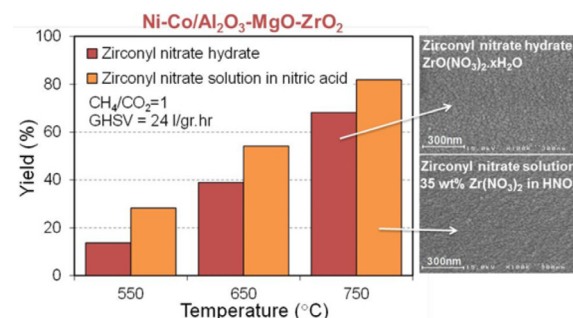
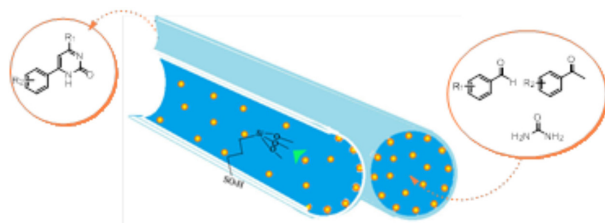


- 459 Syngas production from CO₂-reforming of CH₄ over sol-gel synthesized Ni-Co/Al₂O₃-MgO-ZrO₂ nanocatalyst: effect of ZrO₂ precursor on catalyst properties and performance
Seyed M. Sajjadi, Mohammad Haghighi and Farhad Rahmani



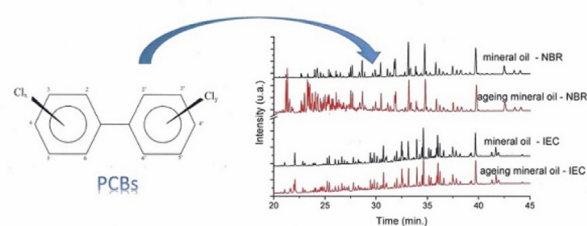
Effect of ZrO₂ precursor on product yield at different temperatures.

- 466 Application of sulfonic acid functionalized nanoporous silica (SBA-Pr-SO₃H) for the preparation of 4,6-diarylpyrimidin-2(1H)-ones
Ghodsi M. Ziarani, Masoumeh Azizi, Parvin Hajiabbasi and Alireza Badiie



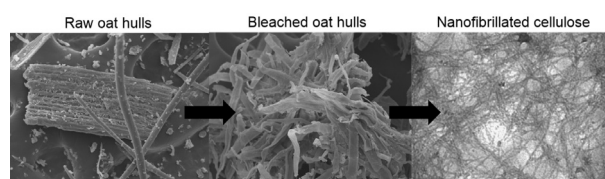
The Biginelli-type reaction between various aldehydes, acetophenones and urea in the presence of sulfonic acid functionalized silica (SBA-Pr-SO₃H) under solvent-free conditions produced 4,6-diarylpyrimidin-2(1H)-ones derivatives at good yields.

- 471 Avaliação das normas de ensaio aplicadas na quantificação de PCBs em óleo isolante
Kassia dos Santos, Heloisa N. da Motta, Erick A. Campos, Joseane V. Gulmine e Marilda Munaro



This work identified the inefficiency in the analytical methods presented in standards ABNT NBR 13882 and IEC 61619 in the insulating oil analysis, and highlights potential failures that generated discrepancies on quantification of polychlorinated biphenyls (PCBs).

- 478 Isolation and characterization of nanofibrillated cellulose from oat hulls
Giovanni B. Paschoal, Carmen M. O. Muller, Gizilene M. Carvalho, Cesar A. Tischer and Suzana Mali

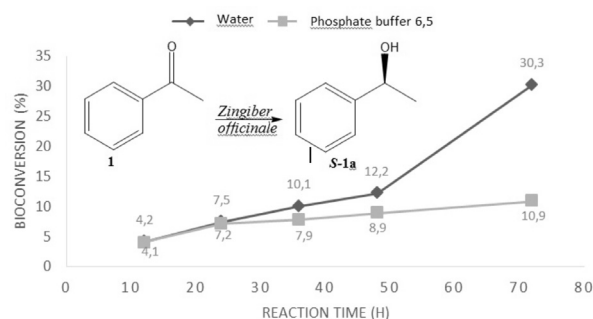


Raw oat hulls were bleached with peracetic acid and then submitted to acid hydrolysis resulting in nanofibrillated cellulose, which showed an aspect of interconnected webs of tiny nanofibers with diameters of 70-100 nm and lengths of several micrometers.

