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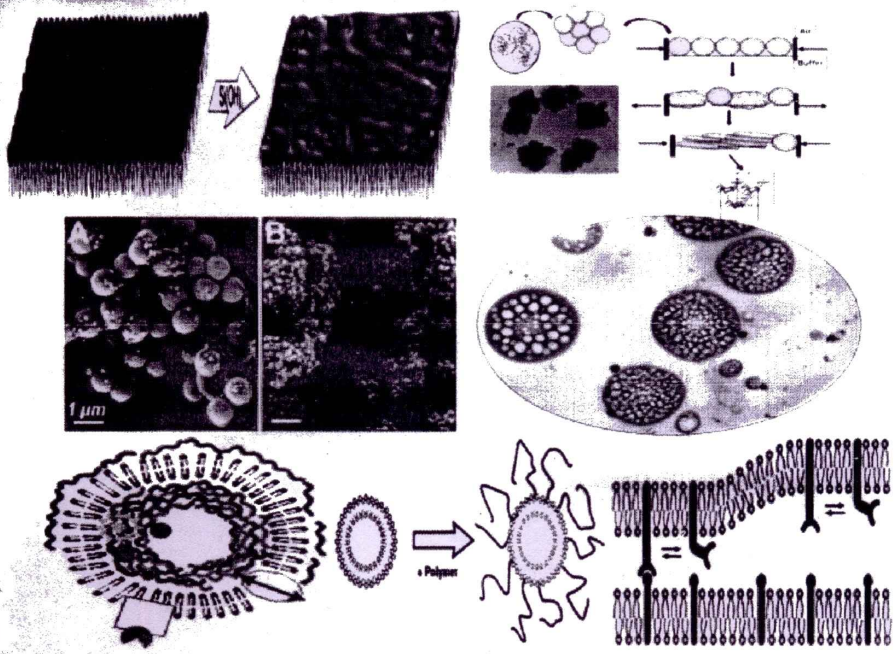

28 – 30 November, 2013

CSIR-Central Leather Research Institute

Adyar, Chennai-20

Effect of Gemini Surfactants, Alkanediyl-α, ω-bis-(Dimethyl-tetradecylammonium Bromide) on Ninhydrin/ Dipeptide Reaction

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Abstract

The reaction of ninhydrin-dipeptide glycyl-alanine (Gly-Ala) has been studied in the presence of dimeric cationic gemini surfactant, alkanediyl-α, ω-bis (dimethyltetradecylammonium bromide) (referred to as 14~s~14, where (s = 4,5,6) using spectrophotometer at 70 °C and pH =5.0. The reaction follows first- and fractional-order kinetics, respectively. The reaction between ninhydrin and Gly-Ala was enhanced more effectively in presence of 14~s~14, dimeric surfactants than their single chain-single head counterpart tetramethylammonium bromide (TTAB) micelles. Also, whereas typical rate constant (k_ψ) increases and leveling-off regions, just like TTAB, are observed with gemini, the later produce a third region of increasing k_ψ at higher concentration. Quantitative kinetic analysis of k_ψ-[14~s~14] data has been established on the basis of *pseudo*-phase model. The micellar binding constants K_S for Gly-Ala and K_N for ninhydrin were evaluated.