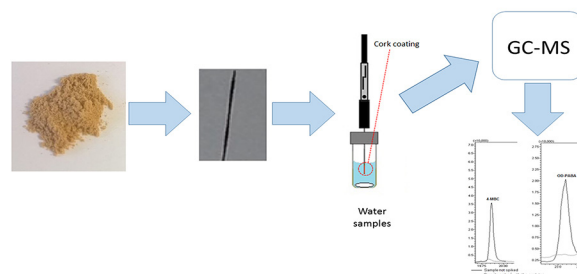
2341 Exploiting Cork as Biosorbent Extraction Phase for Solid-Phase Microextraction to Determine 3-(4-Methylbenzylidene)camphor and 2-Ethylhexyl 4-(Dimethylamino)benzoate in River Water by Gas Chromatography-Mass Spectrometry

Ana C. Silva, Adriana N. Dias and Eduardo Carasek

SI online

Graphical Abstract

This study is related to the use of cork as a material of natural origin, renewable and biodegradable for the determination of two classes of UV filters in water samples. The results showed good extraction efficiency, as well as satisfactory analytical performance.



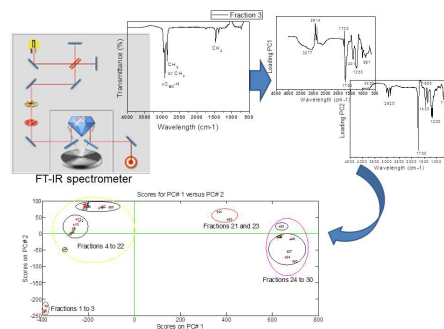
2348 Separation and Identification of Functional Groups of Molecules Responsible for Fluorescence of Biodiesel Using FTIR Spectroscopy and Principal Component Analysis

Humbervânia R. G. da Silva, Cristina M. Quintella and Marilena Meira

SI online

Graphical Abstract

Infrared spectroscopy coupled with principal component analysis allowed discriminating the fractions and identifying the functional groups of compounds present in the sample.

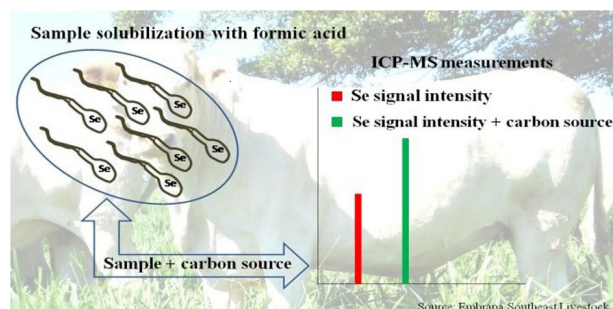


2357 Determination of Selenium in Bovine Semen by ICP-MS Using Formic Acid for Sample Preparation

Silmara R. Bianchi, Clarice D. B. Amaral, Caroline S. Silva and Ana Rita A. Nogueira

Graphical Abstract

A simple and fast procedure for Se determination in bovine semen by ICP-MS after sample solubilization with diluted formic acid.

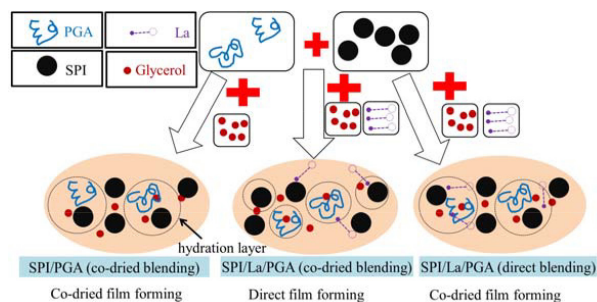


2365 Combination of Propylene Glycol Alginate and Lauric Acid on Water Retention and Mechanical Properties of Soy Protein Isolate-Based Films

Yi Liu, Hongyang Pan, Tougen Liao, Baokun Zhu, Zhiyu Li, Jiacan Wu, Yuandong Li, Jibao Cai and Mingfeng Wang

Graphical Abstract

Higher water retention ability and a single glass transition temperature (T_g) were found in ternary co-dried blending films when propylene glycol alginate (PGA) was added by a co-drying process. A single T_g indicates the compatibility of soy protein isolate (SPI), PGA and lauric acid (La). Differential scanning calorimetry scans showed higher relative humidity (RH) and reduced T_g due to incorporation of La.

