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Turn-On Luminescence based Discrimination of Protic Acids using a Flexible Layered Metal-Organic Coordination Polymer

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ELECTRONIC SUPPLEMENTARY INFORMATION

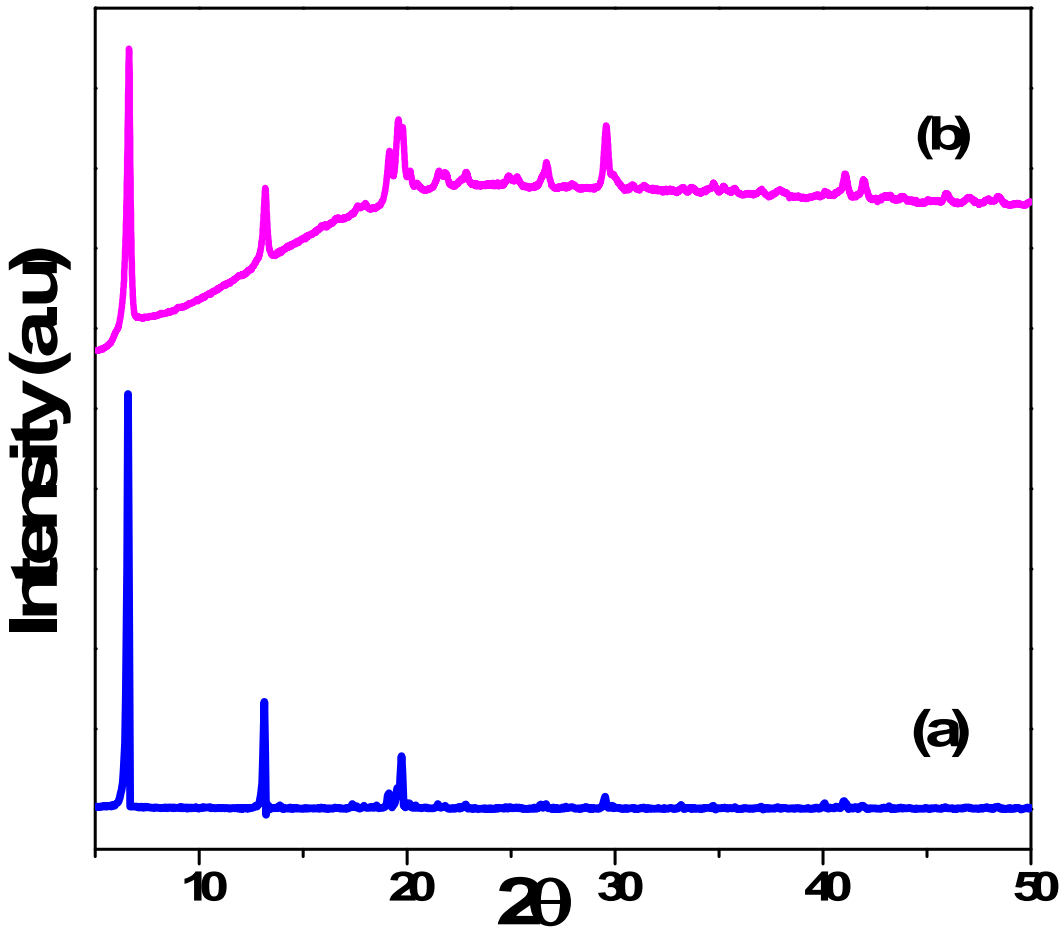

Fig. S1: Powder XRD (CuKα) patterns: (a) simulated from single crystal X-ray data of [Co(OBA)(H2O)$_2$], **1**, (b) experimental PXRD of **1** (synthesized through solvent evaporation methods).

