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Encapsulation of AZT in Non-Polar Media Using Carbohydrate Derived Nonionic Gemini Surfactants

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Abstract

The carbohydrate derived nonionic Gemini surfactants have been emerged as a result of our present day interest in environmentally compatible chemicals. Reverse micelles formed by surfactants can be used for selective solubilization and reactions which exploit their nanometer size, micro-environments and mimics the memberanous biological system.

Novel carbohydrate based non-ionic Gemini surfactants bearing rigid aromatic spacer and with varying tail lengths of 8, 10, 12, 14, 16 and 18 carbons have been synthesized in our laboratory. Each of these possesses two tertiary amino groups linked to C-6 of the glucose moieties and their reducing function blocked in cyclic acetal groups. These amphiphiles were explored as reverse micellisation probes for encapsulation of water soluble AZT in neat n-hexane. Reverse micellar studies revealed that amphiphile possessing smaller hydrophobic chain shows better encapsulation.

Keywords: Reverse micelles, carbohydrates, Gemini surfactants, AZT, spacer.