

Relação de Trabalhos publicados em Periódicos

1)

Título:

AZOBENZENE-MODIFIED OXYGEN-FED GRAPHITE/PTFE ELECTRODES FOR HYDROGEN PEROXIDE SYNTHESIS

Período:

12/2008

Aluno(a):

Juliana Andrade Nunes

Orientador(a):

Marcos R. V. Lanza

Resumo:

The performance of a catalyzed H₂O₂ electrogeneration process using a modified oxygen-fed graphite/PTFE electrode is reported. The organic redox catalyst chosen for incorporation into the graphitic mass was azobenzene. The yield of the hydrogen peroxide is related to the applied potential and to azobenzene concentration. Modification of the gas diffusion electrode with azobenzene improved hydrogen peroxide production, and the overpotential for oxygen reduction was shifted to less negative values compared to the performance of a non-catalyzed electrode, indicating that these modified electrodes have good electro-activity.

Referência:

Journal of Applied Electrochemistry, v. 37, n.1, p. 527 - 532, 2008.

2)

Título:

EFFECTS OF THE MODIFICATION OF GAS DIFFUSION ELECTRODES BY ORGANIC REDOX CATALYSTS FOR HYDROGEN PEROXIDE ELECTROSYNTHESIS

Período:

12/2008

Aluno(a):

Cristiane Eloiza venâncio

Orientador(a):

Marcos R. V. Lanza

Resumo:

This paper reports a comparative study of the electrochemical performance of *in situ* hydrogen peroxide electrogeneration on gas diffusion electrodes modified by organic redox catalysts 2-ethylanthraquinone, 2-terc-butylanthraquinone and azobenzene. Tests were done in acidic medium. Hydrogen peroxide generation proved strongly dependent on the applied potential and on the concentration of added catalysts. Electrode modifications led to a significant increase in H₂O₂ yield, and the overpotential for oxygen reduction shifted to less negative values compared to noncatalyzed gas diffusion electrodes, resulting in reduced energy consumption. The results indicated that the best electrode for H₂O₂ electrogeneration is the gas diffusion electrode modified with 10% of 2-ethylanthraquinone, offering the best cost to benefit ratio.

Referência:

Journal of the Brazilian Chemical Society. v. 19, n. 4, p. 643 - 650, 2008.

3)

Título:

IRON TETRAPYRIDINOPORPHYRAZINE AS A BIOMIMETIC CATALYST OF THE P450 ENZYME IN THE PARACETAMOL DETERMINATION: CONSTRUCTION AND APPLICATION OF AN ELECTROCHEMICAL SENSOR

Período:

12/2008

Aluno(a):

Anderson Sigoli

Orientador(a):

Marcos R. V. Lanza

Resumo:

This work describes the construction and application of a biomimetic sensor for paracetamol determination in different samples. The sensor was prepared by modifying a glassy carbon electrode surface with a Nafion® membrane doped with FeTPyPz. The best performance of the sensor in 0.1 mol L⁻¹ acetate buffer was at pH 3.6. Under these conditions, an oxidation potential of paracetamol was observed at 445 mV vs. Ag|AgCl. The sensor presented a linear response range between 4.0 and 420 µmol L⁻¹, a sensitivity of 46.015 mA L mol⁻¹ cm⁻², quantification and detection limits of 4.0 µmol L⁻¹ and 1.2 µmol L⁻¹, respectively. A detailed investigation about its electrochemical behavior and selectivity was carried out. The results suggested that FeTPyPz presents catalytic properties similar to P450 enzyme for paracetamol oxidation. Finally, the sensor was applied for paracetamol determination in commercial drugs and for the monitoring of its degradation in an electrochemical batch reactor effluent.

Referência:

Journal of the Brazilian Chemical Society. v. 19, n. 4, p. 734 - 743, 2008.

4)

Título:

ELECTROCHEMICAL SENSOR HIGHLY SELECTIVE FOR ESTRADIOL VALERATE DETERMINATION BASED ON A MODIFIED CARBON PASTE WITH IRON TETRAPYRIDINOPORPHYRAZINE

Período:

12/2008

Aluno(a):

Isabelle Gonçalves Vidal

Orientador(a):

Marcos R. V. Lanza

Resumo:

This work reports the use of iron tetrapyrroline (FeTPyPz) as a highly selective catalyst in the construction of an electrochemical sensor for estradiol valerate (EV) determination. The sensor was prepared by modifying a carbon paste with FeTPyPz. The best results were obtained in a mixture of acetonitrile (MeCN) and 0.1 mol L⁻¹ phosphate buffer solution (pH 6.0) in a volume ratio of 47:53. A linear response range was observed between 45 and 450 μmol L⁻¹ with a sensitivity of 12160±306 μAL mol⁻¹ and quantification and detection limits of 45 and 13 μmol L⁻¹, respectively. The repeatability, expressed as the relative standard deviation (RSD) for n = 10, was 5.9% ([EV] = 50 μmol L⁻¹). The reproducibility (RSD) for the sensor construction was better than 4% and the operational stability (RSD) over 50 measurements was 1.8%. A detailed investigation regarding the selectivity and electrochemical characteristics was carried out. Finally, in a first step to evaluate the application potential of the sensor, it was successfully applied to determine EV in a commercial formulation.

