MEMBRANE-ACTIVE AMINOPHOSPHONATES

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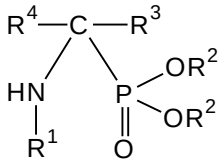
Xenobiotic exposure may induce cell membrane injury which would affect cellular structures and function. This study examined the influence of new aminophosphonates, synthesized for agrochemical application, on biological and model membranes properties. The aminophosphonates differed in the substituents on their carbon, nitrogen and phosphorus atoms. Measurements were made of the stability of planar lipid membranes (BLM), the hemolysis of erythrocytes (RBC) and the fluidity of ghost erythrocyte membranes. We have already shown that these models are convenient to study the interaction of agents with the lipid phase of biological membranes [1, 2].



Compound no.	R^1	R^2	R^3	R^4
1	n-C_8H_{17}	i-C_3H_7	CH_3	CH_3
2	n-C_8H_{17}	n-C_4H_9	CH_3	C_2H_5
3	n-$C_{10}H_{21}$	n-C_4H_9	CH_3	CH_3
4	n-$C_{10}H_{21}$	n-C_4H_9	i-C_3H_7	CH_3
5	-C_6H_{11}-	C_2H_5	n-C_4H_9	CH_3

It was found that the potency of aminophosphonates to influence the studied parameters depended on a combination of overall lipophilicity and the substituent type.

REFERENCES

1. Kleszczyńska, H., Sarapuk, J. and Dziamska, A. The physicochemical properties of some new aminophosphonates. **Cell. Mol. Biol. Lett**. 5 (2000) 415-422.
2. Kleszczyńska, H., Bonarska, D., Sarapuk, J. and Bielecki, K. Physiological activity of some organophosphorous compounds and their influence on mechanical properties of erythrocytes. **Z. Naturforsch.** 56c (2001) 999-1002.