



Synthesis of New Selective Electrodes for the Determination of Metronidazole Benzoate (MNZB) Based on a Molecularly Imprinted Polymer Combined With Poly Vinyl Chloride

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Abstract: Liquid electrodes of polymers imprinted with metronidazole benzoate (MNZB) were synthesized based on precipitation polymerization mechanism. The molecularly imprinted polymer (MIP) and non-imprinted polymers (NIP) were synthesized using MNZB as a template. In polymerization process, 2-Acrylamido-2-methyl-1-propane Sulphonic acid (AMPS) and 1-Vinylimidazole (VIZ) were used as monomers. Pentaerythritoltriacylate (PETRA) and Divinylbenzene (DVB) were used as cross-linkers and benzoyl peroxide (BPO) as an initiator. The molecularly imprinted membranes and the molecularly non-imprinted membranes were synthesized using DibutylSebacate (DBS) and Tris (2-ethylhexyl) phosphate (TEHP) as plasticizers in PVC matrix. Slopes and detection limit of the liquid electrodes are ranged at (52.23– 58.94) mV/decade and (1.2×10^{-6} – 2.0×10^{-5}) M, respectively. Response time was 60 seconds. Liquid electrodes were filled with 10^{-1} M standard solution of drug and observed stable response for a pH ranged from 1.5 to 12 and with good selectivity for over several species. The new synthesis electrodes were successfully used for the analyte estimated in preparation pharmaceutical sample without any time consuming pretreatment steps.

Keywords: Molecularly imprinted electrodes; Metronidazole benzoate; potentiometric method; (AMPS);(VIZ) monomers.

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