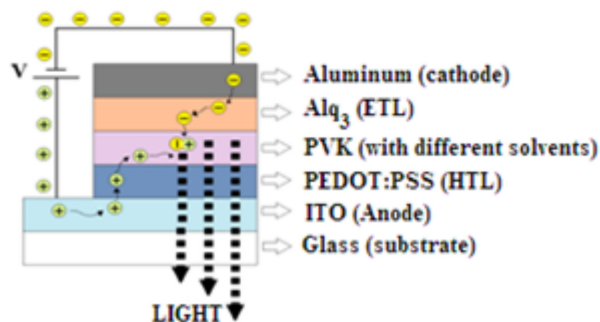


Artigo

- 1 Influência de diferentes solventes utilizados na deposição de filme de poli(9-vinilcarbazol) em dispositivos OLEDs

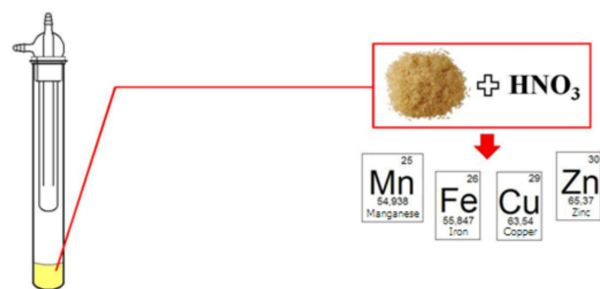
Emerson R. Santos, Shu H. Wang, Fabio C. Correia, Ivan R. Costa, Victor Sonnenberg, Elvo C. Burini Junior e Roberto K. Onmori

**Graphical Abstract**

Organic light-emitting diode (OLED) device architecture is explored in this study.

- 6 Avaliação da mineralização de arroz em sistema de refluxo para a determinação de Cu, Fe, Mn e Zn por FAAS

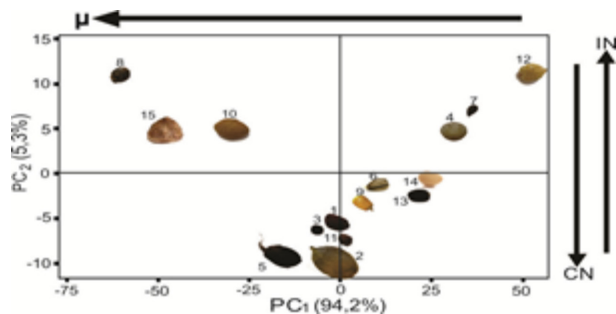
Aline C. de A. Pinheiro, Meibel T. Lisboa, Anderson S. Ribeiro, Adriane M. Nunes e Alzira Yamasaki

**Graphical Abstract**

A reflux system, which allows continuous circulation of water, is used for rice sample preparation, and is followed by the determination of Cu, Fe, Mn, and Zn by flame atomic absorption spectrometry.

- 10 Análise do teor e da qualidade dos lipídeos presentes em sementes de oleaginosas por RMN de baixo campo

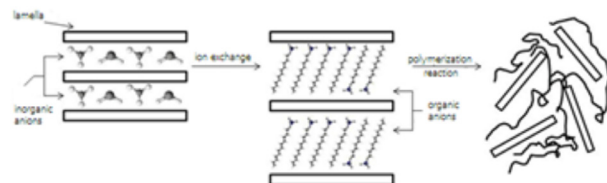
André F. Constantino, Valdemar Lacerda Jr., Reginaldo B. dos Santos, Sandro J. Greco, Renzo C. Silva, Álvaro C. Neto, Lúcio L. Barbosa, Eustáquio V. R. de Castro e Jair C. C. Freitas

**Graphical Abstract**

Factors such as the content and quality of lipids present in oil matrices, evaluated using the low-field NMR technique coupled to chemometric methods, can collaborate in choosing the best source for biodiesel production in a given region.

