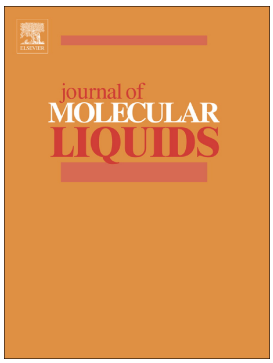

Effects of solvating media of some phenylquinoxaline derivatives on their photophysical properties. Mixed solvent systems and acidic media

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Effects of solvating media of some phenylquinoxaline derivatives on their photophysical properties. Mixed solvent systems and acidic media

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Abstract

In this paper, we have investigated the changes on the photophysical properties of two phenylquinoxalines in different chemical environments, such as in solvent mixtures ($CHCl_3$/toluene and $CHCl_3$/EtAc solvent mixtures) and in acidic media. The absorption and emission spectra of studied phenylquinoxaline derivatives were sensitive to composition of media. The spectral data were used to calculate different solvation parameters (i.e. the index of preferential solvation, δ_{S2}, the preferential solvation constant, K_{12}, the preferential solvation parameters, $f_{2/1}$, $f_{12/1}$ and $f_{12/2}$), the free energy of the reorientational interaction $W_{m(g,e)}$ and the solvation shell composition (the number of more polar solvent molecules involved in the first solvation shell (Nm)) according to various preferential solvation models. The fluorescence intensity in THF solution was gradually decreased upon increasing the HCl concentration, due to protonation of the nitrogen atoms.

Keywords: Two phenylquinoxalines; Solvent mixed; Preferential solvation; Solvation shell composition; Dual emission bands; Acidic media.

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