

Fluorescence Quenching and Solvation Processes of Fluorenone and 4-hydroxyfluorenone in Binary Solvents

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Steady state and time-resolved spectroscopic measurements of fluorenone and 4-hydroxyfluorenone dissolved in binary nonpolar, polar and polar protic mixed solvents have been performed at room temperature. The absorption and emission spectra show that, apart from the free molecules, hydrogen bond complexes exist in the ground and excited states in the mixed solvents used. The data obtained were used to determine the stoichiometric equilibrium constants. The fluorescence decay data point that in the binary used solutions the radiation appears from an assembly of luminescence centers emitting fluorescence light of different wavelengths and decay times. Molecules forming simple hydrogen bond complexes (with fluorenone) show different photophysical properties from those where a proton-relay complex (with 4-hydroxyfluorenone) is established.

Key words: Fluorenone; 4-hydroxyfluorenone; Emission Spectra; Fluorescence Decay Times; Binary Solvents.