- 18 Síntese e caracterização de nanocompósitos de poliestireno/hidroxissal lamelar

Samara B. de Moraes, Rodrigo Botan e Liliane M^a F. Lona

**Graphical Abstract**

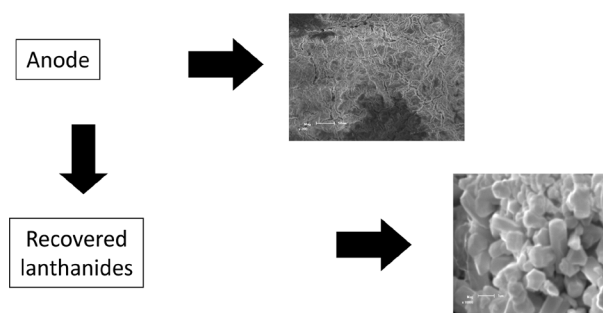
A layered hydroxide salt is modified using an organic molecule; ion exchange occurs between the anions of the layered hydroxide salt and those of the organic molecule. Subsequently, it is added to the monomer, thereby forming the nanocomposite.

- 22 Método hidrometalúrgico para reciclagem de metais terras raras, cobalto, níquel, ferro e manganês de eletrodos negativos de baterias exauridas de Ni-MH de telefone celular

Vinicius E. de O. dos Santos, Vinicius G. Celante, M^a de Fátima F. Lelis e Marcos B. J. G. de Freitas

Graphical Abstract

Hydrometallurgical process with the characterization of both the precursor material (anode) and the recovered materials (lanthanides).

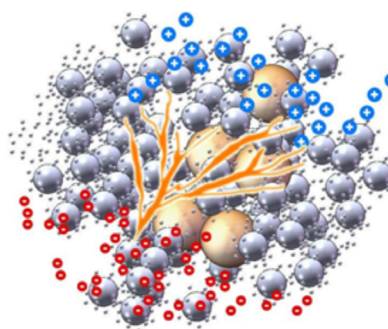


- 27 Acúmulo de cargas elétricas em propelente sólido composto com matriz de polibutadieno líquido hidroxilado

Silvio Manea, Gabriela K. B. Manea, Koshun Iha e José A. F. F. Rocco

Graphical Abstract

The figure represents the electrical charging of the composite solid propellant, it may generate an internal electrostatic discharge in the solid propellant when it reaches its electric potential breakdown.

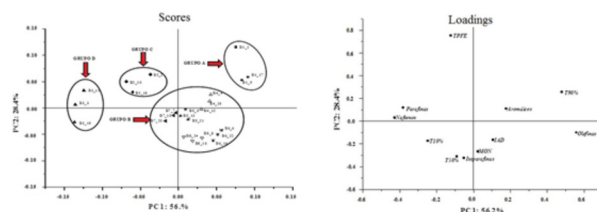


- 33 Estudo da qualidade da gasolina tipo A e sua composição química empregando análise de componentes principais

Fábio I. M. Carvalho e Heronides A. Dantas Filho

Graphical Abstract

The principal component analysis (PCA) was applied to discriminate the samples studied, which revealed the separation of four groups according to their chemical composition determined in samples collected from the eight fuel distributors in the State of Pará.

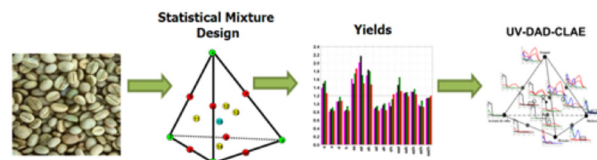


- 39 Efeito do solvente na extração de ácidos clorogênicos, cafeína e trigonelina em *Coffea arabica*

Ivanira Moreira, Guilherme L. Scheel, Pedro H. Hatumura e Ieda S. Scarmínio

Graphical Abstract

Statistical schedules of mixtures associated with HPLC-UV-DAD spectra were used to evaluate the effect of solvents on the extraction of chlorogenic acids, caffeine, and trigonelline in four coffee varieties: Bourbon, IAPAR59, IPR101, and IPR108.

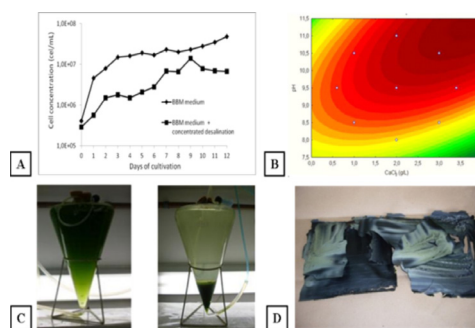


44 Flocculação de *Chlorella* sp. produzida em concentrado de dessalinização e estudo de método de extração de lipídeos intracelulares

Luiz R. I. Morioka, Ângelo P. Matos, Gisele Olivo e Ernani S. Sant'Anna

Graphical Abstract

Details of *C. vulgaris* growth on concentrated desalination and Bold Basal Medium (BBM): A - Growth curves; B - Optimization of flocculation by response surface methodology; C - Cultivation of *C. vulgaris* and flocculated biomass; D - Dried biomass of *C. vulgaris*.



