

# DRUG SURFACTANT INTERACTION: THERMO-ACOUSTIC INVESTIGATION OF SODIUM DODECYL SULFATE AND ANTIMICROBIAL DRUG (LEVOFLOXACIN) FOR POTENTIAL PHARMACEUTICAL APPLICATION

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**A**t present, the advantages of surfactant micelles as vehicle are taken into consideration and the impact of potential antimicrobial drug (levofloxacin) on micellar system of anionic surfactant (SDS) has been studied. It would therefore be interesting to evaluate the region of micelle formation in order to design such system which could prove valuable in pharmaceutical formulations. In this context, conductance study, critical micelle concentration (CMC), standard thermodynamic parameters of micellization namely,  $\Delta H_m^\circ$ ,  $\Delta G_m^\circ$ , and  $\Delta S_m^\circ$ , have been evaluated at four different temperatures (298.15 to 313.15) K. Molar volume and compressibility measurements have also been carried out to evaluate the apparent molar volume and apparent molar adiabatic compression of drug-surfactant complex and discussed in terms of the solute-solute and solute-solvent interactions. In addition, spectroscopic analysis (FTIR and <sup>1</sup>H-NMR) confirmed the presence of intermolecular interaction between levofloxacin-SDS moiety within studied concentration. Conclusively, this study provides an indication to assess and develop surfactant immobilized levofloxacin for better biological action.

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