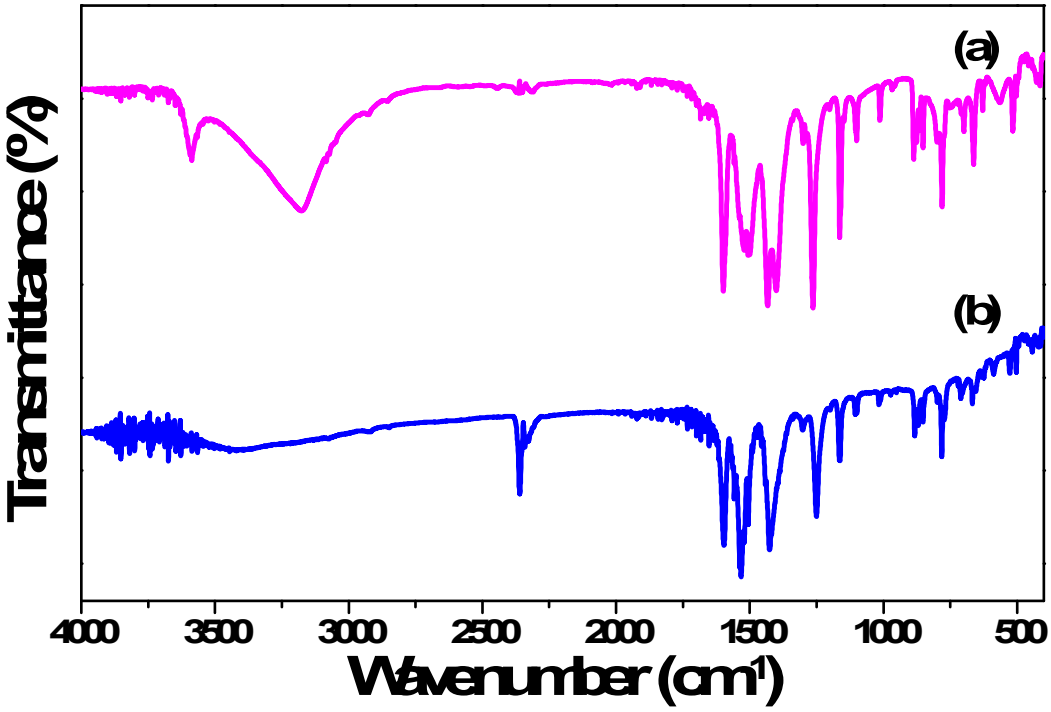

Fig. S2: IR spectra: (a) synthesized compound **1**, (b) dehydrated compound **1'**. Note the disappearance of peaks in the range of 3000-3500 cm^{-1} after the dehydration.

