عنوان مقاله:

Designing of Liquid Membranc Electrode Based on Molecularly Imprinted Polymer and its Applicability to Determination of P-nitrophenol in thePharmaceutical Samples

محل انتشار:

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خلاصه مقاله:

Molecular imprinting is an emerging technology which enables us to synthensize the materials with highly specific receptor sites towards the target molecules. Molecularly imprinted polymers(MIPs) are a class of highly cross-linked polymer that can bind certain target compound with high specificity. The MIPs possess several advantages over the conventional immunosorbent (IS). The MIPs can be used repeatly without loss of activity with high mechanical strength anddurable to harsh chemical media, heat and pressure compared to biological receptors (Lavignac et al., 2004) [1]. P -Nitrophenol (also called p-nitrophenol or 4-hydroxynitrobenzene) is a phenolic compound that has a nitro group at the opposite position of hydroxyl group on thebenzene ring4-Nitrophenol is a colorless to light yellow solid with no odor. 4-Nitrophenol is an intermediate in the synthesis of paracetamol. P -nitrophenol is used as the precursor for the preparation of phenetidine and aceto phenetidine, indicators, and raw materials for fungicides.Acute inhalation or ingestion of 4-nitrophenol in humans causes headaches, drowsiness, nausea, and cyanosis. Contact with the eyes causes irritation. Also, by the now, p-nitrophenol has been determination by CV, DPV, SEM, GC and spectroscopy methods [2].In this work, an electrode using synthensised MIP as unufor was desined for determination of trace amount of p-nitrophenol in real samples such as acetophenetidine, aceto phenetidine. Theeffects of different parameters including pH, scan rate, electrolyte kind and concentration, and time of response were investigated. The electrode exhibited a best Nernestian slope in the concentration range from 1.0×10-8 to 1.0×10 -2 mol L-1 and showed a good selectivity for pnitrophenol. It also successfully applied in the determination of target analyte in real samples. Proposed electrode can be used in determination of p-nitrophenol in different biological and pharmacology samples.

کلمات کلیدی:

Potentiometric Sensor, Ion Selective Electrode , P-nitrophenol , Molecularly Imprinted Polymers , Real Samples