

CONSTRUCTION OF AN OVEROXIDIZED POLYPYRROLE MODIFIED ELECTRODE AND ITS APPLICATION FOR DETERMINATION OF COPPER (II) IN ENVIRONMENTAL SAMPLES

A Bagheri¹ and M Hassanimara²

¹Sedigh Ceram & Pasargad Ceram Ceramics and tile factory complex, Iran

²Iran University of Science and Technology, Iran

In this study, an electrochemical method for the determination of copper ion has been developed using over oxidized polypyrrole (OPPy) electrode doped with sulfosalicylic acid (SSA). The SSA acts both as a chelating agent and a counter anion within the polypyrrole matrix. In a typical assay, Cu (II) is accumulated on a solid electrode via the formation of a copper-SSA complex. The electrode containing the Cu²⁺ SSA is then transferred to a 0.2M potassium nitrate where it is subjected to differential pulse anodic stripping voltammetry. The resulting stripping peak current was linearly related to the concentration of copper. The method has been optimized with respect to pH (pH=5.0), concentration of chelating agent (0.1M), accumulation time (200s) and reduction potential (0.5V). The detection limit was found to be 4×10^{-9} M with a linear range of 1×10^{-9} - 1×10^{-3} M. The method has been validated for the determination of copper in environmental samples.

aa.bagheri85@Gmail.com