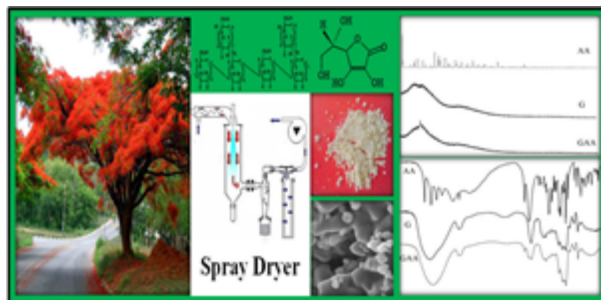


- 877 Encapsulação do ácido L-ascórbico no biopolímero natural galactomanana por *spray-drying*: preparação, caracterização e atividade antioxidante

Carlos A. G. de Souza, Sônia M. C. Siqueira, Antônio F. V. de Amorim, Selene M. de Moraes, Tamara Gonçalves, Rayane N. Gomes, Arcelina P. Cunha e Nágila M. P. S. Ricardo

The spray drying method was used to microencapsulate ascorbic acid with galactomannan—an extract obtained from *Delonix regia* seeds. The microparticles were characterized and evaluated to determine their potential application as an antioxidant.



- 884 Evaluation of a buffered solid phase dispersion procedure adapted for pesticide analyses in the soil matrix

Ana M. Domínguez, Mario Funes, Ximena Fadic, Fabian Placencia, Francisco Cereceda and Juan P. Muñoz

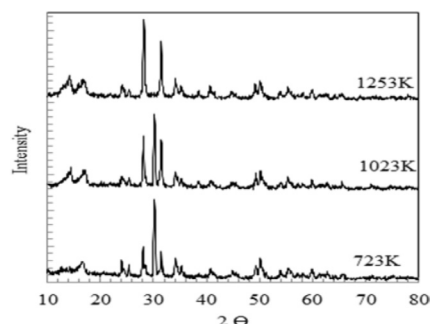
Concentrations of pesticides in the soil, such as trifluralin, simazine, iprodione, azinphos-methyl, dimethoate, and permethrin, as well as persistent 4,4'-DDT and its degradation product 4,4'-DDE, can be determined using a citrate-buffered QuEChERS methodology.



- 891 Kinetic study of selective gas-phase oxidation of isopropanol to acetone using monoclinic ZrO_2 as a catalyst

Mohammad Sadiq, Muhammad Ali, Razia Aman, Haroon Ur Rashid and Muhammad N. Umar

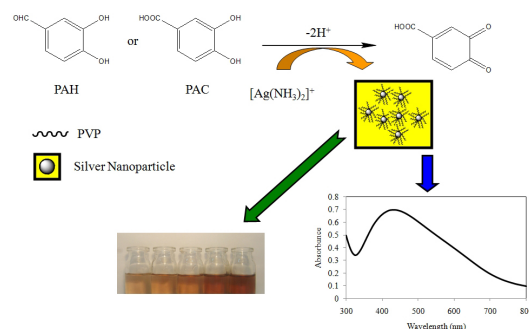
The XRD patterns obtained for the zirconia sample show that at lower temperatures, zirconia was present in tetragonal phase, whereas at higher temperatures, it exhibits a purely monoclinic phase. Zirconia calcined at 1023 K was, however, a blend of both phases.



- 896 Simultaneous determination of protocatechuic aldehyde and protocatechuic acid using the localized surface plasmon resonance peak of silver nanoparticles and chemometric methods

Javad Khodaveisi, Ali M. H. Shabani, Shayessteh Dadfarnia, Masoud R. Moghadam and Mohammad R. Hormozi-Nezhad

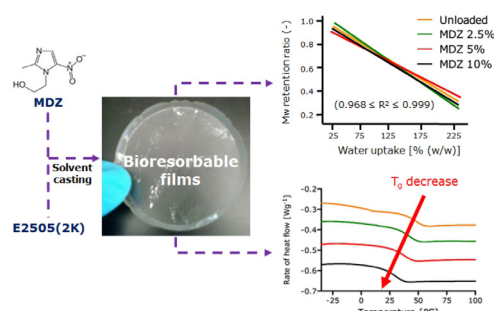
A kinetic spectrophotometric method has been developed for the simultaneous determination of PAC and PAH. The method is based on the difference in the kinetic rates of reactions of the analytes with silver nitrate in the presence of polyvinylpyrrolidone for producing silver nanoparticles.



