

Modification of ion transport in lipid bilayer membranes by the insecticides DDT and DDE

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In order to elucidate the mechanism of action of organochlorine insecticides on the ion transport in biological membranes, we have studied the effect of DDT and its analog DDE on the structural parameters of phosphatidylethanolamine (PE) planar bilayers. DDT and DDE increase the conductance induced by the hydrophobic ions tetraphenylarsonium (TPhAs⁺) and tetraphenylborate (TPhB⁻) in lipid bilayers. Neither DDT nor DDE alters the surface potential of PE monolayers. On the other hand, these organochlorine compounds increase only slightly the electric capacitance of the bilayers. These results are compatible with the hypothesis that these insecticides increase the fluidity of the membrane. © 1982.