

## عنوان مقاله:

Electrochemical behavior of Morphine at the surface of magnetic core shell manganese Ferrite nanoparticles modified screen printed electrode and its determination in real samples

## محل انتشار:

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## خلاصه مقاله:

In the present work, a new sensor for morphine (MO) measurement, based on modification of screen-printed carbon electrode (SPE) by using magnetic core shell manganese ferrite nanoparticles was reported. The electrochemical behaviour of MO was investigated in phosphate buffer solution (pH 7.0) by voltammetry. The electrochemical response of the modified electrode toward morphine was studied by means of cyclic voltammetry (CV), differential pulse voltammetry (DPV) and chronoamperometry (CHA). The modified electrode displayed a decrease in the overpotential (ca. 80 mV) and an obvious increase in the peak current was observed compared to the non-modified SPE. The results indicated that modified screen-printed electrode enhanced electrocatalytic activity towards the oxidation of MO. Under the optimized conditions the calibration curve for MO was linear from 0.1 – 600.0  $\mu\text{M}$  and the detection limit based on 3Sb/m was 0.02  $\mu\text{M}$ . The application of the proposed method in analysis of real sample was also evaluated and satisfactory results were obtained.

## کلمات کلیدی:

Magnetic core shell nanoparticles, Modified electrode, Morphine determination, Screen-printed carbon electrode, Voltammetry

## لینک ثابت مقاله در پایگاه سیویلیکا:

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