

عنوان مقاله:

Application of ZnO/CNTs Nanocomposite Ionic Liquid Paste Electrode as a Sensitive Voltammetric Sensor for Determination of Ascorbic Acid in Food Samples

محل انتشار:

دومین همایش ملی بهینه سازی زنجیره تولید، توزیع و مصرف در صنایع غذایی (سال: 1393)

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خلاصه مقاله:

In this study, a simple and rapid analytical method development for ascorbic acid (AA) determination in food samples by using differential pulse voltammetry (DPV) method on ZnO/CNTs nanocomposite ionic liquid modified carbon paste electrode. For this, several parameters, such as ZnO/CNTs nanocomposite, ionic liquid ratio, and pH, have been studied. The cyclic voltammogram showed an irreversible oxidation peak at 0.61 V (vs. Ag/AgCl(sat)), which corresponded to the oxidation of AA. Compared to common carbon paste electrode, the electrochemical response was greatly improved. Under the optimized conditions, the oxidation peak current of AA showed linear dynamic range 0.1–450 $\mu\text{mol l}^{-1}$ with a detection limit of 0.07 $\mu\text{mol l}^{-1}$, using the DPV method. The proposed sensor was successfully applied to the determination of AA in fresh vegetable juice, fruit juices and food supplement samples without previous preparation and was compared with a published electrochemical method.

کلمات کلیدی:

Food sample analysis . Ascorbic acid . Voltammetry . Ionic liquid ZnO , CNTs nanocomposite

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