Certificados

Os certificados de participação e apresentação de trabalho na 47ª RASBQ estão disponíveis **neste link**.

Vídeo - Conferência de Abertura - 47ª RASBQ

"A química surpreendente dos nanomateriais: quando um prefixo faz toda a diferença"
Aldo José G. Zarbin (UFPR)

Chair
Shirley Nakagaki Bastos (UFPR - Presidente da SBQ)

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47ª REUNIÃO ANUAL DA SBQ - EDITORIAL

Caros(as) colegas,

No período **de 22 a 25 de maio de 2024** nos encontraremos na **47ª Reunião Anual da Sociedade Brasileira de Química**, que ocorrerá mais uma vez no **centro de convenções do hotel Monte**

Real em Águas de Lindóia/SP.

Nesta edição o tema será **"A centralidade da Química na educação do cidadão e na inovação científica e tecnológica**". Desta vez, teremos a oportunidade de conhecermos e discutirmos os desafios da Química para um mundo cada vez mais tecnológico. E com certeza a comunidade Química Brasileira terá muito o que apresentar nesses novos tempos.

A Comissão Organizadora mais uma vez entregará uma programação rica com os mais diversos temas da área da Química na busca de melhoria na qualidade de vida de nossa sociedade bem como na preservação de nossos recursos naturais. Mais uma vez teremos uma programação com workshops, minicursos, plenária de abertura, sessão de homenagens e premiações, conferências, simpósios, sessões temáticas, sessões coordenadas, sessões de painéis, SBQ na escola e um ambiente propício e aconchegante para as mais diversas discussões importantes para o nosso dia-a-dia. Desta forma, a 47ª Reunião Anual da SBQ será o palco ideal para toda a comunidade Química brasileira discutir as contribuições que podemos apresentar para um mundo mais igualitário e sustentável. Assim, conclamamos a todos(as) a participar deste que é o principal evento de Química na América Latina.

Luiz Gonzaga de França Lopes
Secretário Geral da SBQ
Presidente da Comissão Organizadora da 47ª RASBQ

Apoio

CAPES CNPq FAPESP MINISTÉRIO DA EDUCAÇÃO GOVERNO FEDERAL BRASIL UNIÃO E RECONSTRUÇÃO

Área: ELE

Assessing The Electro-oxidation of Ethanol in Alkaline Media – Assisting anions *vs.* Chaotropic Effects in SO_4^{2-}/ClO_4^- Electrolytes

Pedro L. Hermes-Lima (IC)[1]*, Thiago V. B. Ferraz (PG)[2], Hamilton Varela (PQ)[2]

plhlima@estudante.ufscar.br; thiagovbferraz@usp.br; hamiltonvarela@usp.br

[1]Departamento de Química, UFSCAR;[2]Instituto de Química de São Carlos, USP

Palavras Chave:*Ethanol, Electro-oxidation, Platinum, ElectrolyteEffects*

Highlights

Current density enhancement was observed for the electro-oxidation of 1 M ethanol (pH 13) over pc-Pt with increasing Na_2SO_4/$NaClO_4$ ratio up to 75% (Mol/Mol) and was accompanied by a change in the RDS.

Resumo/Abstract

Currently, the global warming crisis is by far the main environmental challenge faced for humanity as a whole. Caused by society's chronic dependency on fossil fuels for power generation, its solution requires the development of alternative processes capable of large-scale efficient production and storage of clean energy. Under this aspect, aiming to increase the reach and applications of negative CO_2 emission technologies, catalytic energy conversion processes, such as the H_2 evolution reaction (HER), have been heavily studied due to the great opportunities they present. However, even the most promising systems (e.g., fuel cells) tend to display clear limitations when the thermodynamical and kinetic hindrances associated to the water oxidation counter reaction (OER) are taken into account. The introduction of low molecular weight organic compounds in these devices, particularly alcohols (e.g., ethanol), as substitute to the OER, and in the presence of assisting anions could, in principle, both help to bypass most of the key kinetic issues as well as to modulate selectivity of the organic oxidation towards more economically interesting products. In the case of the ethanol, its electro-oxidation over platinum (Pt) electrodes demonstrates a distinguished performance in the presence of SO_4^{2-} compared to when they are absent in the medium, which was attributed to variations in the alcohol adsorption energies (-0.3424 eV and -0.7193 eV, respectively), emphasizing how the Pt/ethanol control the overall rate of the alcohol oxidation[1,2]. However, even under alkaline conditions (for which anionic electrosorption is considerably smaller) it is observed that the SO_4^{2-} species near the system's interface exhibits a hydrophobic behaviour that also promote catalytic enhancement, but which is explained by the presence of a *q* chaotropic media which leads to a greater anion/metal stabilization [3]. In order to better assess the extent of these two distinct effects, electrochemical measurements were performed in a conventional three-electrode cell using a polycrystalline platinum (pc-Pt) bead (1 mm radius) as work electrode, a platinum coil as counter electrode and a reversible hydrogen electrode (RHE) as reference. The results for the electro-oxidation of 1 M ethanol at pH 13 indicate that an increase in the SO_4^{2-} content induces a steady increment in the average current of the main oxidation process up to 75% (Na_2SO_4/$NaClO_4$), after which a pronounced decay is observed. The Tafel analysis performed on the LSV data show that, for the 50% and 75% systems, the observed enhancement can be associated to a kinetic favouring of the reaction (average Tafel angular coefficient of 82 mV dec^{-1}) compared to what is seen for the higher $NaClO_4$ concentrations (average of 161 mV dec-1) and for 100% Na_2SO_4 (128 mV dec^{-1}) – also indicative of a change in the rate determining step). Finally, the observation of an optimum condition suggests that, while heavily diminished, the inhibiting character of adsorbed sulphate ions on the pc-Pt surface still plays a role on the final response of the system to the catalytic process, being other important variables, such as the pH, further explored subsequent works.

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