

Physiological Activity of Some Organophosphorous Compounds and Their Influence on Mechanical Properties of Erythrocytes

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Hemolysis and fluidization of erythrocytes (RBC) membranes by some newly synthesized aminophosphonates as well as their potency to induce electrolyte efflux from cucumber (*Cucumis sativus* cv “Wisconsin”) cotyledons were studied. Also, the chlorophyll content in aminophosphonate-treated cotyledons was affected. The compounds studied differed mainly in hydrophobicity of their substituents at the carbon, nitrogen and phosphorus atoms. It was found that aminophosphonate potency to fluidize RBC membranes depended on the combination of its overall lipophilicity and/or the kind of substituent at the P atom. Especially, iso-propyl groups enhanced that potency. The sequence of aminophosphonates that exhibited the strongest fluidization activity was paralleled by their physiological and hemolytic activities; in the latter case for these compounds that hemolyzed RBC under used concentrations.

A general conclusion is that both the stereochemistry and lipophilicity determine the efficiency of the aminophosphonates studied. This efficiency is most probably related to the interaction of aminophosphonates with the lipid phase of biological objects.