Acrylic latex-based nanocomposites have been prepared with three different carbon nanomaterials (nanotubes and graphene-like structures). Due to the unique interaction between the components, resulting materials present noticeable multifunctionality. The electrical, mechanical, magnetic and chemical properties can be modulated according the type and amount of filler, creating several different materials that can be chosen for specific applications. Details are presented in the Article Multifunctional Nanocomposites between Different Carbon Nanostructures and Styrene Acrylic Latex by Carolina F. Matos, Fernando Galembeck and Aldo J. G. Zarbin on page 1396.
Articles

1351  An Investigation on Morphology and Fractal Dimension of Diesel and Diesel-Biodiesel Soot Agglomerates
Aline L. N. Guarieiro, Arantzazu Eiguren-Fernandez, Gisele O. da Rocha and Jailson B. de Andrade

Graphical Abstract
Fractallike dimension and morphology of ultrafine particles emitted by a diesel engine run with B4, B50, and B100 are evaluated.

1363  Synthesis of N,O-Type Inherently Chiral Calix[4]arenes Substituted on the Lower Rim and their Organocatalysis Properties
Ming-Liang Chang, Yong He, Jing Zhou and Shao-Yong Li

Graphical Abstract
Inherently chiral calix[4]arenes can catalyze Henry reaction between aromatic aldehydes and nitromethane in excellent yields but poor enantioselectivities.

1371  Dammarane Triterpenoids from Carnauba, Copernicia prunifera (Miller) H. E. Moore (Arecaceae), Wax

Graphical Abstract
Sixteen dammarane-type triterpenoids, including thirteen new, were identified from carnauba (Copernicia prunifera) wax (types 1 and 4).

1377  Copaiba Oil and Its Constituent Copalic Acid as Chemotherapeutic Agents against Dermatophytes
Marcela T. Nakamura, Eliana H. Endo, João Paulo B. de Sousa, Daniel R. Callejon, Tânia Ueda-Nakamura, Benediço P. Dias Filho, Osvaldo de Freitas, Celso V. Nakamura and Norberto P. Lopes

Graphical Abstract
Copalic acid activity against dermatophytes Trichophyton rubrum, Trichophyton mentagrophytes and Microsporum gypseum.
1384  **Study of the Influence of Biodiesel in Soot Emissions of Diesel Laminar Diffusion Flames**
Lincoln Tolomelli e Tolomelli, Luiz G. Barreta, Pedro T. Lacava and Dermeval Carinhana Jr.

**Graphical Abstract**
Biodiesel/diesel blends flames are investigated using LII. The results showed a decrease of soot production as the amount of biodiesel was increased.

1389  **Antimicrobial Screening of Endophytic Fungi Isolated from the Aerial Parts of Paepalanthus chiquitensis (Eriocaulaceae) Led to the Isolation of Secondary Metabolites Produced by Fusarium fujikuroi**
Felipe Hilário, Vanessa M. Chapla, Angela R. Araujo, Paulo T. Sano, Tais M. Bauab and Lourdes C. dos Santos

**Graphical Abstract**
Metabolite produced by *Fusarium fujikuroi* isolated from the capitulae of *Paepalanthus chiquitensis* (Eriocaulaceae). Photo of *P. chiquitensis* was taken by Marcelo T. L. de Oliveira.

1396  **Multifunctional Nanocomposites between Different Carbon Nanostructures and Styrene Acrylic Latex**
Carolina F. Matos, Fernando Galembeck and Aldo J. G. Zarbin

**Graphical Abstract**
Multifunctional nanocomposites between carbon nanostructures and acrylic latex were successfully prepared, with improved and tunable properties compared to the neat polymer.

1407  **Atom Transfer Radical Polymerization of Methyl Methacrylate Mediated by Grubbs 1st and 2nd Generation Catalysts: Insight into the Active Species**
Maria Beatriz A. Afonso, Lucas G. Gonçalves, Patrícia Borin, José Luiz S. Sá, Beatriz E. Goi and Valdemiro P. Carvalho-Jr.

