

THE INTERACTION OF PHENYL TIN COMPOUNDS WITH MODEL MEMBRANES IN THE PRESENCE OF SURFACTANTS

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The effects of diphenyltin dichloride (DPhT) and triphenyltin chloride (TPhT) on the thermotropic phase behaviour and structure of phosphatidylcholine bilayers and their ^1H NMR and ^{31}P NMR spectra were studied in the presence of surfactants. The motive for the study was the frequent use of organometallic compounds in the presence of surfactants, as they are both water pollutants studied commonly-used surfactants, like dodecyltrimethylammonium chloride (DTAC), dodecyltrimethylammonium bromide (DTAB) and dodecyltrimethylammonium iodide (DTAI).

In previous papers [1, 2], we reported on the effect of diphenyltin dichloride (DPhT), triphenyltin chloride (TPhT) and tetraphenyltin (TTPhT) on the thermotropic phase behaviour and structure of model membranes. It was stated that di- and tri-phenyltin compounds are differently localized in the lipid bilayer: triphenyltin is localized in the lipid hydrocarbon core of the bilayer while diphenyltin stays on the surface of the bilayer. We also suggested that DPhT induces interdigitated gel phase formation, while TPhT induces hexagonal phase formation. In the presence of the studied surfactants the interaction of phenyltin compounds with the model membranes changed. The changes depended on the kind of counterion. The studied surfactants (especially DTAC) decrease the ability of phenyltin compounds to induce structural changes in the bilayer. It is suggested that DTAB and especially DTAC prevent DPhT induced interdigitated phase formation as well as the formation of the inverted hexagonal phase (H_{II}) in the case of TPhT/DPPC liposomes.

REFERENCES

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