Electronic Supplementary Information

Reduced fluorescence quenching of coumarin 102 at higher phenol mole fractions in cyclohexane-phenol and anisole-phenol solvent mixtures: Role of competitive hydrogen bonding

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Derivation of Equation 1:

The variation of the emission maxima in frequency ν_{em}^{max} (in cm^{-1}) against mole fraction (x) can be conveniently fitted by the equation. Here, ν_{em}^{max} (x) and ν_{em}^{max} (x=1) are the emission maxima at a particular mole fraction of phenol (x) and in neat phenol (x=1), respectively.

$$\frac{d[\nu_{em}^{max}(x) - \nu_{em}^{max}(x=1)]}{dx} = -k[\nu_{em}^{max}(x) - \nu_{em}^{max}(x=1)]$$

Or, $\frac{dy}{dx} = -ky$, where $y = \nu_{em}^{max}(x) - \nu_{em}^{max}(x=1)$

Integrating we obtain

$$y = y_0 e^{-kx}$$

Or, $\nu_{em}^{max}(x) - \nu_{em}^{max}(x=1) = [\nu_{em}^{max}(0) - \nu_{em}^{max}(x=1)]e^{-kx}$

Or, $\nu_{em}^{max}(x) = \nu_{em}^{max}(x=1) + [\nu_{em}^{max}(0) - \nu_{em}^{max}(x=1)]e^{-kx}$

Table S1: Fitting parameters of emission maxima against mole fractions in the three solvent mixtures using the above equation. Within bracket represents the standard error of the respective parameters.

Solvent Mixture	$\nu_{em}^{max}(x=1)$ (cm^{-1})	$\Delta\nu$ (cm^{-1})	k
Cyclohexane-Phenol	21320 (87)	3521 (94)	25.0 (2.0)
Anisole-Phenol	21353 (77)	1606 (96)	27.0 (4.5)

Cyclohexane-Anisole	22998 (106)	1709 (123)	3.3 (0.06)