

عنوان مقاله:

Application of NiO/CNTs nanocomposite ionic liquid paste electrode as avoltammetric sensor for determination of ascorbic acid in fruit juices samples

محل انتشار:

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خلاصه مقاله:

Ascorbic acid (AA), as a water soluble vitamin, is an effective reducing agent and a powerful antioxidant in food, preventing color changes and alterations of aroma and flavor as well as extending the storage time of the products. So, determination of AA is very important in food samples [1]. In this study, a simple and rapid analytical method developed for ascorbic acid (AA) determination in fruit juices by using square wave voltammetry (SWV) method using NiO/CNTs nanocomposite ionic liquid modified carbon paste electrode as a sensor. Important parameters such as NiO/CNTs nanocomposite ratio, ionic liquid ratio and pH, have been optimized in this work. The cyclic voltammogram showed an irreversible oxidation peak at 0.4 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 0.09–800.0 $\mu\text{mol L}^{-1}$ with a detection limit of 0.05 $\mu\text{mol L}^{-1}$, using the SWV method. The proposed sensor was successfully applied to the determination of AA in fruit juices without previous preparation and was compared with a published electrochemical method

کلمات کلیدی:

Fruit juices analysis, Ascorbic acid, Voltammetry, Ionic liquid NiO/CNTs nanocomposite

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