Interaction of piperidin derivative of Mannich base with DPPC liposomes.

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Rok wydania

2013

Czasopismo

Journal of Physical Chemistry B

Numer woluminu

117

Strony

2938-2946

DOI

10.1021/jp311825h

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

The long chain Mannich bases, especially with the piperidine and morpholine groups, display very promising antimicrobial activity. In order to extend our knowledge on their impact on biological systems, we examined the interactions of the 5-pentadecyl-2-((piperidin-1-yl)methyl)phenol (PPDP) with model lipid membrane by means of differential scanning calorimetry (DSC) and fluorescence measurements. The small unilamellar vesicles of dipalmitoylophosphatidylcholine (DPPC) with different piperidine Mannich base concentration were investigated as a function of the increase of temperature. The phase separation accompanied by the rise of the transition enthalpy of both subcomponents, the increase of the function of the GP values of Laurdan versus the wavelength of excitation in the gel phase of PPDP/DPPC systems, and no remarkable differences in the fluorescence anisotropy of PPDP molecules in lipid environment for different mixtures of PPDP/DPPC was observed. Additionally, it was shown that PPDP itself interdigitated in solid state.

Adres publiczny

http://dx.doi.org/10.1021/jp311825h

Strona internetowa wydawcy

https://www.acs.org/content/acs/en.html