Facile and Sensitive Determination of bisphenol A Based on MWCNTs-TiN Nanocomposites Modified Glassy Carbon Electrode

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Herein, a novel and convenient electrochemical sensor based on a glassy carbon electrode modified with multi-walled carbon nanotubes-titanium nitride (MWCNTs-TiN) film for sensitive and efficient detection of bisphenol A (BPA) was developed. Several important parameters controlling the performance of the sensor, such as scan rate, the volume of MWCNTs-TiN dispersion and the pH value of buffer solution, were investigated and optimized by cyclic voltammetry (CV) and differential pulse voltammetry (DPV). It was notable that the oxidation peak current of BPA had enhanced greatly and the oxidation overpotential had decreased significantly. Under the optimized conditions, the oxidation peak current was proportional to BPA concentration in the range of 0.1-50 μM, and the detection limit was 0.05 μM. Meanwhile, the modified electrode was also exhibited good reproducibility and stability, and was employed to *in-situ* determinate BPA in water samples with satisfying results.

Keywords: Bisphenol A; Voltammetric determination; Modified electrode; Multi-walled carbon nanotubes; Titanium nitride

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