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SOLVENT EFFECT ON THE ABSORPTION AND FLUORESCENCE SPECTRA OF p-DIMETHYLAMINOBEZYLIDENE-o-AMINOPHENOL

Jung Ho Kang, Young Hae Kim

Department of Applied Chemistry, SeoKyeong University,136-704

Solvent effect on the spectra has been widely investigated. We are conducting the research as well using p-dimethylaminobenzylidene-o-aminophenol. Lots of Schiff base derived from salicylaldehyde and 2-hydroxynaphthaldehyde have been reported to show ESIPT (excited state intramolecular proton transfer). On the other hand, p-dimethylaminobenzene derivatives have been known to have a considerable solvent effect from the degree of the charge separation. We measured the absorption, emission and excitation spectra of this compund in the several solvents. The shape of the absorption spectra is dependent on the solvent and the concentration. In the polar solvents such as ethanol and methanol, the longer absorption band than 400nm are not observed except a very weak shoulder of 450nm. In the chloroform and tetrahydrofuran solution, a 370 nm band (tetrahydrofuran), and a 448 nm band (chloroform) are observed. For the excitation spectra, a hypsochromic shift is observed in the ethanol and methanol solution. The emission intensity of this compound in the chloroform solution is about four times greater than that p-dimethylaminobenzylidene-o-aminophenol in the other solvents. In the dimethylformamide solution, the red shift is observed (chloroform: 382nm, dimethylformamide: 411nm). ESIPT is not observed in this compound unlike salicylideneaniline. Thus, the above observances seem to result from the polarity and basicity of the solvents. In the near future, we want to investigate the effect of pH.