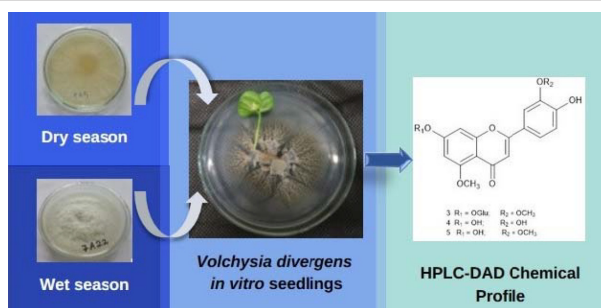


2375 Effect of Endophytic Fungal Associations on the Chemical Profile of *in vitro* Vochysia divergens Seedlings

Bruna A. S. Parpinelli, Katia A. Siqueira, Luis C. Kellner Filho, Letícia P. Pimenta, Ricardo M. da Costa, Renato L. T. Parreira, Rodrigo C. S. Veneziani, Marcio L. Andrade e Silva, Wilson R. Cunha, Patrícia M. Pauletti, Marcos A. Soares and Ana H. Januario

Graphical Abstract

Chemical profile by HPLC-DAD of leaves extracts from *V. divergens* seedlings inoculated with endophytic fungi isolated from *V. divergens* roots on dry and wet seasons in the Pantanal.

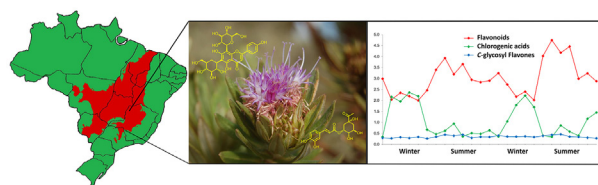


2382 Spatial and Temporal Variations in Secondary Metabolites Content of the Brazilian Arnica Leaves (*Lychnophora ericoides* Mart., Asteraceae)

Leonardo Gobbo-Neto, Anelize Bauermeister, Humberto T. Sakamoto, Dayana R. Gouvea, João Luis C. Lopes and Norberto P. Lopes

Graphical Abstract

The spatial and temporal variations in the secondary metabolites from *Lychnophora ericoides* were investigated. Chlorogenic acids presented highest concentrations in the dry season, while flavonoids were higher in the rainy season. Lower concentrations were found for all metabolites in flowery branches and old leaves.

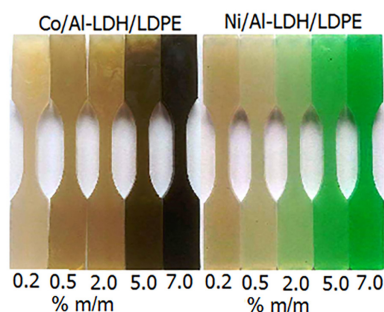


2391 New Alternative to Produce Colored Polymer Nanocomposites: Organophilic Ni/Al and Co/Al Layered Double Hydroxide as Fillers into Low-Density Polyethylene

Silvia Jaeger, Sonia F. Zawadzki, Andreas Leuteritz and Fernando Wypych

Graphical Abstract

Colored hydrophobic layered double hydroxides (LDH) with the formula $M^{2+}_{0.25}Al_{0.75}(A)_{0.25} \cdot nH_2O$, where $M^{2+} = Ni$ or Co and $A =$ dodecylsulfate, laurate, palmitate and stearate were synthesized and used as fillers in low density polyethylene. The influence of the metal in the LDH layers and the intercalated specie in the nanocomposites properties were discussed.