50 Preparação e caracterização do complexo de inclusão do óleo essencial de *Croton zehntneri* com β -ciclodextrina

Ulisses N. Aguiar, Sidney G. de Lima, Márcio S. Rocha, Rivelilson M. de Freitas, Talita M. Oliveira, Raiane M. Silva, Lara C. B. Moura e Lorena T. G. de Almeida

Graphical Abstract

Essential oil of *Croton zehntneri* (a plant native of northeastern Brazil), whose main component is estragole, was complexed with β -cyclodextrin and characterized by Vibrational Spectroscopy and Differential Scanning Calorimetry.

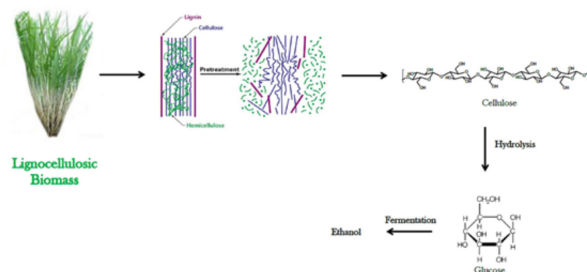


56 Otimização do pré-tratamento hidrotérmico da palha de cana-de-açúcar visando à produção de etanol celulósico

Fernando A. Santos, José H. de Queiroz, Jorge L. Colodette, Mauro Manfredi, M^a Eliana L. R. Queiroz, Celso S. Caldas e Filipe E. F. Soares

Graphical Abstract

The cellulosic ethanol production process involves three steps: (i) pre-treatment to disrupt the crystalline structure of cellulose; (ii) enzymatic hydrolysis to hydrolyze polysaccharides into fermentable sugars; and (iii) fermentation process to convert sugars into ethanol.

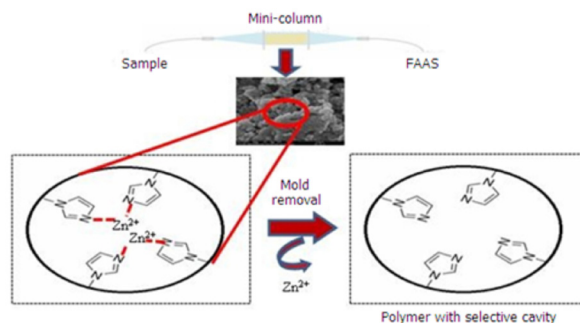


63 Synthesis, characterization and application of ion imprinted poly(vinylimidazole) for zinc ion extraction/preconcentration with FAAS determination

Queila O. dos Santos, Marcos A. Bezerra, Giovana de F. Lima, Kristiany M. Diniz, Mariana G. Segatelli, Talitha O. Germiniano, Vivian da S. Santos and César R. T. Tarley

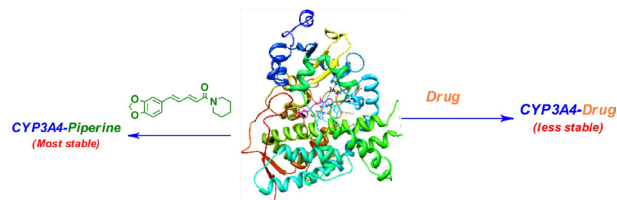
Graphical Abstract

A mini-column containing the polymer impregnated with zinc, the scanning electron microscopy of the material, and the schematic of the interaction of zinc ions in the selective cavity of the material.



