NiO Nanoparticles Based Carbon Paste as a Sensor for Detection of Dopamine

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In this paper, NiO nanoparticles were synthesized using cetyl trimethyl ammonium bromide (CTAB) and sodium dodecyl sulfate (SDS). The prepared NiO nanoparticles were applied for the preparation of modified carbon-paste electrodes (MCPE) for the electrochemical investigations of potassium ferrocyanide $K_4[Fe(CN)_6]$ and dopamine (DA). The MCPE prepared from CTAB-NiO nanoparticles demonstrated an enhanced sensing response for $K_4[Fe(CN)_6]$ and DA as compared with those of the MCPE fabricated from SDS-NiO nanoparticles. The MCPE prepared from SDS/polyglycine/CTAB-NiO nanoparticles demonstrated a further enhanced peak current response and effectively analyzed simultaneously DA, Ascorbic acid (AA), Uric acid (UA) and Bisphenol-A (BPA).

Keywords: NiO nanoparticles, Dopamine, Carbon Paste Electrode, Cyclic Voltammetry and Differential pulse voltammetry.

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