**Modulation in Micellar properties of CTAB in aqueous solutions of Antibiotic Drug Cefepime at different temperatures: A Conductometric Approach**

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**Abstract**

In the present study, the advantages of surfactant micelles as drug delivery vehicles are taken into consideration, and the impact of the potential antibiotic drug (cefepime) on the micellar system of cationic surfactant cetyltrimethylammonium bromide (CTAB) has been studied. Therefore, it would be interesting to evaluate the interactions between drug-CTAB in aqueous solutions by conductometric studies at different temperatures. From the critical micellar concentration (*CMC*) (obtained from conductivity-concentration plots) as a function of temperature, various thermodynamic parameters have been computed viz., standard Gibbs free energy change (), standard enthalpy change () and standard entropy change (). Early micellization has been found with *CMC* shifting towards lower concentration than the standard *CMC* of CTAB in solution suggesting that drug and the solvent system facilitates the micellization process. Convincingly, this study not only casts light on the binding interactions but also provides a hint to utilize the micellar system in stabilization and maintenance of pharmaceutical materials.

*Keywords:* Conductivity, cefepime, cetyltrimethylammonium bromide, critical micellar concentration.

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