902 Preliminary development of a moisture-activated bioresorbable polymeric platform for drug delivery

Renê O. do Couto, Sven D. Sommerfeld, Koustubh Dube, Osvaldo de Freitas and Joachim Kohn

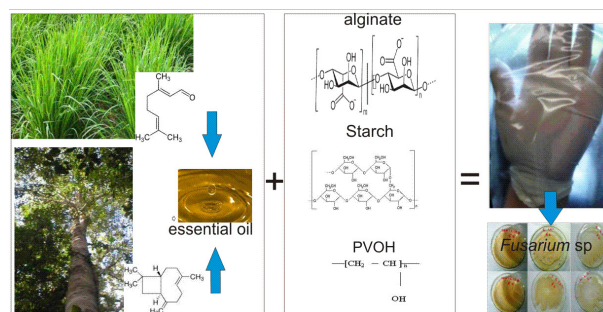
Bioresorbable films were prepared using the tyrosine-derived polycarbonate E2505(2K) and metronidazole (MDZ) as the model drug. The water uptake correlated with the polymer degradation. MDZ exerted a remarkable plasticizing effect on the polymer.



910 Microestrutura e propriedades de filmes de amido-álcool polivinílico-alginato adicionados de óleos essenciais de copaíba e capim limão

Renata P. H. Brandelero, Fábio M. de Almeida e Alexandre Alfaro

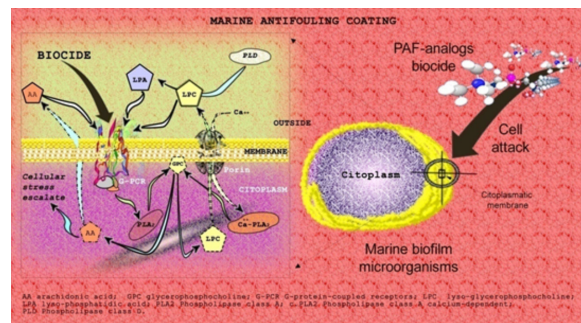
Biodegradable films were obtained from a ternary mixture of starch-polyvinyl alcohol-alginate with lemongrass and copaiba oils (a tree in the Amazonian forest). The biofilms obtained were transparent and enhanced the development of a *Fusarium* sp. culture.



917 Glicerofosfolípidios sintéticos para uso como aditivo biocida em tintas anti-incrustante

William R. Batista, Maria H. C. B. Neves, Ricardo Coutinho, Cláudio C. Lopes e Rosângela S. C. Lopes

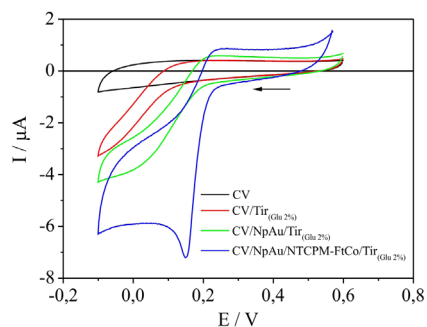
The use of glycerophospholipids PAF-analogs as an antifouling biocide was investigated. The possible mechanism of cellular signaling is promoted by a biocidal attack against components of the cytoplasmic membrane in the microorganism precursors of marine biofilms.



924 Biossensor eletroquímico baseado na enzima tirosinase para a determinação de fenol em efluentes

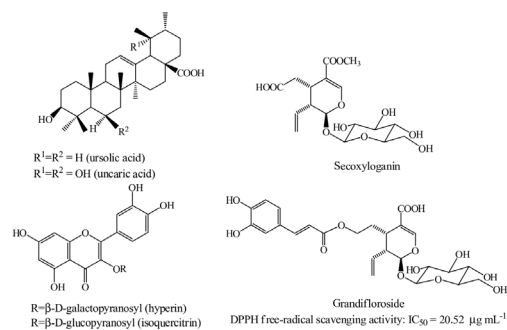
Dejane P. C. de Oliveira, Francisco W. P. Ribeiro, Helena Becker, Pedro Lima-Neto e Adriana N. Correia

Voltammetric behavior for $5.21 \times 10^{-5} \text{ mol L}^{-1}$ phenol in a phosphate buffer of pH 7.0 at GCE, GCE/Tir_(Glu 2%), GCE/NpAu/Tir_(Glu 2%), and GCE/NpAu/NTCPM-FtCo/Tir_(Glu 2%).



- 932 Chemical constituents, anti-inflammatory, and free-radical scavenging activities of *Guettarda viburnoides* Cham. & Schltdl. (Rubiaceae)

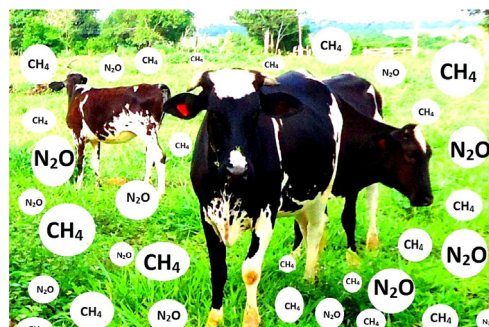
M^a Augusta Naressi, Daniele D. Manholer, Franciele Q. Ames, Ciomar A. Bersani-Amado, Anelise S. N. Formagio, Zefa V. Pereira, Willian F. da Costa, Debora C. Baldoqui and M^a Helena Sarraiotto



Chemical constituents were isolated from *Guettarda viburnoides*. The DPPH free-radical scavenging activity of grandifloroside is reported here for the first time.