Referência:

The Analyst. v. 133, p. 1692 - 1699, 2008

5)

Título:

EFFECTS OF MICROINJECTIONS OF APOMORPHINE AND HALOPERIDOL INTO THE INFERIOR COLLICULUS ON THE LATENT INHIBITION OF THE CONDITIONED EMOTIONAL RESPONSE

Período:

12/2008

Aluno(a):

Cássia Pagini

Orientador(a):

Liana Lins Melo

Resumo:

Electrical or chemical stimulation of the inferior colliculus (IC) induces fear-like behaviors. More recently, consistent evidence has shown that electrical stimulation of the central nucleus of the IC supports Pavlovian conditioning and latent inhibition (LI). LI is characterized by a retard in conditioning, subsequent to a non-reinforced pre-exposure to the conditioned stimulus and also as impaired ability to ignore irrelevant stimuli. LI has been proposed as a behavioral model of cognitive abnormalities in schizophrenia. The aim of the present study was to determine whether dopaminergic mechanisms in the IC are involved in LI of the conditioned emotional response (CER). Rats were submitted to an off-baseline CER procedure: response shaping, tone-foot shock conditioning, reshaping and test. For conditioning, rats were submitted twice to a tone (30 s) followed immediately by a 0.5 s foot shock (0.6 mA). For LI, the same procedure was used but a group of rats was pre-exposed (PE) to six tone presentations in two sessions. Non-preexposed (NPE) animals had two sessions without tone presentations. PE and NPE rats received IC microinjections of physiological saline, the dopaminergic agonist apomorphine (9.0µg/0.5µL/side) or the dopaminergic antagonist haloperidol (0.5µg/0.5µL/side) before both preexposure and conditioning. Lower suppression ($p < 0.05$) of licking response during the conditioned stimulus in the preexposed as compared to the non-preexposed animals was observed in the groups that received vehicle or haloperidol indicating latent inhibition. No significant difference in the suppression ratio was seen in rats that received apomorphine into the IC, evidencing reduced latent inhibition ($p > 0.05$). The present results suggest that dopamine-mediated mechanisms of the IC are involved in the elaboration of the LI.

Referência:

Experimental Neurology, 216, 16-21, 2009.

6)

Título:

Characterization and catalytic activity of free and immobilized lipase from *Aspergillus niger*: a comparative study

Período:

12/2008

Aluno(a):

Vânia Castriani Fernandes Silva

Orientador(a):

Patrícia de Oliveira Carvalho

Resumo:

Aspergillus niger lipase was immobilized by deposition on Celite and the hydrolytic and esterification activities, stability and enantioselectivity of both free and immobilized enzyme were compared. Both the free and immobilized preparations showed similar biochemical properties, with maximum activity at pH 6.0 and a temperature of 30-40°C. The most important effects observed when the lipase was immobilized were thermal stability and an improved esterification activity during the reaction of (*R,S*)-ibuprofen with 1-propanol in isooctane. Moreover, immobilized *Aspergillus niger* lipase maintained an esterification activity of at least 73% after 5 days of storage at 40°C and can be recycled and reused at least 6 times.

Referência:

Journal of the Brazilian Chemical Society, v.19, p.1468 - 1474, 2008.

7)

Título:

Characterization and catalytic activity of free and immobilized lipase from *Aspergillus niger*: a comparative study

Período:

12/2008

Aluno(a):

Fernanda Martins e Amanda Janaína Suzan

Orientador(a):

Patrícia de Oliveira Carvalho

Resumo:

Mate (*Ilex paraguariensis*) is rich in polyphenolic compounds, which are thought to contribute to the health benefits of tea. Mate tea was administered orally to mice at a dose of 0.5 g/kg, 1.0 g/kg or 2.0 g/kg for 60 days, and changes both in serum lipid concentration and fatty acid composition of liver and kidney were examined. Tea-consuming mice, both MUFA (C18:1 *n*-9) and PUFA (C18:2 *n*-6 and C20:4 *n*-6) were increased ($p < 0.05$) in the liver lipid (approximately 90 and 60 % respectively) whereas only MUFA (approximately 20 %) were increased in the kidney lipid. The most altered PUFA class was *n*-6 PUFA, which increased by approximately 60 - 75 % ($p < 0.05$). This difference in the fatty acid profile in the liver is reflected in the increased PUFA/SFA ratio. We did not find differences ($p > 0.05$) in levels of serum cholesterol, HDL cholesterol and triglycerides under the conditions of this study. These results suggest that treatment with mate tea was able to protect unsaturated fatty acid from oxidation and may have selective protective effects within the body, especially on the liver.

Referência:

British Journal of Nutrition, v.19, p.1 - 6, 2008.