Highly Sensitive Voltammetric Sensor for Determination of Ascorbic Acid Using Graphite Screen Printed Electrode Modified with ZnO/Al₂O₃ Nanocomposite

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A sensitive and selective voltammetric sensor based on graphite screen printed electrode modified by ZnO/Al₂O₃ nanocomposite for the detection of ascorbic acid has been successfully developed. The electrochemical behavior of prepared electrode for the determination of ascorbic acid was systematically investigated by cyclic voltammetry (CV) and differential pulse voltammetry (DPV). Under optimum conditions, the modified electrode exhibits linear responses to ascorbic acid in the ranges 1.0–100 µM, with detection limits (S/N = 3) calculated to be 0.6 µM. Finally, the developed sensor was successfully applied to the detection of ascorbic in real samples.

Keywords: Ascorbic acid; ZnO/Al₂O₃ nanocomposite; Graphite screen printed electrode; voltammetry

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