

Keto-Enol Tautomerism of Salicylideneaniline Substituted

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Abstract : Schiff bases derived from o-hydroxybenzaldehyde has attracted a great interest not only for its promising applications towards linear and non-linear optical properties, biological activity and technological applications but also used as model compounds for the theory of hydrogen bonding. Due to its intramolecular hydrogen bonding, depending on the position of proton in the hydrogen bond o-hydroxy salicylidene Schiff bases exhibit two tautomeric forms, enol-imine (E-form) and keto-enamine (K-form) both in solution and in crystalline state. A zwitterionic structure also appears due to a proton transfer in enol - imine and keto - amine tautomer. These classes of compounds also exhibit thermochromic and photochromic behavior. We undertook in this study the synthesis of ten compounds of hydroxy Schiff bases from the condensation of salicylic aldehyde and aniline substituted in the ortho, meta and para by the methyl, chloro and nitro groups. To study the keto-enol equilibrium of the compounds; UV-VIS spectra were studied in different polarity solvents. The compounds were in tautomeric equilibrium (enol imine O-H...N, keto-amine O...H-N forms). For some derivatives of salicylideneanilines the keto-amine form was observed in both ethanol and dioxane. IR results showed that all Schiff bases studied favor the enol-imine form over the keto form.

Keywords : salicylideneaniline, tautomerism, keto-enol equilibrium, UV-VIS spectroscopy, solvent effect

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