

Association of alkylpyridine derivatives to dodecylsulfate micelles

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Association constants of alkylpyridine bromide, C_nPyB, (methyl, ethyl, propyl, and butyl) to dodecylsulfate micelles has been determined by two methods, ultrafiltration and fluorescence spectroscopy. In the last, the emission intensities of micelle-solubilized probe (pyrene) were measured in the absence and presence of a quencher (C_nPyB) distributed between the aqueous and the micellar phase. The Gibbs energy of transfer of C_nPyB allows the separation of the contributions due to CH₂ and pyridinium groups. From the association of 4-ethylpyridine at pH 3 and at pH 6, it is possible to determine the contribution to the Gibbs energy (ΔG°) due to the Coulombic interaction between a formal charge on the substrate and the charged micellar surface. Results are related to the position of the substrates on the micellar surface. © 1995 Academic Press, Inc.