

In situ immobilization of Manganese Phthalocyanine on the mesoporous carbon ceramic SiO_2/C prepared by the sol-gel process. Application as an electrochemical sensor for nitrite

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Carbon ceramic mesoporous $\text{SiO}_2/50\text{wt\%C}$ ($S_{\text{BET}} = 170 \text{ m}^2\text{g}^{-1}$), where C is graphite, was prepared by the sol gel method. Scanning electron microscopy images and the respective element mapping showed that, within the magnification used, no phase segregation was detectable. It presented the electric conductivities of 0.49 S cm^{-1} . This material was used to support manganese phthalocyanine, prepared in situ, to assure a homogeneous dispersion of the electroactive complex in the pores of the matrix. Pressed disk, made with $\text{SiO}_2/50\text{wt\%C}/\text{MnPc}$, was used to fabricate an electrode and tested as sensors for nitrite determination by electrochemical technique. A linear response range between 0.035 and 0.45 mmol l^{-1} , and correlation coefficient $r=0.9996$ was obtained. The electrode was chemically very stable and presented very high sensitivity for this analyte, with a limit of detection, $\text{LOD} = 1.082 \times 10^{-6} \text{ mol L}^{-1}$.

Biography

Abdur Rahim has completed his MS from University of Peshawar, Pakistan. Currently, he is pursuing his PhD degree at State University of Campinas, Brazil. He has published 4 papers in reputed journals.

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