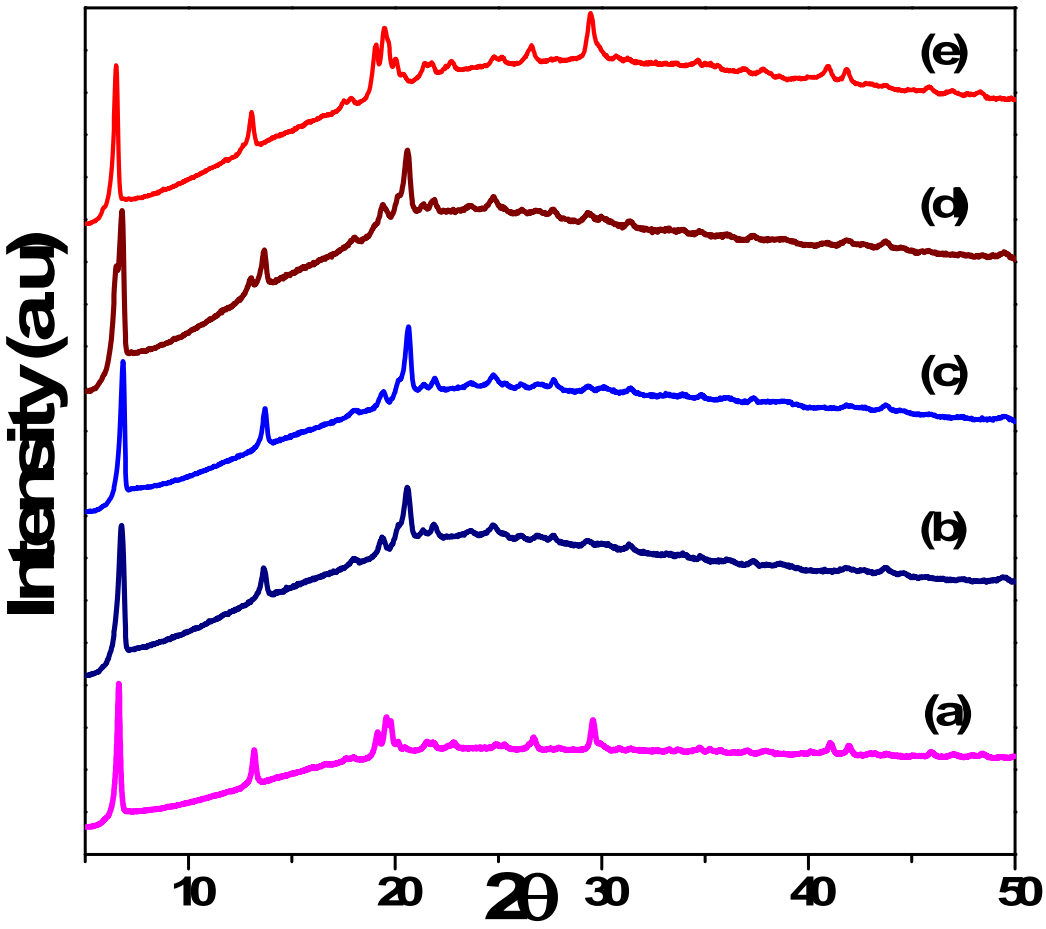

Fig. S3: The ex-situ heated powder X-ray diffraction patterns of the compound **1**: (a) compound **1**, (b) the sample heated 150 °C for 1 h, (c) dehydrated sample left under atmospheric condition for 1 day, (d) dehydrated sample left under atmospheric condition for 3 days, (e) the dehydrated sample after mixing with minute quantity of water.

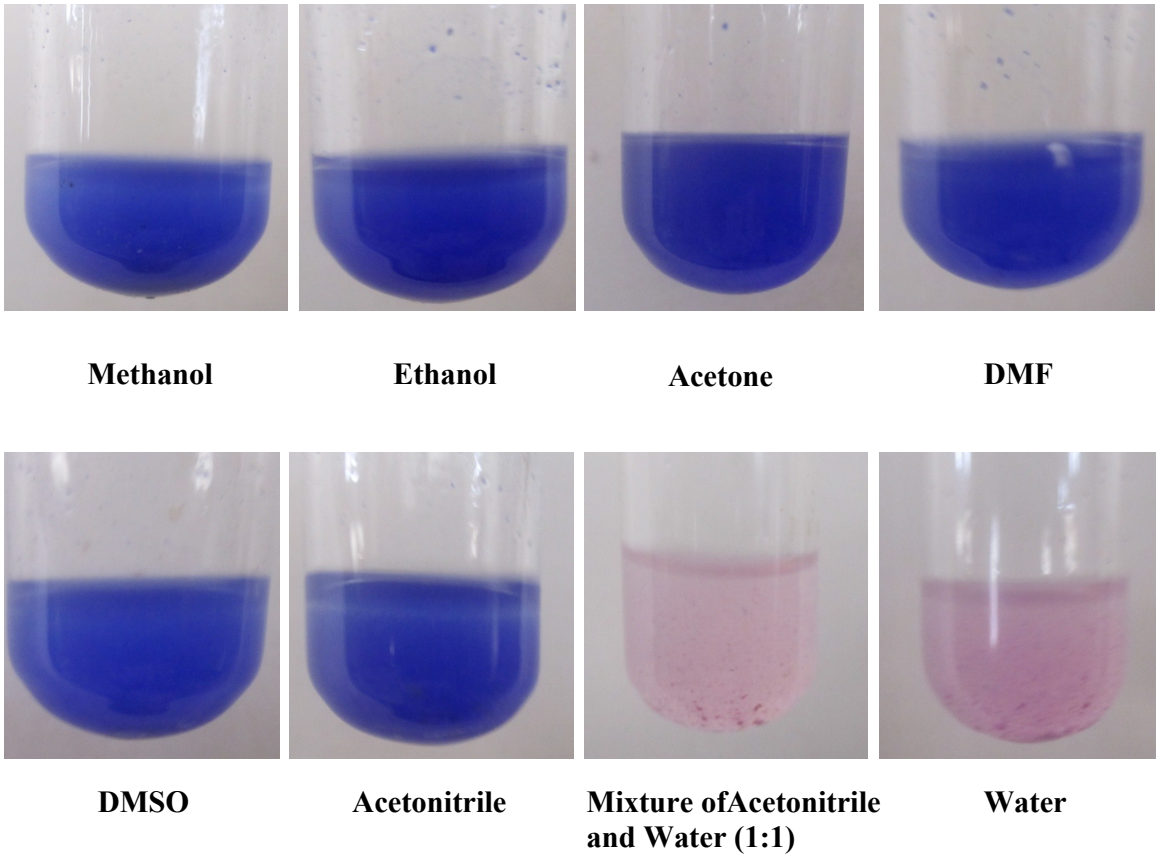

Fig. S4: Images of the dehydrated blue compound (**1'**) after immersing in various solvents. Note that it changes to pink color only in presence of water.