483 *Zingiber officinale* (gengibre) como fonte enzimática na redução de compostos carbonílicos

Leonardo A. Alves, Luciana M. Bertini, Ayla M. C. Bizerra, Marcos C. de Mattos, Francisco J. Q. Monte e Telma L. G. Lemos

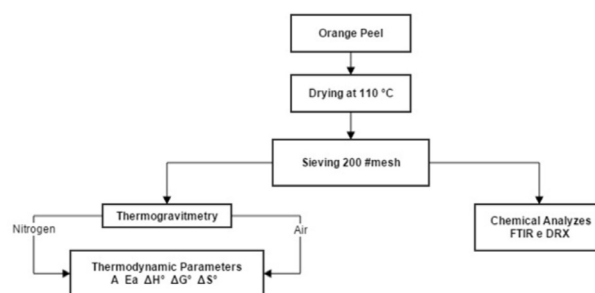
Several vegetables were evaluated as biocatalysts for the reduction of ketones. *Z. officinale* presented the best results with the formation of an alcohol configuration.



488 Parâmetros termodinâmicos da casca de laranja desidratada

Carolina M. Santos e Leandro C. de Moraes

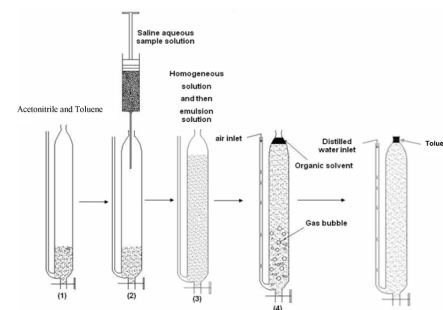
The thermodynamic parameters obtained by thermogravimetry in inert and oxidizing atmosphere of dry orange peel were analyzed and compared in order to generate data for the discussion of potential applications of this material as a biofuel.



493 Rapid and sensitive determination of palladium using homogeneous liquid-liquid microextraction via flotation assistance followed by graphite furnace atomic absorption spectrometry

Mohammad Rezaee, Reyhaneh Shadaniyan, Majid H. Hosseini and Faezeh Khalilian

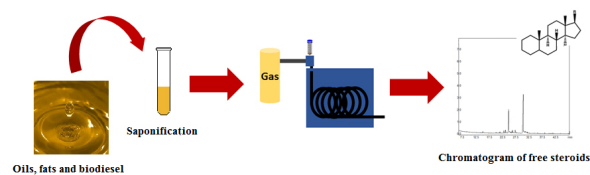
A method for the determination of trace amounts of palladium was developed using homogeneous liquid-liquid microextraction via flotation assistance followed by graphite furnace atomic absorption spectrometry.



498 Análise comparativa do conteúdo em esteroides livres de diferentes óleos, gorduras e biodieseis por cromatografia gasosa

Kelly da S. Bezerra e Nelson R. Antoniosi Filho

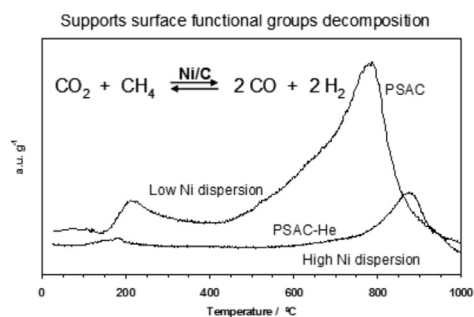
The content from the unsaponifiable fraction of different fats and oils used as feedstock for biodiesel production was determined. The separation and identification of free steroid present in these samples was performed by gas chromatography.



