An Electrochemical Sensor for Determination of Ceftazidime Based on Poly (crystal violet) Doped Platinum Nanoparticles Modified Electrode

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An electrochemical sensor for determination of ceftazidime (CFD) was fabricated by polymerizing crystal violet (PCV) and platinum nanoparticles (nanoPt) on a glassy carbon electrode (GCE). The nanoPt/PCV composite film exhibited excellent catalytic performance toward CFD. On this modified electrode, the CFD had an irreversible oxidation peak at 0.8 V with a dramatically amplified current value. The electrochemical behaviors of CFD and the conditions that may affect these behaviors were investigated detailedly on the nanoPt/PCV/GCE. Under the optimized conditions, the sensor showed a wide linear range over the concentration of CFD from 0.25 to 10 μM . The detection limit was 0.01 μM . The sensor can be applied for detecting the content of CFD in meat samples with good selectivity and stability. The recovery was between 97.8% and 103%.

Keywords: Electrochemical sensor; Ceftazidime; Crystal violet; Pt nanoparticle; Application

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