Simultaneous Determination of Ascorbic Acid, Dopamine and Uric Acid Based on Graphene/Polyaniline/Glod Nanohybrids

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A novel method for preparing graphene/polyaniline (GN/PANI) nanocomposites was demonstrated by liquid-liquid interface polymerization method. Then gold nanoparticles (Au NPs) were uniformly and controllably decorated on the surface of the GN/PANI to form graphene/polyaniline/gold (GN/PANI/Au) nanohybrids. The prepared nanocomposites were characterized by the UV-vis spectra, X-ray diffraction and transmission electron microscopy. The electrochemical sensor based on GN/PANI/Au nanohybrids was fabricated for the simultaneous detection of ascorbic acid (AA), dopamine (DA) and uric acid (UA). The results showed that three well-resolved oxidation peaks were observed in cyclic voltammetry (CV) and differential pulse voltammetry (DPV) measurements. And the corresponding DPV current signals have appeared as well resolved oxidation peaks with peak potential differences of 186 mV (AA-DA), 156 mV (DA-UA), and 342 mV (AA-UA).

Keywords: Graphene, Polyaniline, Glod nanoparticales, Dopamine, Ascorbic acid, Uric acid

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