- 506 Methane dry reforming over Ni supported on pine sawdust activated carbon: effects of support surface properties and metal loading

Rafael García, Gabriela Soto, Néstor Escalona, Catherine Sepúlveda, María J. Orellana, Natalia Morales, Ljubisa R. Radovic, Robison Buitrago-Sierra, Francisco Rodriguez-Reinoso and Antonio Sepúlveda-Escribano

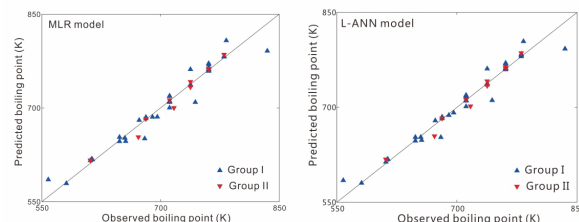
The lower diversity and concentration of oxygenated surface functional groups in the PSAC-He support led to higher methane conversion on Ni pine sawdust activated carbon catalyst, due to their high Ni dispersion.



- 510 Predicting the boiling point of PCDD/Fs by the QSPR method based on the molecular distance-edge vector index

Long Jiao, Xiaofei Wang, Shan Bing, Zhiwei Xue and Hua Li

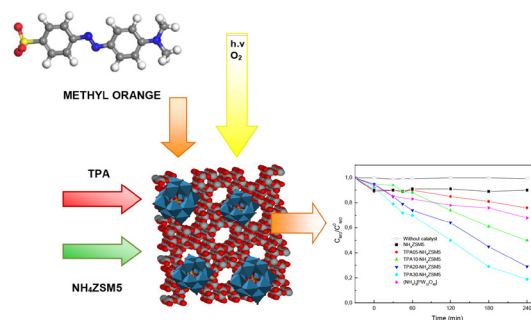
A QSPR study on the boiling point of PCDD/Fs based on the molecular distance-edge vector index was conducted. The boiling point of each PCDD/F congener was predicted by the established QSPR model.



- 518 Tungstophosphoric acid heterogenized onto NH₄ZSM5 as an efficient and recyclable catalyst for the photocatalytic degradation of dyes

Candelaria L. Marchena, Silvina Gomez, Clara Saux, Liliana B. Pierella and Luis R. Pizzio

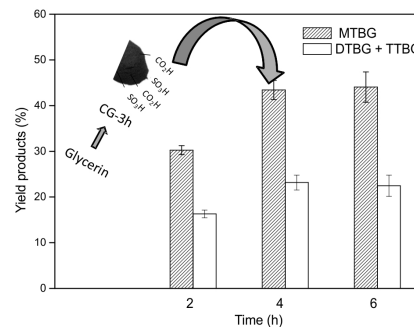
TPA immobilized over NH₄ZSM5 zeolites were prepared by wet impregnation. E_g values of NH₄ZSM5TPA samples were similar to those reported for TiO₂ and irradiated NH₄ZSM5TPA samples efficiently degraded methyl orange solutions.



- 526 Aproveitamento de resíduo de biodiesel para preparação de carvões ácidos com elevada atividade catalítica na reação de esterificação do glicerol

Michelle Mantovani, Erik M. Aguiar, Wagner A. Carvalho, Dalmo Mandelli e Maraisa Gonçalves

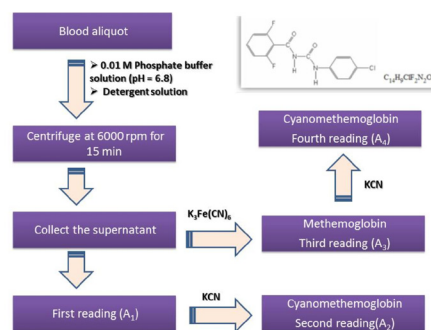
Preparation of acid carbon from glycerin waste and its utilization as a catalyst for the production of oxygenated products from the etherification reaction.



533 Adaptação da metodologia de análise de metemoglobina como biomarcador de efeito da exposição ao agrotóxico diflubenzuron

Cristiane Barata-Silva, Tatyane P. dos Santos, Adherlene V. Gouvêa, Ariane L. Larentis, Josino C. Moreira e Paula N. Sarcinelli

This work aimed to adapt the analysis of methemoglobin recommended by Evelyn - Malloy (visible spectrophotometry), in order to facilitate its application in the field, or to analysis in clinical laboratory, of existing sites of diflubenzuron application.

