Sensitive Electrochemical Detection of Dopamine, Uric and Ascorbic Acids Based on poly-(Dianix Yellow) Film Modified Electrode

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A novel modified glassy carbon electrode is prepared as an electrochemical sensor for determination of dopamine (DA), uric acid (UA) and ascorbic acid (AA). The results show that the modified glassy carbon electrode with Dianix Yellow (DY) accelerates the electron transfer reaction of the analytes. The electrochemical behavior of DA, UA and AA on the modified glassy carbon electrode with DY was studied with cyclic voltammetry, linear sweep voltammetry, differential pulse voltammetry (DPV) and chronoamperometry. The DPV data showed DA, UA and AA peak currents are linear in the concentrations ranges of 0.035-2.5 μM , 0.20-2.7 μM and 15-80 μM , respectively. Also, the respected detection limits obtained with this method were 4.64, 16.1 and 50.0 nM. The modified electrode exhibited an excellent sensitivity and stability for determination of DA, UA and AA, and can be used to detect them in the human serum, with the satisfied result.

Keywords: Dianix Yellow; Modified Electrode; Dopamine; Uric Acid; Simultaneously Determination

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