

Preparation of isoproturon and 2,4-dichlorophenoxy acetic acid imprinted membranes: Ion transport study

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A B S T R A C T

Molecular imprinting technique is used for preparing molecularly imprinted polymer (MIP) membranes of desired recognition site, selectivity and porosity. The novelty of present work is to use a new approach for preparing imprinted monolith membrane, to study the effect of membrane porosity generated due to molecular imprinting on irreversible thermodynamical characteristics like membrane potential, ion transport, fixed charge density and permselectivity. It seems significant in developing membranes of desired selectivity and porosity for the removal and recognition of templates molecules. MIPs of potent herbicides isoproturon and 2,4-d were prepared by radical polymerization using methyl methacrylic acid (MAA) and ethylene glycol dimethacrylate (EGDMA) as functional monomer and cross linking agent. The polymer synthesis took place on a microporous support, which form hydrogen, covalent and ionic bonds with templates in order to form MIP membranes. The significance of this work is to discuss transport study of MIP membranes after creation of molecular recognition sites within the coated MIP. The MIP membranes were studied using theory of irreversible thermodynamics and by evaluating contact angle measurement, surface energy, ion transport study, perms electivity and fixed charge density of the membranes.

Keywords: Isoproturon; 2,4-D; Contact angle; Ion transport; Permselectivity; Fixed charge density

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