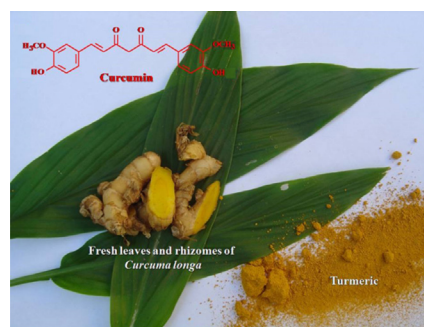


Revisão

538 Curcumina, o pó dourado do açafrão-da-terra: introspecções sobre química e atividades biológicas

Vitor Sueth-Santiago, Gustavo P. Mendes-Silva, Débora Decoté-Ricardo e Marco E. F. de Lima

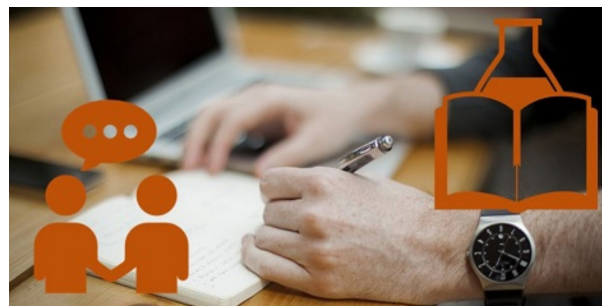
Curcumin, isolated from the dried rhizomes of *Curcuma longa* (Zingiberaceae), is a golden colored derivative present in turmeric. Since its structural elucidation, several studies have been published on the biological activities exhibited by curcumin, particularly its chemotherapeutic properties.



553 Comunicação científica no ensino superior de química: uma revisão

Jane R. S. de Oliveira e Salete L. Queiroz

The importance and value of teaching scientific communication skills in undergraduate chemistry courses.

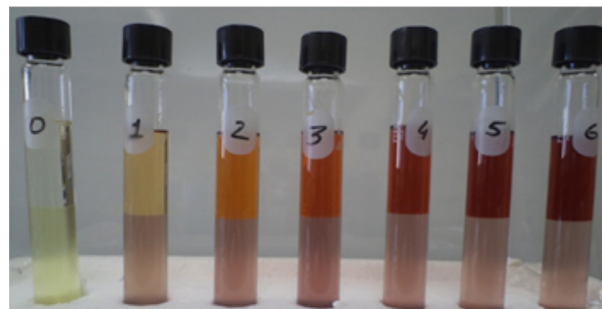


Nota Técnica

563 Determinação do teor de biodiesel em diesel empregando o ensaio colorimétrico do ácido hidroxâmico

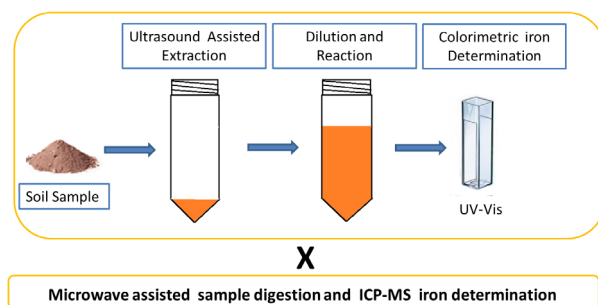
Roberta P. M. da Costa, Thaiane C. Khalil, Amanda P. F. dos Santos, Débora F. de Andrade e Luiz A. d'Avila

Color scale sample of biodiesel in diesel (B0 to B6), obtained by colorimetric assay for hydroxamic acid.