**Graphical Abstract**
Grubbs 1st and 2nd generation catalyst were evaluated as catalyst in atom-transfer radical polymerization (ATRP) of methyl methacrylate (MMA) and their yet unknown mechanism for ATRP was investigated.
1414 Catechol Oxidase, Phosphatase-Like Activity, DNA/BSA Binding Studies of Ru²⁺ Complexes of S-Allyldithiocarbazate: Synthesis and Spectral Studies
Carla R. Matte, Carolina Bordinhão, Jakeline K. Poppe, Edilson V. Benvenutti, Tania M. H. Costa, Rafael C. Rodrigues, Plinho F. Hertz and Marco A. Z. Ayub

Graphical Abstract
Ruthenium(II) complexes containing S-allyldithiocarbazate derivatives, potentially active towards in vitro biomolecular interactions and bio-catalytic transformations such as catechol oxidation and phosphate hydrolysis.

1430 Physical-Chemical Properties of the Support Immobead 150
Before and After the Immobilization Process of Lipase
Carla R. Matte, Carolina Bordinhão, Jakeline K. Poppe, Edilson V. Benvenutti, Tania M. H. Costa, Rafael C. Rodrigues, Plinho F. Hertz and Marco A. Z. Ayub

Graphical Abstract
Immobead 150 possess interesting features to be used as a support for immobilization of lipases.

1440 Improved Reactivity in the Ring-Opening Polymerization of ε-Caprolactone with a Trinuclear Titanium(IV) Oxochloroneopentoxide as Initiator
Siddhartha O. K. Giese, Thiago A. da Silva, David L. Hughes, André Luís Rüdiger, Eduardo L. de Sá, Sônia F. Zawadzki, Jáisra F. Soares and Giovana G. Nunes

Graphical Abstract
Complexes [Ti₃(O)(Cl)(ONep)]₉ were employed as initiators for the polymerization of ε-caprolactone (ε-CL). The better polymerization reactivity of [Ti₃(O)(Cl)(ONep)]₉ seems to be associated with the maintenance of its polynuclear structure in the reaction mixture.

1453 Sensitive Estrogens Determination in Wastewater Samples by HPLC and Fluorescence Detection
Marcus Vinicius de Liz, Bianca do Amaral, Sandra Stets, Noemi Nagata and Patricio Peralta-Zamora

Graphical Abstract
Fluorescence-based HPLC method for quantification of estrogens (17β-estradiol and 17α-ethinylestradiol) in both influent and effluent wastewater samples.
1461 Differentiation of Toxic and Non-Toxic Leaves of Jatropha curcas L. Genotypes by Leaf Spray Mass Spectrometry

Igor Pereira, Thays C. de Carvalho, Wanderson Romão, Paulo R. Filgueiras, Bruno G. Laviola, Clenilson M. Rodrigues, Patrícia V. Abdelnur and Boniek G. Vaz

Graphical Abstract
A recent ambient ionization mass spectrometry technique known as leaf spray (LS-MS) is a simple and fast method for screening of plant samples. In this work, toxic and non-toxic Jatropha curcas leaves were differentiated by LS-MS.

1467 Antiproliferative Activity of Dibenzoylmethanes from Root Bark of Muelleria filipes (Benth) M.J. Silva & A.M.G. Azevedo

Érica L. Santos, Juliana Jo, Francisco A. Marques, Ana Maria G. A. Toczi, Ana Lúcia T. G. Ruiz and Beatriz Helena L. N. S. Maia

Graphical Abstract
Dibenzoylmethane derivatives with a substituent on C-8 are extremely rare in nature. These compounds can potentially be used as biomarkers of closely related genera. Two compounds showed strong activity against human cancer cell lines.

1475 Development of a Novel Spectrophotometric Method Based on Diazotization-Coupling Reaction for Determination of Bisphenol A

Zhiqun Xu, Qiao Wu, Yunjian Duan, Meixia Yang, Minrui Ou and Xiaoping Xu

Graphical Abstract
A novel, rapid, and easy method for quantification of BPA via diazo coupling reaction and its applications in the actual food samples.