- 937 Emissões de óxido nitroso e metano do solo em áreas de recuperação de pastagens na Amazônia matogrossense

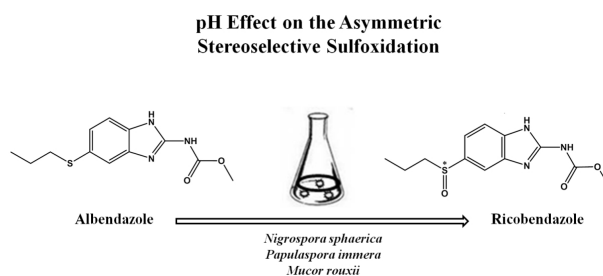
Anna K. da S. Nogueira, Renato de A. R. Rodrigues, Bruno S. Castro, Thiago F. Nogueira, Jacqueline J. N. da Silva, Maurel Behling, Mircéia Mombach, Natassia Armacolo e Júlia G. Silveira



Representation of the N₂O and CH₄ fluxes from the soil to the atmosphere in pastures.

- 944 Asymmetric sulfoxidation of albendazole to ricobendazole by fungi: effect of pH

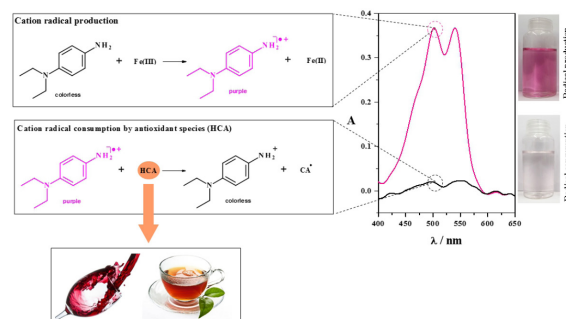
Thiago Barth, Viviane C. Hilário, Bruno A. Rocha, Nieve A. J. C. Furtado, Mônica T. Pupo and Anderson R. M. de Oliveira



pH effect on the asymmetric stereoselective sulfoxidation of Albendazole into Ricobendazole by employing the fungi *Nigrospora sphaerica*, *Papulaspora immersa* Hotson, and *Mucor rouxii*.

- 948 Avaliação do radical *N,N*-dietil-1,4-fenilenodiamino (DEPD^{•+}) como sonda espectrofotométrica para determinação da capacidade antioxidante em bebidas

Rosicleide V. dos Santos, Allysson R. B. de Lima, Paulo C. C. de Oliveira, Isis M. Figueiredo e Josué C. C. Santos

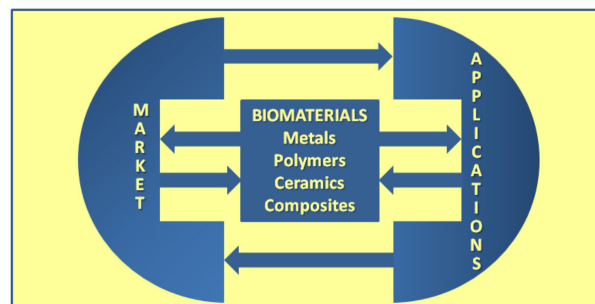


Aspectrophotometric method that determines antioxidant capacities in beverages (wines, teas and infusions) was explored. It was evaluated cation radical production from the oxidation of aromatic amine by Fe(III) ions at pH 4.0 leads to a corresponding reactive purple cation radical DEPDP^{•+} (λ_{max} = 500 and 540 nm).

Revisão

957 Biomateriais: tipos, aplicações e mercado

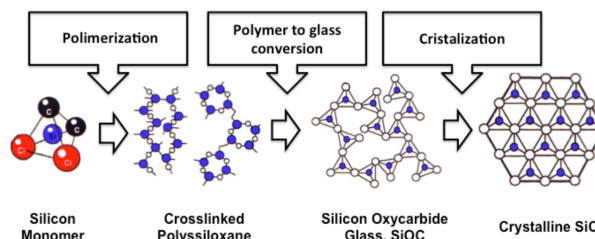
Ana L. R. Pires, Andréa C. K. Bierhalz e Ângela M. Moraes



Biomaterials: the close relationships of complementary and feedback nature regarding types, forms of application, and markets.