- 570 Extração assistida por ultrassom para determinação colorimétrica de ferro em solo: uma comparação com espectrometria de massa com plasma indutivamente acoplado

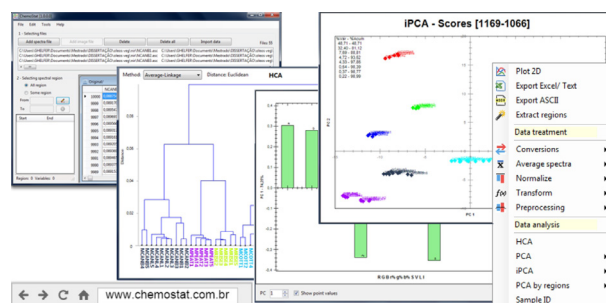
Paula C. de Freitas, Rui M. de Carvalho, Jesse S. A. Silva, Thiago Prado, Elis R. Duarte, Vera L. A. Frescura e Eduardo S. Chaves



Ultrasound-assisted extraction and iron colorimetric determination in soils: A comparison with ICP-MS.

- 575 Chemostat, um software gratuito para análise exploratória de dados multivariados

Gilson A. Helfer, Fernanda Bock, Luciano Marder, João C. Furtado, Adilson B. da Costa e Marco F. Ferrão

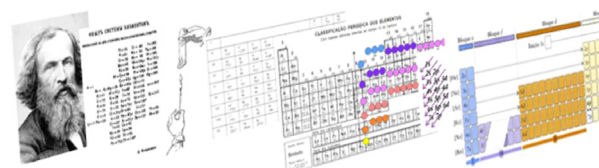


Chemostat: free exploratory multivariate data analysis software and web tool.

Educação

- 580 Análise da abordagem histórica para a tabela periódica em livros de Química Geral para o Ensino Superior usados no Brasil no século XX

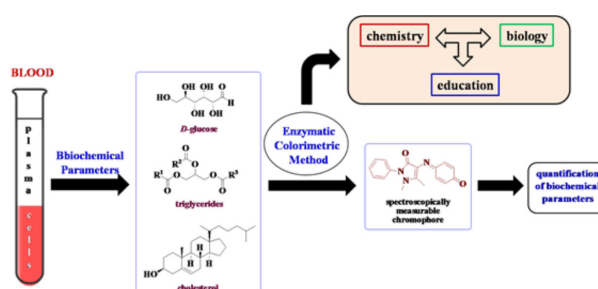
Helena S. A. Leite e Paulo A. Porto



In the twentieth century, the periodic table was presented in general chemistry textbooks in different ways: from more descriptive approaches to emphasis on attempts to explain the periodic table in terms of atomic orbitals.

- 588 Bioorganic concepts involved in the determination of glucose, cholesterol and triglycerides in plasma using the enzymatic colorimetric method

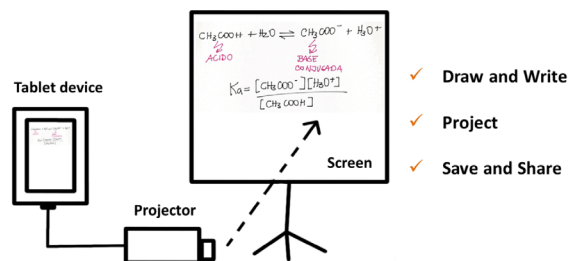
Fabício G. Menezes, Ana C. O. Neves, Djalán F. de Lima, Sheeza D. Lourenço, Lilian C. da Silva and Kássio M. G. de Lima



A proposal based on biochemical analyses by the enzymatic colorimetric method was found to be highly motivating for undergraduates because of the multidisciplinary theoretical context involved and the possibility of experimental activity.

595 Innovative use of a tablet device to deliver instruction in undergraduate chemistry lectures

Gonzalo A. Jaña, Wilson Cardona and Verónica A. Jiménez



A tablet device was used to project digitally handwritten annotations to deliver instruction in undergraduate chemistry lectures.

Assuntos Gerais

599 The role of nanomaterials in cosmetics: national and international legislative aspects

Adriana Melo, Marcela S. Amadeu, Marcelo Lancellotti, Luciana M^a de Hollanda and Daisy Machado

Nanomaterials is one of the fastest growing scientific fields, including in cosmetics. Therefore, it is necessary to know and understand the national and international legislation controlling products containing nanomaterials.