

Detection of Epinephrine in Chicken Serum at Iron Oxide Screen Print Modified Electrode

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Abstract : This study presents the detection of epinephrine (EP) at Fe₃O₄ modified screen printed silver electrode (SPSE). The iron oxide (Fe₃O₄) nanoparticles were characterized with UV-visible spectroscopy, Fourier-Transform infrared spectroscopy (FT-IR) and Scanning electron microscopy (SEM) prior to the modification of the SPSE. The EP oxidation peak current (I_{ap}) increased with an increase in the concentration of EP as well as the scan rate (from 25 - 400 mVs⁻¹). Using cyclic voltammetry (CV), the relationship between I_{ap} and EP concentration was linear over a range of 3.8 -118.9 μM and 118.9-175 μM with a detection limit of 41.99 μM and 83.16 μM, respectively. Selective detection of EP in the presence of ascorbic acid was also achieved at this electrode.

Keywords : screenprint electrode, iron oxide nanoparticle, epinephrine, serum, cyclic voltametry

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