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Kinetic Studies of Micelle - Assisted Reaction of *p* -Nitrophenyl Acetate with Benzo- hydroxamate Ion in Water-Ethylene Glycol Mixtures

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Abstract The pseudo-first order rate constant for the reaction of *p*-nitrophenyl acetate by benzohydroxamate ion was determined in water-ethylene glycol mixtures using cationic micellar solutions of alkyldimethyl and diethyl ethanol ammonium bromides. From the conductivity data of these surfactants in ethylene glycol, the critical micelle concentration (cmc), the micellar ionization degree (α), and Gibbs free energy of the micellization (ΔG_m°), have been determined. Addition of ethylene glycol in the micellar solutions results in an increase in the cmc and in an increase in micellar ionization degree. The dependence of observed rate constants were explained considering the structure of interfacial region, micellar aggregation number, water content in the micellar interfacial region and the equilibrium binding constants for the *p*-nitrophenyl acetate and benzohydroxamate ion to the micellar aggregates. The kinetic micellar effect was quantitatively explained by the pseudophase model.

Keywords : Micelle-assisted Hydrolysis, Et hylene Glycol, and Solvent Effect.
