Int. J. Electrochem. Sci., 14 **(2019)** 4361 – 4370

International Journal of
ELECTROCHEMICAL
SCIENCE
www.electrochemsci.org

Electrochemical Determination of Mangiferin Using Modified Screen Printed Electrode

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doi: 10.20964/2019.05.51

Received: 4 January 2019/ *Accepted:* 14 March 2019 / *Published:* 10 April 2019

In this research, the utilization of $ZnFe_2O_4$ nanoparticles modified screen printed electrode ($ZnFe_2O_4$ /SPE) was focused on as a sensor to determine mangiferin. The modified electrode performance was examined via the differential pulse and cyclic voltammetric methods. Mangiferin electrochemical behavior in phosphate solution of pH 7.0 was assessed by utilizing unmodified SPE and $ZnFe_2O_4$/SPE. Results indicated that $ZnFe_2O_4$/SPE electrochemical response to mangiferin was considerably advanced. Linear responses were exhibited by $ZnFe_2O_4$/SPE in mangiferin electrochemical oxidation within concentration range 0.1-600.0 μM. The $ZnFe_2O_4$/SPE sensor exhibited suitable response for mangiferin with 0.03 μM (S/N=3) detection limit. $ZnFe_2O_4$/SPE analytical application was tested with favorable results in determining mangiferin in real samples.

Keywords: Mangiferin, Voltammetry, Modified electrode, antioxidants, $ZnFe_2O_4$ nanoparticles

FULL TEXT