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Investigation of the conformational change dynamics of β-amyloid peptide by Raman spectroscopy

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The aggregation of the β-amyloid peptide (Aβ) is known to contribute to the accumulation of amyloid plaques in brain, which leads to the formation of a variety of diseases such as Alzheimer's. This work focuses on the conformational changes of Aβ (1-42) in the lipid membrane. The study was carried out by Raman spectroscopy, which is non-invasive, fast and does not require any sophisticated preparation of the material under study. In this work, we present a comparative analysis of the Aβ (1-42) peptide conformational change dynamics over time, including in the phospholipid membrane system. The aim of our study was to elucidate the regularity of structural changes in the amide I region (1600-1700 cm^{-1}) in the spectra of peptides which contributes to the formation of amyloid plaques.

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