1483 AC Induced Corrosion of Underground Steel Pipelines under Cathodic Protection: III. Theoretical Approach with Electrolyte Resistance and Double Layer Capacitance for Mixed Corrosion Kinetics

Ibrahim Ibrahim, Michel Meyer, Hisasi Takenouti and Bernard Tribollet

Graphical Abstract
Cathodic protection potential in presence of a stray AC voltage for steel pipe buried in a mildly corrosive soil provided that AC corrosion does not induce any change of soil chemistry.
1494 Coencapsulation of \textit{trans}-Dehydrocrotinin and \textit{trans}-Dehydrocrotinin:hydroxypropyl-\(\beta\)-cyclodextrin into Microparticles
Waldenice A. Morais, Benício de Barros Neto, Isabella M. F. Cavalcanti, Francisco H. Xavier Junior, Nereide S. Santos-Magalhães and Maria Aparecida M. Maciel

Graphical Abstract
Coencapsulation of t-DCTN and t-DCTN:HP-\(\beta\)-CD into PCL and PLGA microspheres were developed using factorial design. Oral formulations of PLGA microparticles containing t-DCTN and/or t-DCTN:HP-\(\beta\)-CD were obtained to be applied in \textit{in vivo} studies.

1506 Multivariate Calibration to Determine Phorbol Esters in Seeds of \textit{Jatropha curcas} L. Using Near Infrared and Ultraviolet Spectroscopies
Jussara V. Roque, Luiz A. S. Dias and Reinaldo F. Teófilo

Graphical Abstract
Determination of phorbol esters of \textit{Jatropha curcas} L. using NIR and UV spectroscopies employing PLS regression and variable selection.

1517 Implementation of a Spectrofluorimetric Method to the Determination of 8-Methoxypsoralen in Capsules and Creams Used in Treatment of Psoriasis and Vitiligo: an Evaluation of the Quality of Compounding Pharmacies in Rio de Janeiro

Graphical Abstract
The spectrofluorimetric determination of 8-methoxypsoralen was applied to assessing the quality of medicines produced by compounding pharmacies.

1528 Methylene Violet 3 RAX Dye as a New Reagent for the Determination of Nitrite in Cured Meats and Vegetables
Caroline O. da Rocha, João Flávio S. Petruci and Arnaldo A. Cardoso

Graphical Abstract
Methylene Violet 3 RAX dye as a new reagent for the determination of nitrite in cured meats and vegetables.
1547 Preliminary Evaluation of Novel Triglyceride-Based Nanocomposites for Biomedical Applications

Graphical Abstract
Magnetic solid lipid nanoparticles (MSLNs) for application in magnetic hyperthermia and controlled delivery of oncocalyxone-A.

1554 A Straightforward Method for Determination of Al and Na in Aluminosilicates Using ICP OES
Francisca S. O. Ramos, Ramon K. S. Almeida, Cícero A. Lopes Júnior, Marco Aurélio Z. Arruda and Heloise O. Pastore

Graphical Abstract
Microwave-assisted acid decomposition using closed vessels was applied to aluminosilicates in order to quantify Na and Al, reducing the time consumed for samples preparation step. This procedure avoided analytes losses and contamination.

1557 Exploratory Analysis of Sparkling Wines Based in the Combined Data of Stable Isotope Analysis with Physicochemical Variables and Volatile Profile

Graphical Abstract
The chemometric tool was applied to the physicochemical, volatiles and stable isotope data to perform the exploratory analysis and classification of sparkling wines samples.

1564 Effect of PVA Concentration on Structure and Performance of Precipitated Iron-Based Catalyst for Fischer-Tropsch Synthesis
Cailian Ma, Guanghua Dong, Xia Liu and Jiangang Chen

Graphical Abstract
Polyvinyl alcohol (PVA) concentration has a significant effect on the structure of catalysts and dispersion of their active phase. Therefore, the catalyst prepared with 15 wt.% PVA, exhibits high performance and good thermal stability for Fischer-Tropsch synthesis.
Suzuki-Miyaura Coupling between 3-Iodolawsone and Arylboronic Acids. Synthesis of Lapachol Analogues with Antineoplastic and Antileishmanial Activities

Graphical Abstract
Suzuki-Miyaura cross coupling reaction between 2-hydroxy-3-iodonaphthalene-1,4-dione and a series of arylboronic acids/esters followed by OH-protection as the corresponding N,N-diethyl carbamates is reported. The synthesized compounds were evaluated regarding their antineoplastic and antileishmanial activities furnishing promising results.