69 A influência da piperina na biodisponibilidade de fármacos: uma abordagem molecular

Ramon G. de Oliveira, Edilson B. Alencar-Filho e Mário L. A. A. Vasconcellos

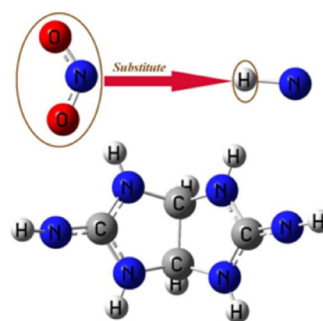


Graphical Abstract

We present here a theoretical study by molecular docking which demonstrate the selective interaction between Piperine with CYP3A4.

74 DFT theoretical study of energetic nitrogen-rich $C_4N_6H_{8-n}(NO_2)_n$ derivatives

Xinghui Jin, Bingcheng Hu, Huanqing Jia, Zuliang Liu and Chunxu Lu

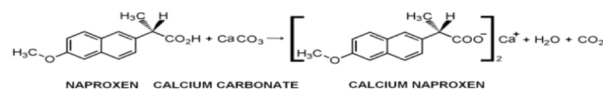


Graphical Abstract

Detonation properties of the guanidine-fused bicyclic skeleton derivatives $C_4N_6H_{8-n}(NO_2)_n$ ($n=1-6$) were calculated using density functional theory.

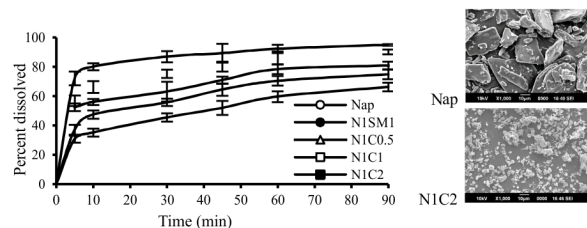
81 Interaction of naproxen with calcium carbonate: physicochemical characterization and *in vitro* drug release studies

Shweta Paroha, Ravindra D. Dubey and Subrata Mallick



Graphical Abstract

Interaction of naproxen with calcium carbonate after freeze-drying the wet-state equilibrated mixture has been investigated. Study revealed the acid-base reaction, and drug release increased with the increase of calcium carbonate in the formulations.



85 Isolation and antitrichomonal activity of the chemical constituents of the leaves of *Maytenus phyllanthoides* Benth. (Celastraceae)

Juan A. Moo-Puc, Zhelmy Martín-Quintal, Gumersindo Mirón-López, Rosa E. Moo-Puc, Leovigildo Quijano and Gonzalo J. Mena-Rejón

Graphical Abstract

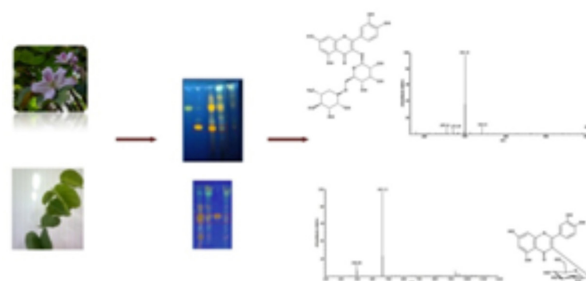
From *Maytenus phyllanthoides* leaves, cyclolignan (+)-lyoniresinol was isolated and tested against *Trichomonas vaginalis*, showing activity at IC_{50} 17.57 μ M. This is the first report on the occurrence of lyoniresinol in *Maytenus* genus, and on its anti-trichomonal activity.



- 89 Perfil de flavonoides e avaliação do potencial antioxidante e citotóxico de *Bauhinia purpurea* (Fabaceae) da região amazônica
Priscila M. dos Santos, Patrícia D. O. de Almeida, Emerson S. Lima, Manoel O. de Moraes, Patrícia M. da Costa, Assuero S. Meira, Cláudia do Ó Pessoa, Ligia M^a M. Valente e Valdir F. da Veiga Junior

Graphical Abstract

Extracts of leaves and twigs of *Fabaceae Bauhinia purpurea* were collected from central and northern Amazonia and partitioned, and the flavonoid fractions were analyzed by HPLC-DAD and MS; distinct chromatographic profiles were observed, especially those indicating the presence of rutin and isoquercitrin. The extracts and flavonoid fractions exhibited excellent antioxidant activity and were comparable with that of the standard; however, they did not exhibit cytotoxicity to MDA-MB435 (lung), HCT-8 (colon), and SF-295 (glioblastoma) tumor cell lines.

