THE ACTION OF BIOLOGICALLY ACTIVE SUBSTANCE OVER A WIDE RANGE OF CONCENTRATIONS ON LIPOSOMES AND ERYTHROCYTES

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The influence of biologically active substance (BAS) on the structure of model and cell membranes were studied. We tested the next BAS: hydrophilic melafen (melamin's derivative of bis phosphinic acid), hydrophobe phenozan and derivative of phenozan: amphiphilic phenoksan (potassium salt of phenozan-acid [β-4-oxi-(3,5-ditertbutyl-4-oxiphenyl) potassium propionate] and hydrophobic hybrid antioxidant of IHFANs alkil-dimetyl-[β-(4-hydroxy-3, 5-ditertbutylphenyl)propionyletyl] ammoniahalogenides). As the model of biomembranes the next objects were used - the multilayer liposomes, that simulating the multilayer cellular structures. Liposomes were formed from dimitristoylphosphatidylcholine (DMPC) or egg lecithin. As a whole cells the erythrocytes were used. The study of the BAS influence on the experimental objects structure the DSC method was used, and method of small-angle X-ray scattering and AFM too. It has been ascertained that BAS in wide concentration range (10^{-17} M - 10^{-3} M) caused the logged changes of structural properties of experimental objects. The microdomains organization of multulammelar liposomes, formed from DMPC, has undergone a change in the presence of BAS. The multilayer location in multilayered liposomes, formed from egg lecithin, was not varying in the presence of melafen, as a counter to the literary data on phenozan influence and IHFAN-10. The dimensional parameters of erythrocytes images is uneven were changing (depending on nature of BAS) as increase of dose of BAS. The existence of structural changes in hydrophobic membrane organization by hydrophobe BAS indicates that the membranes were stabilized by low doses of BAS and were destructed by big doses. The structural changes of hydrophobic membrane by hydrophilic BAS allude to the fact that the mechanism of BAS influences on the biological objects is mediated by the water medium. It is possible, that the structure of water's solutions [1, 2] and the gas composition of water's solutions [3, 4] were changed by the BAS attendance.

Literature.

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