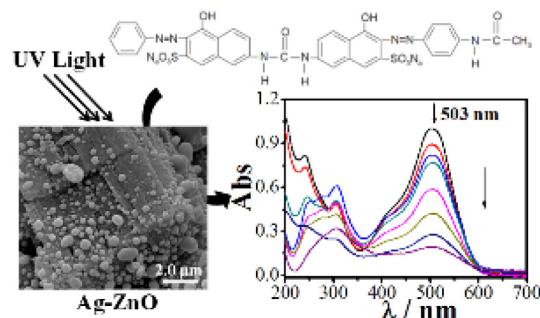


- 409 ZnO and Ag-ZnO crystals: synthesis, characterization, and application in heterogeneous photocatalysis

Adriana C. Lucilha, Marcelo R. da Silva, Rômulo A. Ando, Luiz H. Dall'Antonia and Keiko Takashima

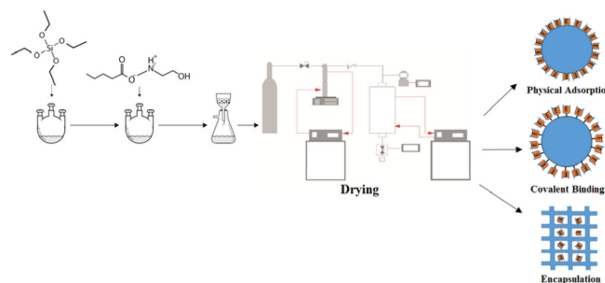
ZnO surface modification by the addition of silver was efficient in the photocatalytic decolorization of the DR23 diazo dye, due to silver's ability to inhibit recombination of charge carriers, photogenerated on the oxide surface.



- 415 The novel mesoporous silica aerogel modified with protic ionic liquid for lipase immobilization

Anderson S. Barbosa, Jessica A. Lisboa, Matheus A. O. Silva, Nayára B. Carvalho, Matheus M. Pereira, Alini T. Fricks, Silvana Mattedi, Álvaro S. Lima, Elton Franceschi and Cleide M. F. Soares

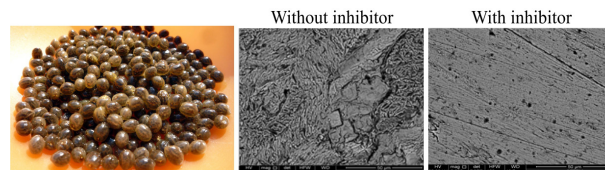
Lipase from *Burkholderia cepacia* immobilized into or onto silica support modified with protic ionic liquid and dried in pressurized media (aerogel) shows promising potential for industrial applications in the hydrolysis of vegetable oils.



- 423 Ação inibidora de extratos da semente do mamão papaia na corrosão do aço-carbono 1020 em HCl 1 mol L<sup>-1</sup>

Vanessa V. Torres, Gabriela B. Cabral, Ana C. G. da Silva, Kelly C. R. Ferreira e Eliane D'Elia

The effect of papaya seed extracts on the corrosion of carbon steel in 1 mol L<sup>-1</sup> HCl was examined using polarization curves, impedance measurements, and weight loss measurements.



- 431 Efeito da ativação química nas propriedades de superfície de xisto retornado

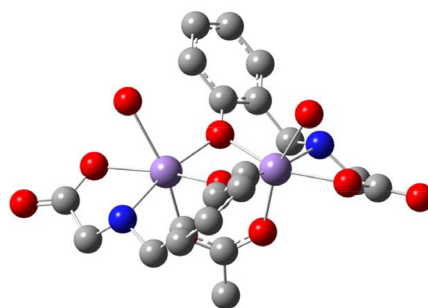
Marta E. Doumer, Gilberto Abate, Iara Messerschmidt, Livia M. Assis, Rosane Martinazzo e Carlos A. P. Silveira

The functionalization of an industrial oil shale by-product increased the cation exchange capacity of the material for use in enhancing soil properties and improving soil fertility.



- 437 Estudo teórico de complexos binucleares de manganês(II) com o ligante 2-hidroxibenzilglicina, possíveis miméticos para a catecol oxidase

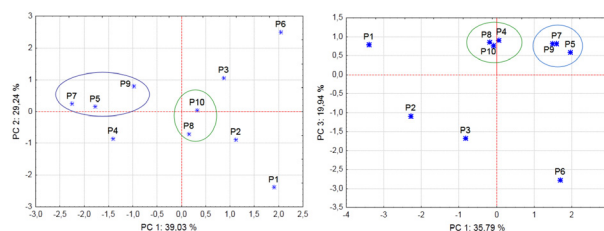
Everton T. da Silva, Annelise Casellato e Sérgio de P. Machado



This work shows the theoretical study of binuclear complexes of  $Mn^{2+}$  ion with the 2-hydroxybenzylglycine ligand and its substituted derivatives, aiming to evaluate their possible activities as mimetic for catechol oxidase.

