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Aggregation and phase separation behavior of an amphiphilic drug promazine hydrochloride under the influence of inorganic salts and ureas

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Abstract

Self-association and phase separation phenomena of an amphiphilic phenothiazine drug promazine hydrochloride (PMZ) in the absence and presence of inorganic salts (NaF, NaCl and NaBr) and ureas (urea and thiourea) have been investigated in the present study. By the increase in temperature the critical micelle concentration (cmc) of drug PMZ first increases then decreases. Maximum cmc values were obtained at 303.15 K in presence or absence of additives (salts/ureas). Decrease in cmc occurs by the addition of the inorganic salts which is explained on the basis of nature and ion size. Ureas (urea and thiourea) decreased the cmc at low concentration; however, at higher concentrations, increase in cmc was observed with both the additives. Increasing inorganic salt concentrations caused an increase in the cloud point (CP) of PMZ, whereas urea decreased the CP. Significant thermodynamic parameters were also evaluated and discussed. (C) 2013 Elsevier B.V. All rights reserved.

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