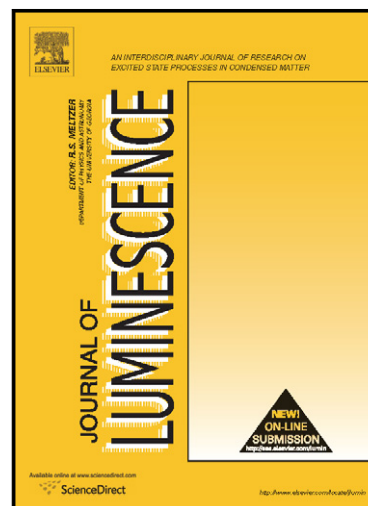


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An Insight into the Binding between Ester-Functionalized Cationic Gemini Surfactant and Lysozyme

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Abstracts

The interactions of cationic dodecyl betainate gemini (DBG) surfactant with lysozyme was studied by fluorescence, time resolved fluorescence, UV-visible, circular dichroism, and molecular docking methods. The results showed that the DBG quenched the fluorescence of lysozyme through static quenching mechanism as confirmed by time resolved spectroscopy. The Stern-Volmer quenching constant (K_{sv}) and relevant thermodynamic parameters such as enthalpy change (ΔH), Gibbs free energy change (ΔG) and entropy change (ΔS) for interaction system were calculated at different temperatures. The results revealed that hydrophobic forces played a major role in the interactions process. The results of synchronous fluorescence, UV-visible and CD spectra demonstrated that the binding of DBG with lysozyme induces conformational changes in lysozyme. Moreover, the molecular modelling results shows the possible binding sites in the interaction system.

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