- 442 Determinação de metais em água e folha de *Aechmea blanchetiana* (Baker) L.B

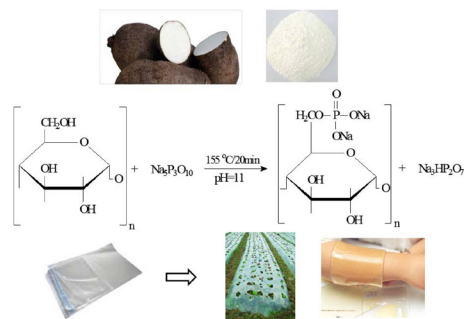
Jaline R. Ribeiro, Sergio Siqueira, Cleber G. Novaes e João H. Santos Neto



The assessment of water and leaf of bromeliad (*Aechmea blanchetiana*) showed similar behavior in almost all evaluated points.

- 450 Elaboração e caracterização de blendas de amido fosforilado com quitosana e PVA

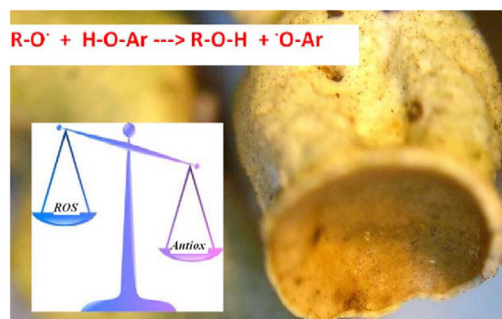
Paloma L. da Silva, Anida M. M. Gomes, Nágila M. P. S. Ricardo e Terezinha F. Machado



Representative image of the study using the phosphorylated yam starch for the preparation of plastic films with good properties for using as mulchings and / or dressings.

- 456 Actividad antioxidante de los polifenoles de *Hypogymnia tavaresii* D. Hawksw. & P. James

Elsa M. Rodríguez Pérez, Francisco J. Toledo Marante, Josefa Caballero Hernández, Jaime Bermejo Barrera y Francisco J. Estevez Rosas

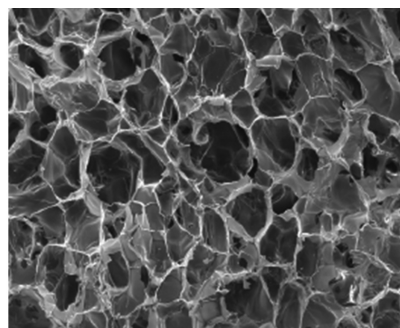


Lichens synthesize a great variety of metabolites with different structures and potential antioxidant activities. Unsurprisingly, the large pharmaceutical companies have initiated programs for the application of these metabolites in medicines using a multitude of modern biotests.

- 462 3D nanocomposite chitosan/bioactive glass scaffolds obtained using two different routes: an evaluation of the porous structure and mechanical properties

*Elke M. F. Lemos, Patrícia S. O. Patrício e Marivalda M. Pereira*

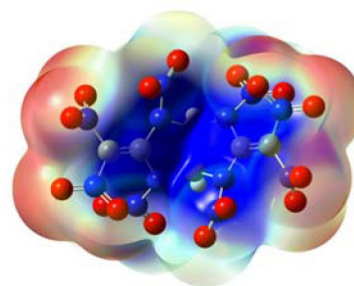
Nanocomposite scaffolds in the Chitosan/PVA/Bioactive glass system obtained were highly porous (> 64%), exhibiting a cellular microstructure with interconnected pores in the 50-227  $\mu\text{m}$  range, and thin walls.



- 467 Computational study on structure and properties of new energetic material 3,7-bis(dinitromethylene)-2,4,6,8-tetranitro-2,4,6,8-tetraaza-bicyclo[3.3.0]octane

*Xinghui Jin, Jianhua Zhou, Shijie Wang and Bingcheng Hu*

A new high-energy density material (HEDM) 3,7-bis(dinitromethylene)-2,4,6,8-tetranitro-2,4,6,8-tetraaza-bicyclo[3.3.0]octane was designed, and its physical and chemical properties were fully studied by density functional theory (DFT) method at B3LYP/6-31G (d,p) level.

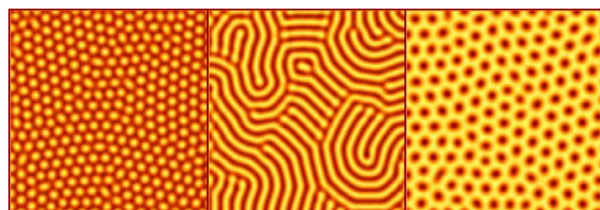


## Revisão

- 474 Padrões de Turing em sistemas químicos

*Raphael Nagao e Hamilton Varela*

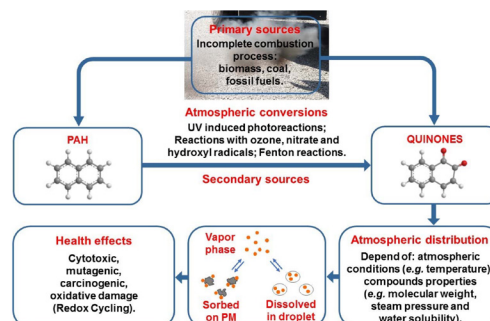
The emergence of self-organized structures in chemical systems kept under far from equilibrium can be described by the coupling between nonlinear kinetics and diffusive processes.