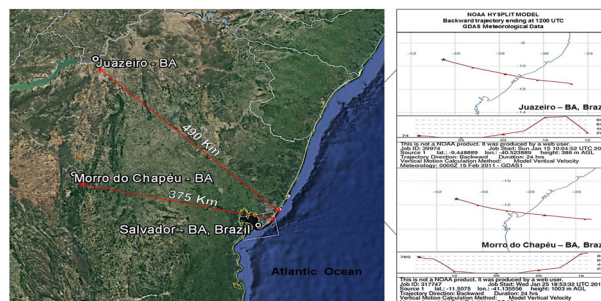
2402 Influence of the Transport of Sea Spray on the Salinization of the Semi-arid Region Waters (Bahia, Brazil)

Adriana M. Silva, Vânia P. Campos, Rafaela S. Domingues, Lícia P. S. Cruz and Franciele O. Santana

SI online

Graphical Abstract

The sea spray presence in the atmosphere of the Semi-arid was investigated. The trajectories of air masses for each sampling period showed that the air mass that arrived in the region passed over the ocean. The sea spray amount which reaches the region is insufficient to salinize waters.

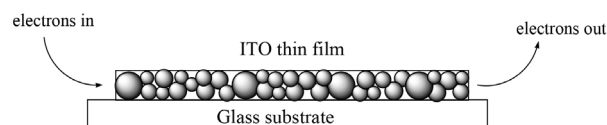


2412 ITO Obtained by Spray Pyrolysis and Coating on Glass Substrate

Beatriz M. de Campos, Gabriela S. Freiria, Katia J. Ciuffi, Emerson H. de Faria, Lucas A. Rocha, Eduardo J. Nassar and Milton S. F. de Lima

Graphical Abstract

Transparent thin films present optoelectronic or optical applications. Spray pyrolysis can yield spherical indium and tin oxide (ITO) micro- and nanoparticles. The sol-gel methodology affords conductive films.

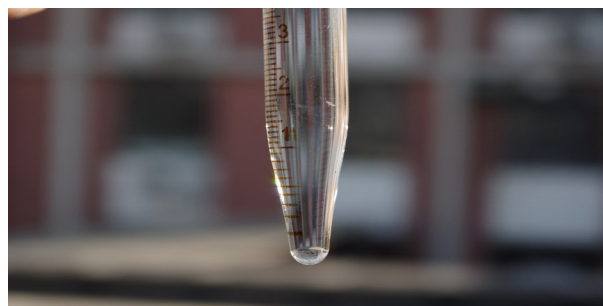


2421 Development of Manual Shaking and Ultrasound-Assisted Surfactant-Enhanced Emulsification Microextraction for Analysis of Organophosphorus Pesticides in Aqueous Samples

Ya-Bing Xiong, Yue Zhao and Zhong-Hua Yang

Graphical Abstract

Target analytes were extracted into extraction solvent from aqueous phase. Extraction, concentration, and purification were done in one step. After centrifugation, extraction solvent was sedimented at the bottom of the tube.

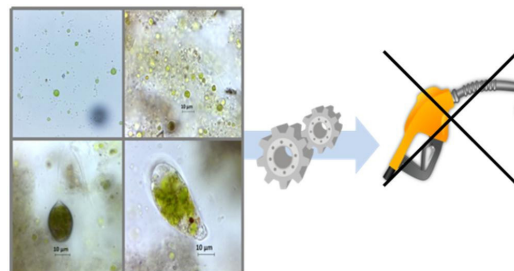


2429 Evaluating the Potential of Biodiesel Production through Microalgae Farming in Photobioreactor and High Rate Ponds from Wastewater Treatment

David M. M. Pinho, Renato S. Oliveira, Vitor M. L. dos Santos, Wellington F. Marques, Angelo C. Pinto, Michelle J. C. Rezende and Paulo A. Z. Suarez

Graphical Abstract

The article evaluates farming of *Chlorella* sp. in photobioreactor and sewage sludge as potential source of fatty material for biodiesel production.