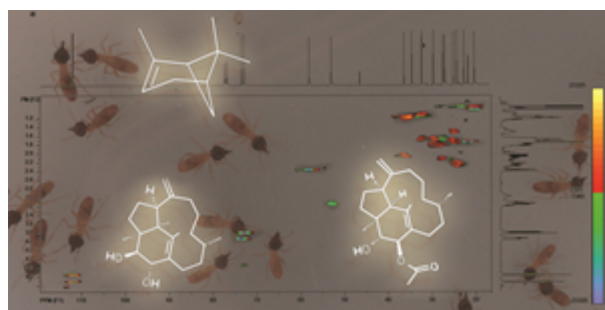


Revisão

- 95 Terpenos em cupins do gênero *Nasutitermes* (Isoptera, Termitidae, Nasutitermitinae)
Márcia N. S. de la Cruz, Helvécio M. dos Santos Júnior, Claudia M. Rezende, Ruy J. V. Alves, Eliana M. Cancellato e Maurício M. da Rocha

Graphical Abstract

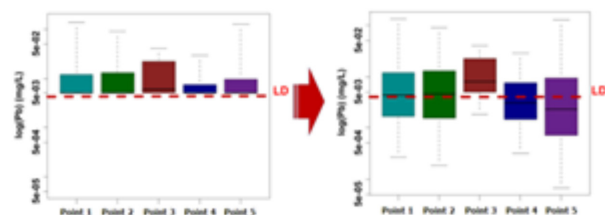
The front gland of *Nasutitermes* termite soldiers is mainly formed by mono and diterpenes with trinervitane, kempene and rippertane skeletons, only found in termites. This article reviews the scientific literature from interesting aspects of behavior and chemical composition.



- 104 Tratamento de dados censurados em estudos ambientais
Cristiano Christofaro e Mônica M. D. Leão

Graphical Abstract

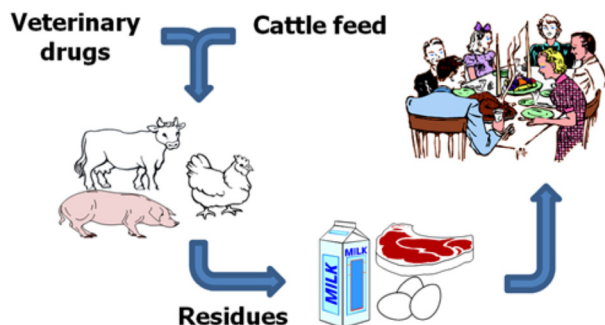
Concentrations below the detection limit (DL) are frequently observed in environmental studies. This study discusses the main methods of treating censored data presented in specialist literature, comparing their limitations and advantages.



- 111 Resíduos de medicamentos veterinários em leite e ovos
Érica Pacheco-Silva, Jurandir R. de Souza e Eloisa D. Caldas

Graphical Abstract

The use of veterinary drugs in food-producing animals can leave residues in food. Human exposure to these residues through consumption of animal products can pose a health risk.

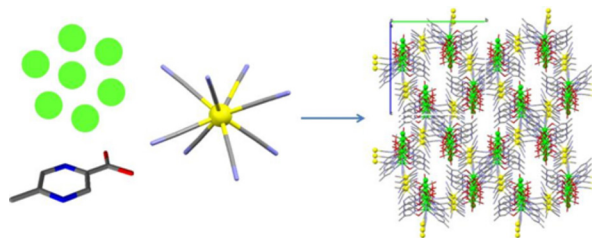


123 Redes metalorgânicas e suas aplicações em catálise

André L. D. Ramos, Stefania Tanase e Gadi Rothenberg

Graphical Abstract

Metal-organic frameworks are synthesized by the self-arrangement of construction blocks. Their final structure consists of metals or metal clusters, acting as nodes; they are linked together by a spacer, such as organic molecules with multiple branches, forming a three-dimensional network, which can have a very high surface area, making it possible to accommodate host molecules in its interior.



