MCR-ALS as an effective tool for monitoring subsequent phase transitions in pure and doped DPPC liposomes.

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Streszczenie

The MCR-ALS method was applied to increase the structural information derived from infrared spectra of pure and doped dipalmitoylphosphatidylcholine (DPPC) liposomes. Pure DPPC vesicles and mixed ones with long-chain homologues of the phenol substituted by a *tert*-butyl moiety were investigated using the attenuated total reflectance Fourier-transfer infrared spectroscopy (FTIR-ATR). A combination of pure spectral profiles with pure concentration ones, which were derived from MCR-ALS calculations, enabled us to discuss in detail the structural characteristics of each pure phase state, which occur during a heating of pure as well as mixed lipid systems. Additionally, alterations of relative concentrations of subsequent components, which were represented by different pure phase states, associated with individual phase transitions, were determined in both pure and mixed DPPC systems. As far as we known, it is the first application of the MCR-ALS calculation in analysis of FTIR-ATR spectra of DPPC membranes.

Adres publiczny

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