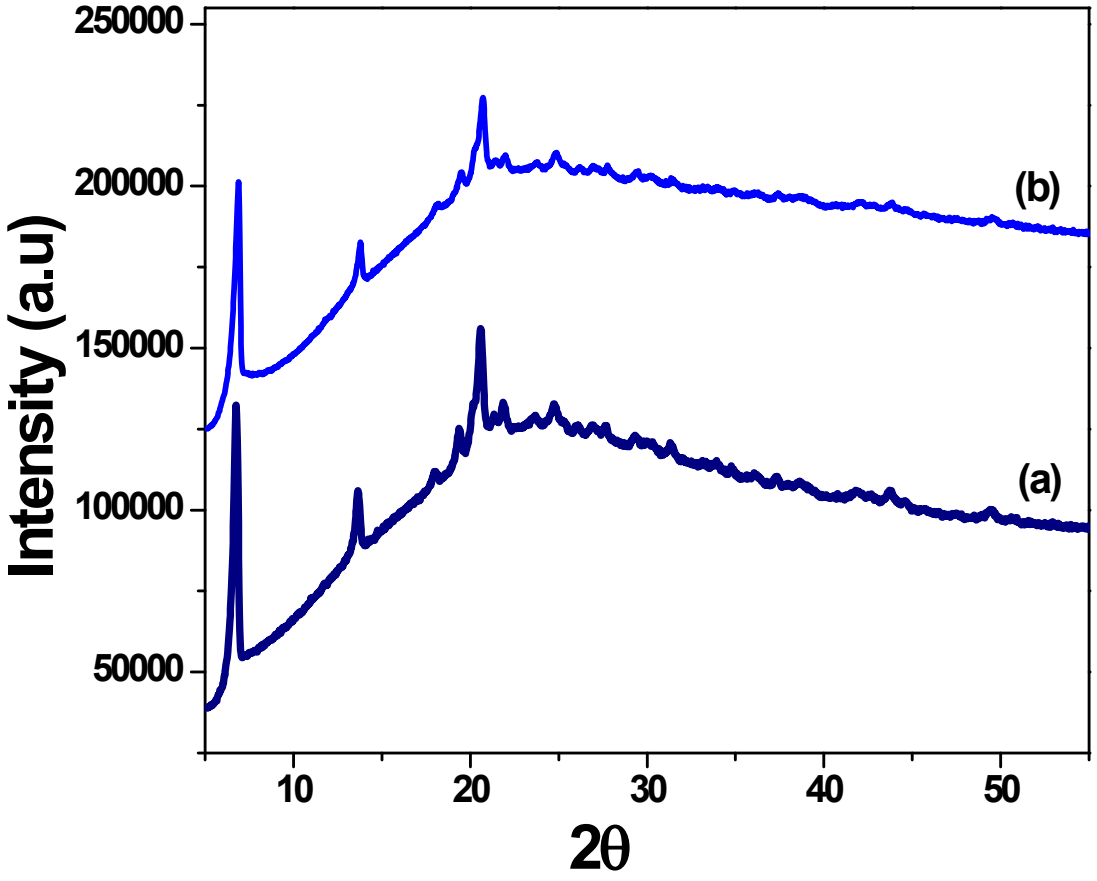

Fig. S5: Powder XRD (CuKα) patterns: (a) **1'** (blue compound), (b) after immersing **1'** in acetonitrile for 24 hrs followed by drying in open air.