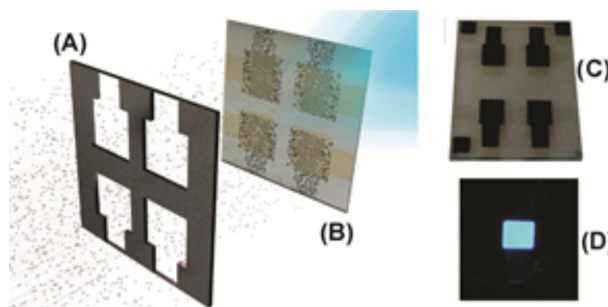
Nota Técnica

134 Máscaras mecânicas de sombra por eletrocorrosão para dispositivos eletro-ópticos

Iraci da A. Pereira, Viviane C. Nogueira, Michele O. da Silva, Marcos H. M. O. Hamanaka, Valdirene S. T. Peressinotto, Elaine F. Z. A. Von Zuben e Thebano E. de A. Santos

Graphical Abstract

Illustration of cathode evaporation using a shadow mask for patterning OLED devices: A) Stainless steel shadow mask, B) 4 OLED devices with 9mm² active area: glass-ITO/PEDOT/PFO/Al, C) picture of OLED devices and D) picture of an OLED device emitting light.



138 Análise de fármacos em águas por SPE-UPLC-ESI-MS/MS

Vanessa de J. Gaffney, Vitor V. Cardoso, Alexandre Rodrigues, Elisabete Ferreira, M^a João Benoliel e Cristina M. M. Almeida

Graphical Abstract

A method was developed for the analysis of 31 pharmaceuticals in water by SPE-UPLC-MS/MS. Instrumental conditions were optimized to allow the quantification of trace levels of the analytes. The method was validated through the estimation of the linearity range, method detection and quantification limits, matrix effects, recovery studies, precision and accuracy.

150 Equipamento de baixo custo para extração em fase sólida em amostras aquosas de grande volume utilizando pressão positiva de N₂

Ananda L. Sanson, Bruno E. L. Baeta, Keila L. T. Rodrigues e Robson J. C. F. Afonso

Graphical Abstract

A low cost apparatus for SPE was developed that uses nitrogen under positive pressure, ensures the maintenance of the sample flow, allows simultaneous extraction of different samples without cross-contamination and sample contact with plastic materials.

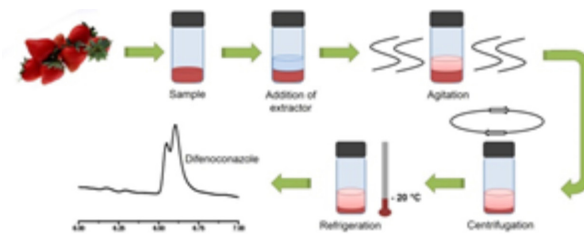


- 153 Otimização, validação e aplicação de método para determinação da concentração residual de difenoconazole em morangos após múltiplas aplicações

Fernanda F. Heleno, M^a Eliana L. R. de Queiroz, Antônio A. Neves e André F. de Oliveira

Graphical Abstract

The SLE/LTP-GC/ECD method was optimized, validated and applied in monitoring of the dissipation/persistence of difenoconazole residues in strawberries that received multiple applications of a commercial product containing this active ingredient.

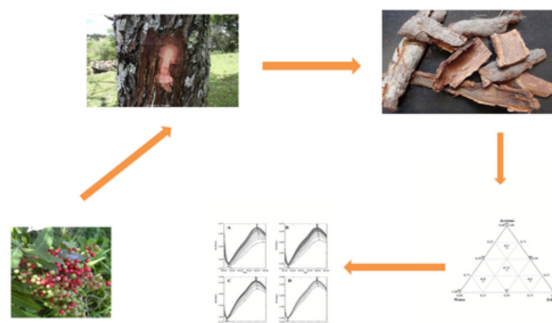


- 158 Optimization of solvent mixtures for extraction from bark of *Schinus terebinthifolius* by a statistical mixture-design technique and development of a UV-Vis spectrophotometric method for analysis of total polyphenols in the extract

M^a Cristina DiCiaula, Gisely C. Lopes, Ieda S. Scarminio and João C. P. de Mello

Graphical Abstract

A statistical mixture-design technique was used to study the effects of different solvents and their mixtures on the yield, total polyphenol content, and antioxidant capacity of the crude extracts from the bark of *Schinus terebinthifolius*.