- 486 Fontes, formação, reatividade e determinação de quinonas na atmosfera

*Eliane T. Sousa, Wilson A. Lopes e Jailson B. de Andrade*

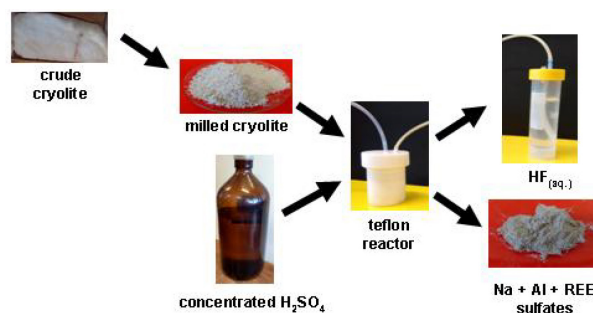
Schematic representation of quinones sources, their behavior, paths in the atmosphere and effects on health.



## Nota Técnica

- 496 Evaluation of cryolite from pitinga (Amazonas-Brazil) as a source of hydrogen fluoride

Jéssica F. Paulino, Reiner Neumann e Júlio C. Afonso



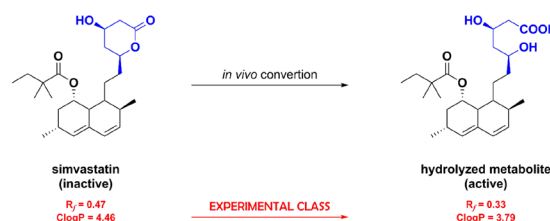
Production of high purity grade hydrogen fluoride from cryolite.

## Educação

- 502 Entendendo o processo químico de bioativação da simvastatina por métodos experimentais e computacionais: uma aula prática

Maurício T. Tavares, Marina C. Primi, Camila F. de Carvalho, Michelle C. Polli e Roberto Parise-Filho

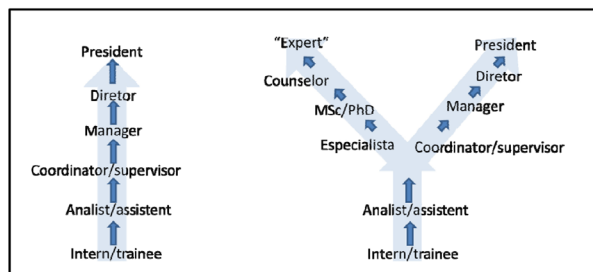
**Is there any significant change on physicochemical profile of active metabolites?**



An alternative and playful practical class integrating experimental and *in silico* approaches for medicinal chemistry learning process.

- 507 Formando um perfil profissional para uma carreira de sucesso na indústria

Aluir Purceno, Matheus Duarte, Luiz C. de M. Costa, Simone P. Bueno, Guilherme Gomes e Rochel M. Lago



In this work, chemists with experience in different areas of industry and academy raised some important issues in career planning to help undergraduate chemistry students to get prepared for the future professional life.

- 513 Licenciandos em química e argumentação científica: tendências nas ações discursivas em sala de aula

Ariane B. Lourenço, Jerino Q. Ferreira e Salete L. Queiroz

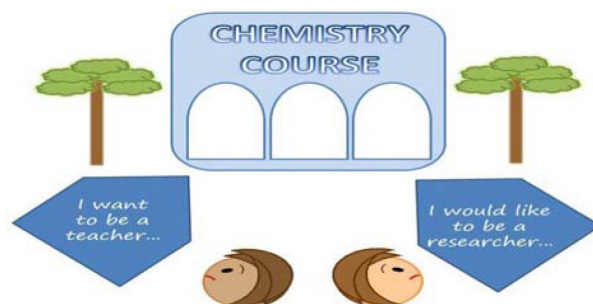


Examining the nature of discourse actions of pre-service chemistry teachers in order to allow the students to construct arguments.

522 Perfil e perspectivas de estudantes do curso de licenciatura em química da UEPG

*Tathiane Milaré e Patrícia Los Weinert*

The main result of study on the profile and expectations indicated that students in Chemistry in University of Ponta Grossa, Paraná, Brazil, would like be a teacher or continue their studies in post-graduation.



## Assuntos Gerais

530 Unremitting problems with chlorogenic acid Nomenclature:  
A review

*Daniel Kreml, Tomáš Bajer, Petra Bajerová, Silvie Surmová and Karel Ventura*

According to the IUPAC, the term *chlorogenic acid* should be used for 5-caffeoylquinic acid and NOT for 3-caffeoylquinic acid.

