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Determination of the Protonation Constants of Some Substituted Salicylideneanilines by the Spectrophotometric Method in Ethanol-Water Mixtures

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Abstract: Protonation constants of salicylideneaniline and methyl-, ethyl-, methoxy- fluoro-, chloro-, bromo- and iodo- substituted salicylideneanilines were determined by spectrophotometric titrimetry in 10, 30, 50 and 70% ethanol-water mixtures at constant ionic strength and at 25°C. The results obtained from this work were compared with those obtained using the potentiometric method. The difference between the results found with these two methods was approximately ± 0.20 logK units. The spectrophotometric method was judged to be more suitable than the potentiometric method for halogen substituted salicylideneanilines with the low logK values and in the solvent mixture containing 10% ethanol, due to the low solubility of Schiff's bases.

Key Words: Protonation constant, titrimetry, Schiff's base, ethanol-water mixture, potentiometric method, spectrophotometric method.

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