

عنوان مقاله:

A New Potentiometric Sensor for Rapid Determination of Captopril in Pharmaceutical Formulation and Biological Samples

محل انتشار:

دوفصلنامه ایرانی شیمی تجزیه، دوره 9، شماره 2 (سال: 1401)

تعداد صفحات اصل مقاله: 9

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خلاصه مقاله:

A new potentiometric sensor based on a β - cyclodextrin modified carbon paste electrode (CPE) was designed for the determination of the captopril drug. The effect of various cyclodextrins (α , β and γ - cyclodextrins) and their percentage, binder agent and ion additive on the potential response have been investigated and the electrode with the best potential response was found. The linear concentration range for this electrode was 1.0×10^{-5} - 1.0×10^{-1} M with a low detection limit of 2.0×10^{-7} M. The effect of pH and temperature on the Nernstian slope was also investigated and the optimal range was obtained. The selectivity of the captopril CPE to interfering species including Li^+ , K^+ , Ni^+ , Mg^{2+} , Ca^{2+} , Co^{2+} , Cr^{2+} , Cr^{3+} , Zn^{2+} , Mn^{2+} , Fe^{2+} , F^- , Cl^- , SO_4^{2-} , $\text{C}_2\text{O}_4^{2-}$, PO_4^{3-} , $\text{C}_2\text{O}_4^{2-}$, ascorbic acid, uric acid, glucose, D-fructose and sucrose was determined by Separate Solution (SSM) and Matched Potential Method (MPM) methods. Finally, the proposed electrode was tested for measuring captopril in drug formulation, blood serum, and urine samples.

کلمات کلیدی:

Potentiometric Sensor, Captopril, Modified carbon paste electrode, β -Cyclodextrin, Ion-Selective Electrode

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