SELECTIVE MONITORING OF ANTIMONY USING A COPPER(II) HEXANOCYANOFERRATE IMMobilized SILICA MODIFIED CARBON PASTE ELECTRODE

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The copper(II) hexacyanoferrate was immobilized on silica gel then it was evaluated as an electrochemical sensor for the selective monitoring of antimony(III) in acidic media. The sensor was found to be highly selective to antimony(III) with respect to alkaline, alkaline earth metal cations and transition metal cations especially in the presence of arsenic and free copper species because these two cations were interfered to the antimony detection in spectroscopy and electrometric methods respectively. The improved selectivity was explained by the cationic adsorption of antimony on the negatively charged surface of copper(II)hexacyanoferrate immobilized silica surface even in high ionic strength media. In the optimum conditions, reproducible results and a linear responds were obtained in the wide concentration range 2.0×10⁻⁷ to 1.0×10⁻⁴ M by applying differential pulse voltammetry.