

Effect of Counterions on the Influence of Dodecyltrimethylammonium Halides on Thermotropic Phase Behaviour of Phosphatidylcholine Bilayers

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Effects of dodecyltrimethylammonium chloride (DTAC), dodecyltrimethylammonium bromide (DTAB) and dodecyltrimethylammonium iodide (DTAI) on thermotropic phase behaviour of phosphatidylcholine bilayers as well as on ^1H NMR spectra were studied. In order to enhance the effect of counterions on water structure two series of experiments were performed. In the first one the surfactants were added to the water phase and in the other one directly to lipid phase (a mixed film was formed). The effects of particular surfactants on the main phase-transition temperature were more pronounced when they were added to the water phase (1st method) instead of the lipid phase (2nd method). Furthermore, in the case of the first method the transitions were found asymmetrical while in the second method nearly symmetrical. It is suggested that surfactant-poor and surfactant-rich domains are formed when surfactants are added to the water phase.