

Jordan University of Science and Technology

Study of the Solubilization of Gliclazide by Aqueous Micellar Solutions

Authors: Khouloud A Alkhamis, Hussien Allaboun, Wafa'a AIMomani

Abstract: It was of interest to increase the solubility of gliclazide in aqueous media. Therefore, solubilization of gliclazide in variety of surfactants was investigated. Anionic and cationic surfactants exhibited dramatic solubilizing ability for gliclazide, while nonionic surfactants showed significantly lower solubilizing ability. It was found that gliclazide solubility increases with increasing the carbon chain length of cationic surfactants and decreases with increasing the carbon chain length of anionic surfactants. The solubilization data were analyzed on the basis of a pseudo-phase model with gliclazide exhibiting moderate partition coefficients into the micellar phase. The possible sites of solubilization of gliclazide in the micelle were examined by studying the effect of NaCl on solubilization and by comparing the absorption spectra of gliclazide in different solvents. The results obtained from these two experiments indicated that gliclazide is solubilized mainly in the inner core of the cationic surfactant micelles and in the outer regions of the anionic surfactant micelles.