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A novel electroanalytical assay for sulfamethazine determination in food samples based on conducting polymer nanocomposite-modified electrodes

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Abstract

The toxicity of sulfa drugs has attracted great attention, and the reported electrochemical methods for sulfa drugs usually employ a high oxidation potential. In this work, a one-pot synthesized conducting polymer nanocomposite containing poly(3,4-ethylenedioxythiophene) (PEDOT) and MnO_2 was cast on a screen-printed carbon electrode (SPCE), and the modified electrode showed superior electrochemical activity over a bare electrode for sulfamethazine (SMZ) determination. The SMZ detection was based on the electrochemical oxidation product, which showed an adsorptive property and exhibited a redox couple at 0.39 V in pH 3 phosphate buffer solutions (PBS). The electrode surfaces were well characterized by the water contact angle technique, Raman

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