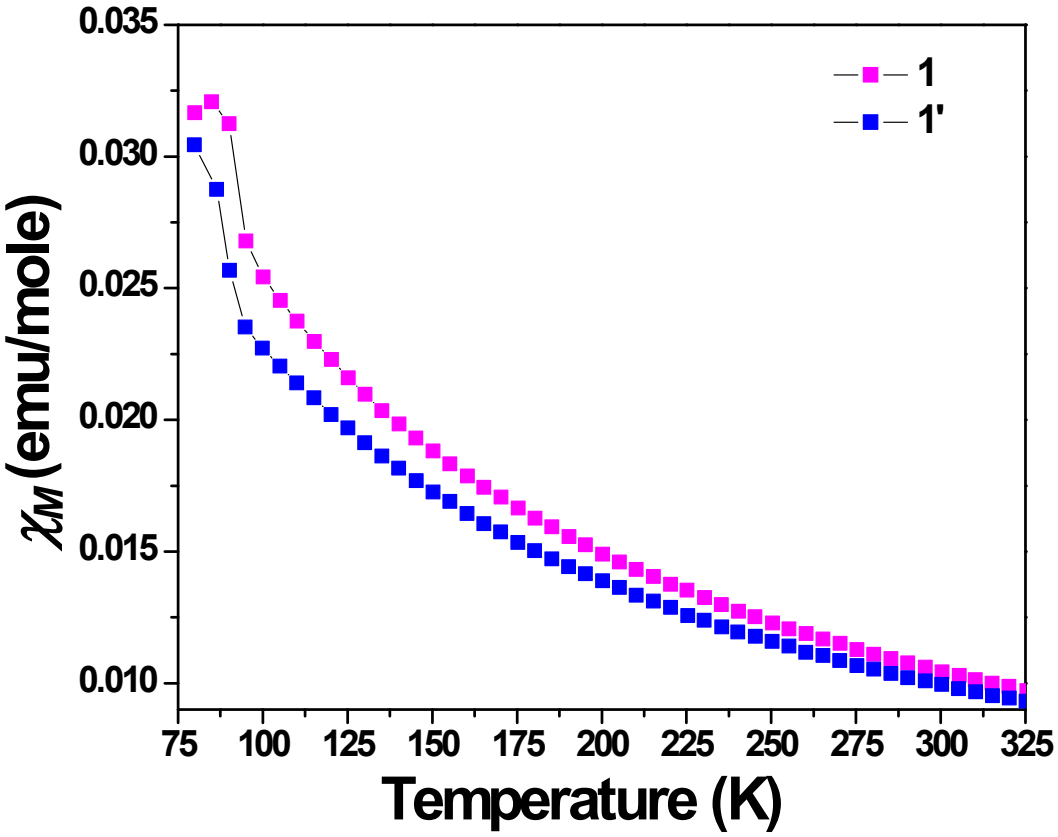

Fig. S6: Temperature variation of molar magnetic susceptibility (χ_M) of **1** and **1'** in low temperature range (80-325 K).

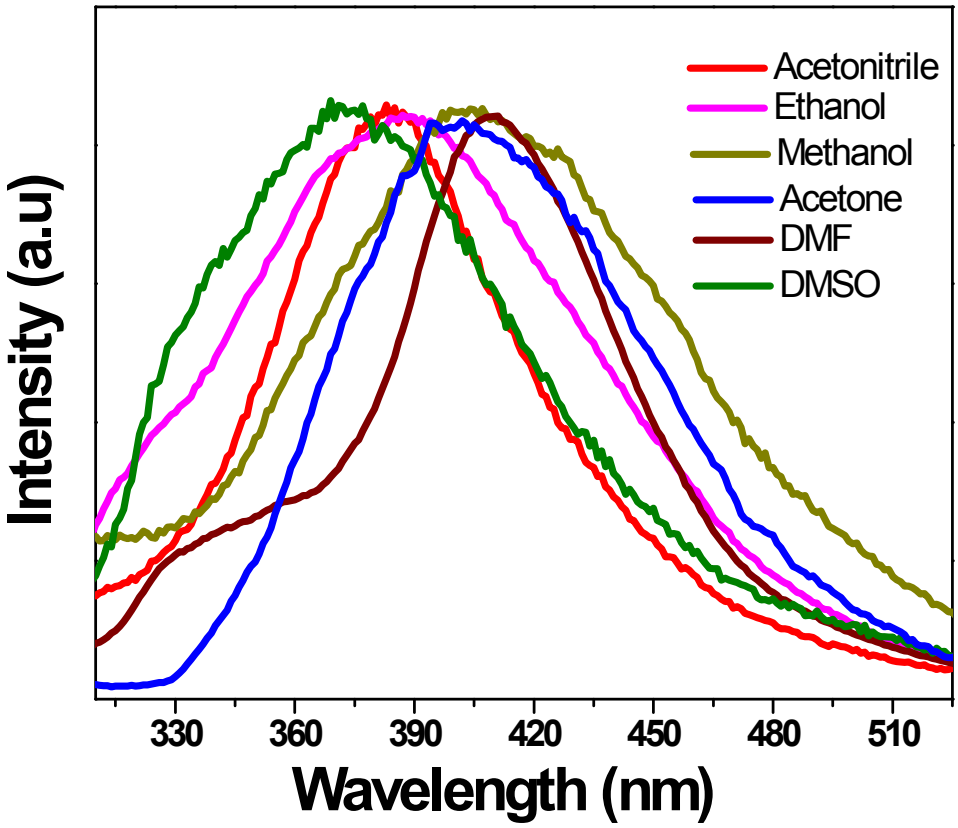

Fig. S7: Emission spectra of **1'** dispersed in various solvents. The excitation wavelength (λ) is 273 nm.

