عنوان مقاله:

A nanostructure based electrochemical sensor for determination of epinephrine

محل انتشار:

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نویسندگان:

Razie Bavandpour - *Department of Chemistry, Graduate University of Advanced Technology, Kerman, Iran*

Hassan Karimi-Maleh - *Department of Chemistry, Graduate University of Advanced Technology, Kerman, Iran*

خلاصه مقاله:

Epinephrine (EP) or adrenaline is an important hormone produced by the adrenal glands during exciting situations or high stress in human body. On the other hand, adrenaline is one of theimportant parts of the human body's acute stress response system, also called the fight or flight response. The mechanism of response for adrenaline describe by stimulating the heart rate, contracting blood vessels, and dilating air passages, all of which work to increase blood flow tothe muscles and oxygen to the lungs. In addition, adrenaline is used as a medical treatment for some potentially life-threatening conditions including anaphylactic shock [1, 2]. This paper describes the development of 1,3-dipropylimidazolium bromide ionic liquid-CuFe2O4nanoparticle modified carbon paste electrode for the voltammetric determination of EP in real samples. We describe the synthesis and characterization of CuFe2O4with different methods such as transmission electron microscopy (TEM); energy-dispersive X-ray spectroscopy (EDS) andX-ray diffraction (XRD). The electrochemical oxidation of EP occurred in a pH-dependent 2e– and 2H+ process, and the electrode reaction followed a diffusion-controlled pathway. The oxidation peak potential of EP on the modifed appeared at 340 mV, which was about 115 mVdecrease of the overpotential compared to that obtained on the traditional carbon paste electrode (CPE). The electrochemical parameter such as charge transfer coefficient was .calculated

کلمات کلیدی:

Epinephrine, CuFe2O4 nanoparticles, Ionic liquids, Voltammetric analysis