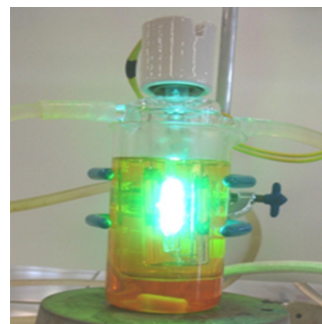
Educação

- 164 Um reator fotoquímico barato e eficiente para experimentos de química

Ramon K. S. Almeida, Cláudia Martelli, Gilson H. M. Dias e Julio C. A. da Silva

Graphical Abstract

An efficient and inexpensive device for undergraduate chemistry classes aiming teaching the photolytic synthesis concepts. This device presents simplicity, low costs, class-compatible reaction times and good yields.



- 168 Nanoporous materials: pillared clays and regular silicas as an example of synthesis and their porosity characterization by X-ray diffraction

João Pires

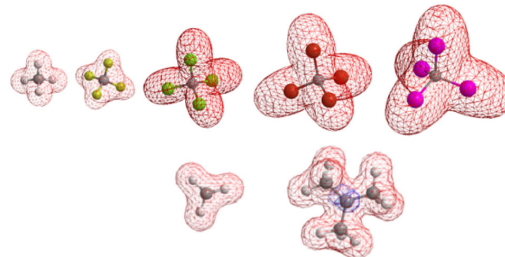
Graphical Abstract

Pillared clays and regular mesoporous silicas are examples of nanoporous materials whose porosity can be quantified by X-ray diffraction.



- 171 A teoria de Pearson para a disciplina de Química Orgânica: um exercício prático e teórico aplicado em sala de aula
Mário L. A. A. Vasconcellos

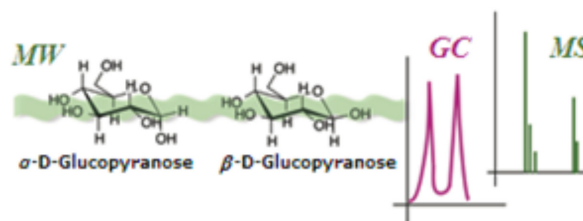
Hard and soft acids and bases



Graphical Abstract

We present here our didactic experience on teaching Pearson theory (HSAB) for graduated students in organic chemistry.

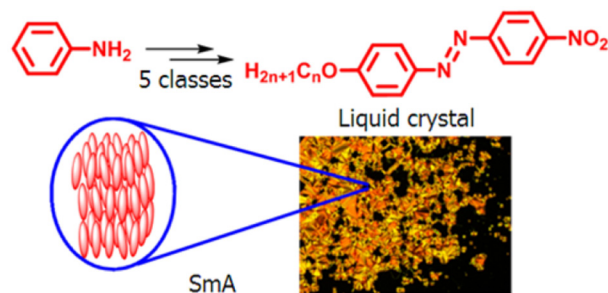
- 176 Cromatografia gasosa-espectrometria de massas e derivatização assistida por micro-ondas na identificação de isômeros de glicose: uma prática para o ensino avançado em análise e caracterização de compostos orgânicos
Célia F. Frias, Sílvia A. Gramacho e Marta Pineiro



Graphical Abstract

A case study for the application of assisted derivatization by microwave and gas chromatography-mass spectrometry for the identification of glucose isomers.

- 181 Síntese de cristais líquidos derivados do nitrozobenzeno: uma proposta de síntese multi-etapas aplicada às aulas de Química Orgânica Experimental
Rodrigo Cristiano, Marília G. B. Cabral, Rafael B. de Aquino e Cláudia M. Z. Cristiano



Graphical Abstract

This article describes a multi-step synthesis for acquiring liquid crystals derived from nitroazobenzene, which is used in the Experimental Organic Chemistry II classes.

Assuntos Gerais

- 186 Os químicos ocultos e sua extraordinária jornada ao mundo dos átomos
Lediany Forostecki e Ourides Santin Filho



Graphical Abstract

At the end of the 19th century, a group named Occult Chemists suggested that they could “see” atoms by clairvoyance. They devised the structure of an “ultimate physical atom” (the *anu*), that enters in the composition of all substances and predicted the existence of isotopes.

Errata

- 194 The use of Rich and Suter diagrams to explain the electron configurations of transition elements
Hugo Orofino, Sergio P. Machado e Roberto B. Faria