THE EFFECT OF CHOLESTEROL ON THE ADSORPTION OF ORGANOMETALLIC COMPOUNDS TO THE SPHINGOMIELINE LIPOSOME MEMBRANE

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The adsorption of amphiphilic molecules depends, among other things, on their chemical structure and on the contents of the bilayer membrane. A sphingomieline (SF) bilayer was used as a model in studying the effect of cholesterol on the adsorption of three organometallic compounds: Ph\textsubscript{2}SnCl\textsubscript{2}, Ph\textsubscript{3}SnCl and Ph\textsubscript{3}PbCl. The degree of adsorption of the compounds was detected by measuring the intensity of fluoresceine-PE fluorescence. The probe’s fluorofore is located at the aqueous phase, adjacent to the membrane surface. Therefore, it reports the appearance of a charge at the membrane surface, induced by adsorbing organometallics.

The results of the study indicate that adsorption of Ph\textsubscript{3}SnCl on sphingomieline membranes is 17\% lower than on phosphatidylycholine membranes; and it is higher in the case of Ph\textsubscript{2}SnCl\textsubscript{2} and Ph\textsubscript{3}PbCl by 24 and 35\%, respectively. The presence of 30 mol\% cholesterol in SF membranes causes the adsorption to decrease compared with pure membranes by 60, 52 and 28\% for Ph\textsubscript{3}SnCl, Ph\textsubscript{2}SnCl\textsubscript{2} and Ph\textsubscript{3}PbCl. The results obtained may indicate the importance of cholesterol in decreasing the adsorption of the compounds on SF membranes, which may in general indicate a protective role of cholesterol.

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