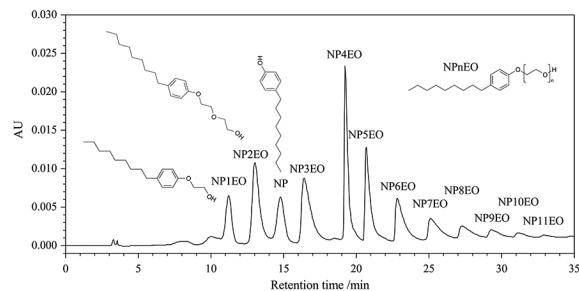


2438 Simultaneous Determination of Nonylphenol and Nonylphenol Ethoxylates in Wastewater Samples from Biodegradation Process by High Performance Liquid Chromatography Method

Yuanhua Xie, Shiyu Ma, Chunli Yuan, Yahong Pan, Qiao Wang, Ye Xu, Tong Zhu, Youzhao Wang, Jin Han and Meiyang You

Graphical Abstract

Under the optimized high performance liquid chromatography (HPLC) conditions, the NP and 11 kinds of NPnEO were separated and determined successfully within 35 min.

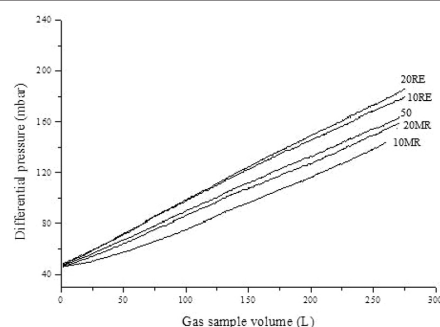


2447 Biodiesel Glycerides from the Soybean Ethylic Route Incomplete Conversion on the Diesel Engines Combustion Process

Renato Cataluña, Zeban Shah, Leidimara Pelisson, Nattan R. Caetano, Rosângela da Silva and Carla M. N. Azevedo

Graphical Abstract

Pressure differential in the filter element resulting from the retention of particulate matter (PM) as a function of the volume of sampled gas to diesel CN 50 and your formulation with 10MR, 20MR, 10ER and 20ER. Lower differential pressure according to the gas volume indicates lower retention of PM.

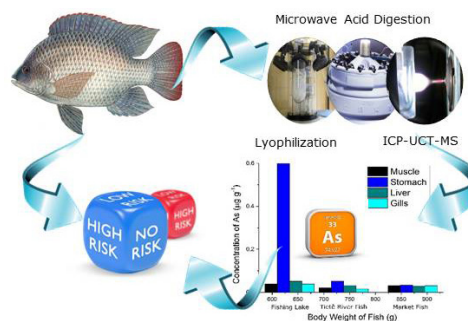


2455 Evaluation of Distribution and Bioaccumulation of Arsenic by ICP-MS in Tilapia (*Oreochromis niloticus*) Cultivated in Different Environments

Luciano H. B. Oliveira, Nathália S. Ferreira, Andrea Oliveira, Ana Rita A. Nogueira and Mario H. Gonzalez

Graphical Abstract

The arsenic levels found in different tissues of fish (tilapia) is an indicator of environment pollution and the different organs of the fish can influence the arsenic distribution and its bioaccumulation.

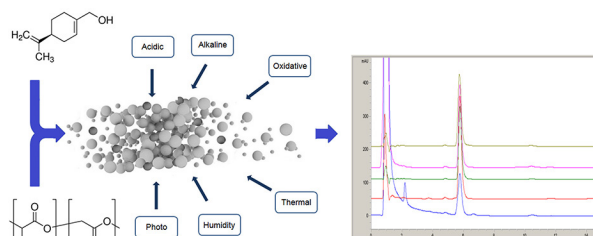


2464 Development and Validation of a Stability-Indicating Method for Perillyl Alcohol Incorporated in Poly(lactide-co-glycolide) Nanoparticles and Stress Degradation Studies

Breno M. Marson, Raquel O. Vilhena, Flavia L. D. Pontes, Najeh M. Khalil and Roberto Pontarolo

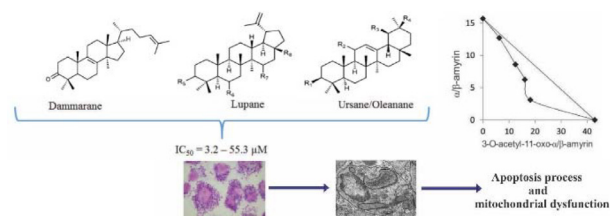
Graphical Abstract

This study presents degradation studies, development and validation of an analytical method applied for both determination of perillyl alcohol encapsulation efficiency and evaluating the presence of related degradation products in polymeric nanoparticles formulation.



