

Comparative assessment of electrochemical biosensors for determining inhibitors - Environmental pollutants

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Abstract

Electrochemical biosensors are developed on the basis of pH and carbon-paste electrodes with replaceable cholinesterase membranes supported on paper or polymeric membranes (Nylon, Hybond, Amersham and cellulose nitrate, Sartorius). Biosensors provide the rapid determination of Diazinon, Fozolone, Metaphos, and Koral with a detection limit of $n \times (10^{-8} \text{ to } 10^{-9}) \text{ M}$. The analytical characteristics of pesticide determination vary with the membrane material, which is due to the adsorption of the inhibitor on the membrane surface and depends on the hydrophobicity of the membrane material and the inhibitor. The modification of the biosensor sensitivity to pesticides on the addition of surfactants was studied, and the mechanism of biosensor response to inhibitors of various nature was investigated in both batch and flow-injection modes. © 1999 MAHK "Hayka/Interperiodica".
