

Influence of Triphenyllead Chloride on Biological and Model Membranes

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The physiological and hemolytic toxicities of triphenyllead chloride (TPhL) as well as its modifying influence on model lipid membranes were studied. The experiments allowed the determination of TPhL concentrations causing 50% inhibition of growth of *Spirodela oligorrhiza*, *Lemna minor* and *Salvinia natans* (EC₅₀), 100% hemolysis of pig erythrocytes (C₁₀₀) and destabilization of planar lipid membranes (CC). Also, fluidity of erythrocyte ghosts was measured by fluorescence technique and osmotic sensitivity of erythrocytes to the presence of TPhL. All parameters studied were found to be dependent on pH, of experimental solutions and the concentration of TPhL. Acidic conditions increased EC₅₀, C₁₀₀ and CC concentrations of TPhL. Fluorescence and osmotic measurements showed that osmotic stability and fluidity decreased with increasing trimethyllead concentration.

A possible mechanism of TPhL toxicity is discussed. It is assumed that TPhL is interacting with the lipid phase of the models used. It is also assumed that there may exist various, ionic and nonionic, forms of TPhL as a result of its speciation under different experimental conditions. These species, due to their differentiated lipophilicity, may exert different effects on the model membranes studied.