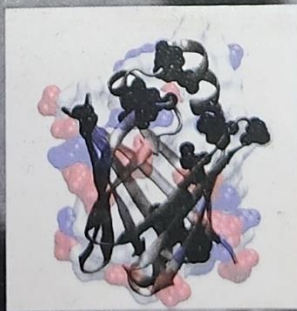
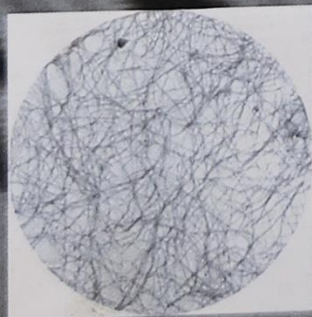


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## XLI

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## Effect of the 3,5,3'-Triiodo-L-Thyronine on zwitterionic and anionic membranes

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Vibrational spectroscopy is a powerful tool for understanding interactions between phospholipid membranes and molecules of biological relevance such as thyroid hormones. Particularly, 3,5,3'-triiodo L-thyronine (T3) has a wide range of effects on metabolism and development.

The present work consists in the analysis by FT-IR and Raman spectroscopies of the influence of T3 on the conformation of the model membranes.

We measured the FT-IR spectra of dipalmitoylphosphatidylcholine (DPPC) and dipalmitoylphosphatidylglycerol (DPPG) as function of the temperature, in absence and presence of T3 bound to these model membranes. In order to compare the phase transition behaviors, monitoring of the frequency shifts of the antisymmetric methylene stretching vibration near  $2920\text{ cm}^{-1}$  (1) was performed. The results demonstrate a large decrease in the transition temperature ( $T_m$ ) from the gel to the liquid crystalline state when T3 is bound to DPPG (between  $10\text{-}15^\circ\text{C}$ ) while DPPC shows a decrease between  $1\text{-}2^\circ\text{C}$  upon the bound hormone.

On the other hand, spectral Raman indicators have been used to the determination of acyl chain coupling and conformational order upon hormone incorporation to the model membranes. Particularly, the  $I_{1096}/I_{1129}$  peak intensity ratio, indicative of the gauche:trans conformers proportion (2), was evaluated by Confocal Raman Microscopy. Spectra of the lipids in gel phase were obtained at room temperature. Differences in the gauche conformer's content, induced by T3, suggest the existence of distinct interactions of the hormone with the membrane, according this is anionic or zwitterionic.

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