972 Vidros de oxycarbeto de silício obtidos a partir de polissiloxanos

Marco A. Schiavon, Jefferson L. Ferrari, Mirabbos Hojamberdiev e Inez V. P. Yoshida



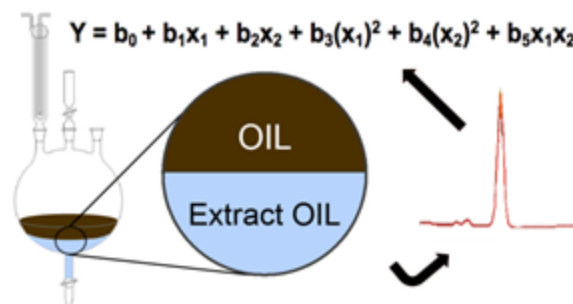
Silicon oxycarbide glasses are a class of amorphous materials with a similar silica glass structure, in which oxygen atoms are partially replaced by carbon atoms. They are easily prepared through the pyrolysis of cross-linked polysiloxanes and they can also generate crystalline SiC.

Nota Técnica

980 Análise exploratória das concentrações dos metais Na, Ca, Mg, Sr e Fe em extrato aquoso de petróleo, determinados por ICP OES, após otimização empregando planejamento de experimentos

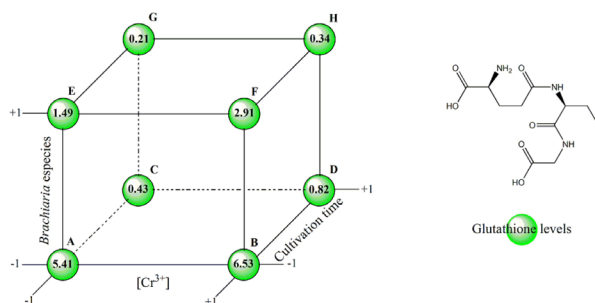
Murilo de O. Souza, Karla P. Rainha, Eustáquio V. R. Castro, M^a Tereza W. D. Carneiro e Rafael de Q. Ferreira

The purpose of this study was to evaluate the best operating conditions of ICP OES for the determination of Na, Ca, Mg, Sr and Fe in aqueous extract of crude oil. Subsequently, the aqueous extract of crude oil was classified using exploratory analysis.



987 A factorial design applied to the study of chromium toxicity on the glutathione levels of *Brachiaria brizantha* and *Brachiaria ruziziensis* seedlings

Rafael Marques, Marcone A. L. de Oliveira, Cassia R. G. dos Reis, Maurício M. Köpp and Leônidas P. Passos

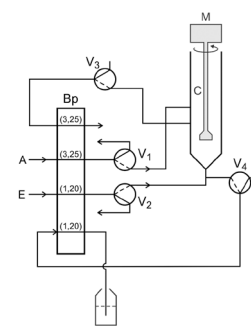


In this study, a 2³ factorial design was applied in the evaluation of glutathione levels in *Brachiaria* plants under oxidative stress caused by Cr³⁺.

- 992 Dispositivo para extração líquido-líquido em sistemas de análises em fluxo

Vitória R. B. Soares, Fábio R. P. Rocha, Boaventura F. Reis
e Leonardo S. G. Teixeira

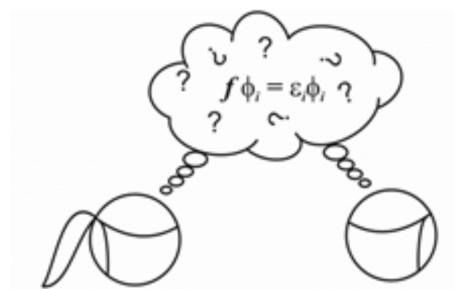
A new device is presented for the mechanization of liquid-liquid extractions, which couples a lab-made cell with mechanical stirring to a flow manifold assembled with solenoid valves. The sample and extractant volumes, the stirring time, and the resting time can be defined by the control software.



Educação

- 995 Uma forma simplificada de deduzir as equações de Hartree e Hartree-Fock

Rogério Custodio



Is it possible to obtain Hartree and Hartree-Fock equations via a simpler approach?

Assuntos Gerais

- 1002 Thomé Rodrigues Sobral (1759-1829) e a virtude febrífuga de um grande número de quinas

Antônio M. A. Costa

The chemical analysis of the Brazilian plant, known as *Mil-Homens*, was performed in 1814 by Rodrigues Sobral (1759-1829) at the Chemical Laboratory of the University of Coimbra. Sobral's opinion was that the febrifuge power exhibited by the infusions of *Mil-Homens* can be ascribed to a new compound formed by interactions of the plant's original chemical components.

