



An electrochemical sensor for the determination of artemisinin based on screen-printed carbon electrode

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An electrochemical sensor based on hemin modified screen-printed carbon electrode for the determination of artemisinin has been developed. The characterization of electrode found that hemin can be used as an efficient catalyst for artemisinin detection. The optimum conditions were studied by an electrochemical technique. The results obtained that the applied potential at -0.40 V versus Ag/AgCl, optimal hemin amount at 2 mg.cm⁻² on the electrode surface, pH of phosphate buffer solution at 7.0. The electrochemical sensor was studied for analytical performances of artemisinin detection. They were obtained with a linear response range from 5.6 μM to 10 mM ($r^2 = 0.996$) with a sensitivity of 0.12 A.M⁻¹.cm⁻², a limit of detection and quantification at 1.4 μM and 4.5 μM, respectively. Moreover, the proposed electrochemical sensor was applied to determine artemisinin in drug samples and compared with a standard method. The determination of artemisinin in spiked samples was reliable with recovery percentage of 99.5- 102.9%.

Keywords: Electrochemical sensor, Artemisinin, Hemin, Screen-printed carbon electrode