Influence of DPPC Liposome Concentration on the Fluorescence Properties of PRODAN and LAURDAN

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Fluorescence spectral features of PRODAN and LAURDAN in phospholipid vesicles of different phase states were investigated. The results indicate that in the liquid crystalline phase the dominant emission results from the charge transfer (CT) excited state, whereas in the gel state of the membrane the emission from the locally excited (LE) state dominates. The fluorescence time studies point out that there are two radiation modes, one starting from only vibrationally relaxed excited states $S_1(LE)_v$ ($(S_1(CT)_v$) and the other from a totally thermally equilibrated state $S_1(LE)_{EQ}$ ($S_1(CT)_{EQ}$). In accordance with the obtained decay time dependencies, the fluorescence emission from total non-equilibrated excited states consists of a dominant or minor radiation process in the LE or CT band emission.

Key words: PRODAN, LAURDAN; Locally Excited and Charge Transfer States; Fluorescence Decay Time.