2473 Anti-Trypanosoma Activity and Synergistic Effects of Natural and Semi-Synthetic Triterpenes and Predominant Cell Death through Autophagy in Amastigote Forms

Gleison D. P. Bossolani, Tânia Ueda-Nakamura, Sueli O. Silva, Benedito P. Dias Filho, Tulio O. G. Costa, Raúl H. R. Quintanilla, Sabrina T. Martinez, Valdir F. Veiga-Junior, Angelo C. Pinto and Celso V. Nakamura

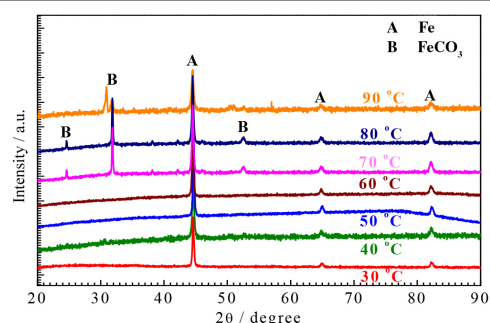


Graphical Abstract

Triterpenes showed promising activities and synergistic effects, which resulted in mitochondrial dysfunction and cell death by apoptosis, against amastigote forms of *Trypanosoma cruzi*.

2490 The Structure and Composition of Corrosion Product Film and its Relation to Corrosion Rate for Carbon Steels in CO₂ Saturated Solutions at Different Temperatures

Yong Zhou, Pei Zhang, Yu Zuo, Dong Liu and Fuan Yan



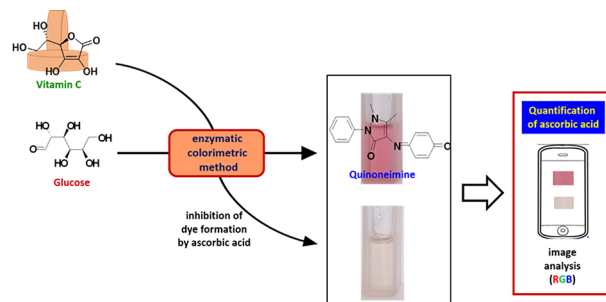
Graphical Abstract

When carbon steels were exposed in CO₂ saturated solutions at different temperatures, corrosion product film with different structure and composition formed on the surface of carbon steels and dominated the corrosion rate of carbon steels significantly.

Short Reports

2500 Colorimetric Determination of Ascorbic Acid Based on Its Interfering Effect in the Enzymatic Analysis of Glucose: An Approach Using Smartphone Image Analysis

Mayra S. Coutinho, Camilo L. M. Moraes, Ana C. O. Neves, Fabrício G. Menezes and Kássio M. G. Lima



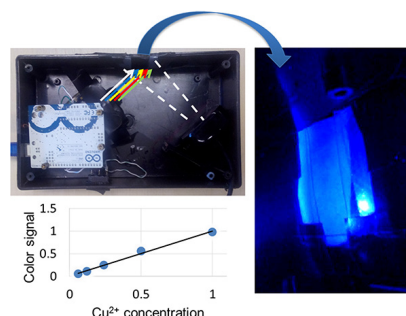
Graphical Abstract

A new method using smartphone image analysis for quantification of ascorbic acid (AA) in vitamin C tablets is described. The method is based on AA interfering effect in enzymatic colorimetric detection of glucose.

2506 A Low-Cost Video-Based Reflectometer for Selective Detection of Cu²⁺ Using Paper-Based Colorimetric Sensors

Camilo L. M. Moraes, Lilian C. da Silva, Nayara A. Pinheiro, Fabrício G. Menezes and Kássio M. G. Lima

SI online



Graphical Abstract

A low-cost video-based reflectometer device was developed to quantify Cu²⁺ using paper-based colorimetric sensors.