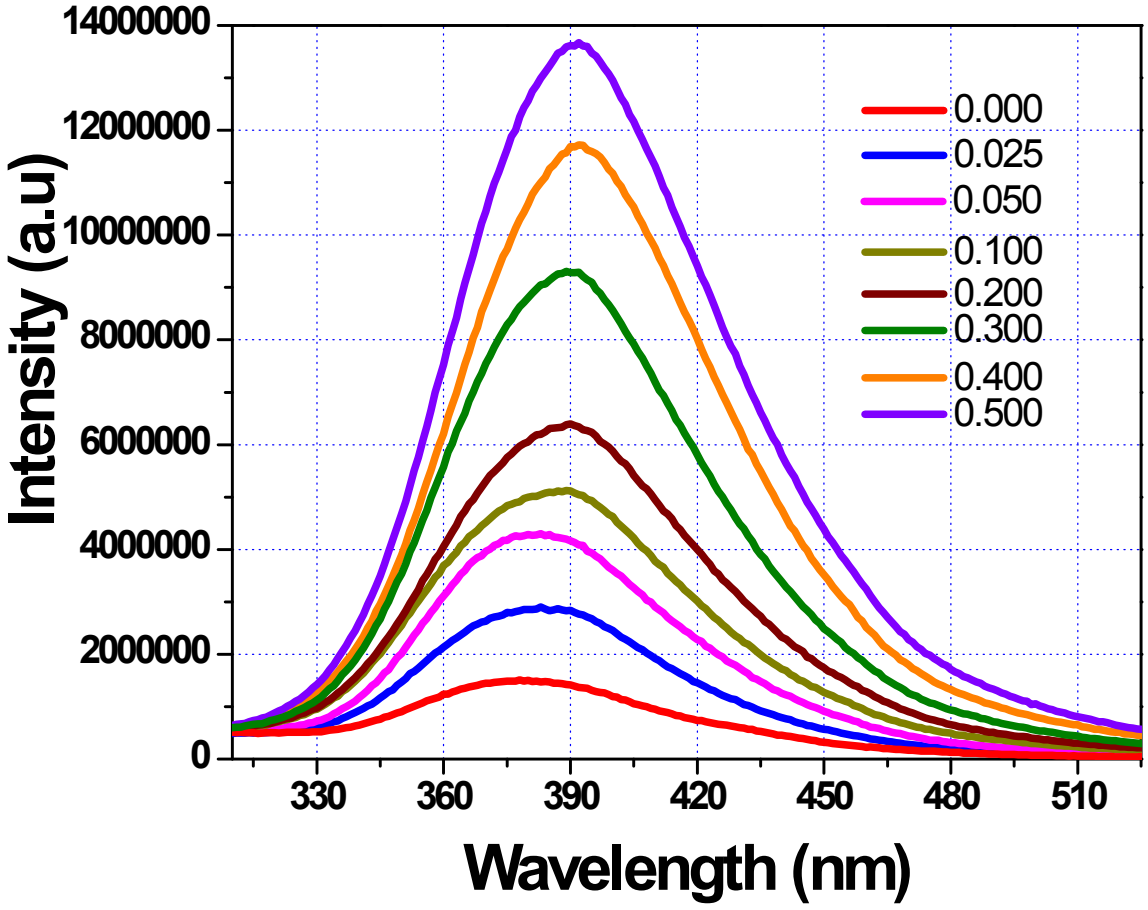

Fig. S8: Emission spectra of **1'** dispersed in acetonitrile upon the incremental addition of 0.001 N HNO_3 solutions (0.025-0.500% v/v). The excitation wavelength (λ) is 273 nm. The volume of the aqueous solution with respect to the volume of acetonitrile solution in the medium is indicated in the legend as % v/v. Note that 8.62 fold enhancement in emission intensity is observed based on 0.500% (v/v) addition.

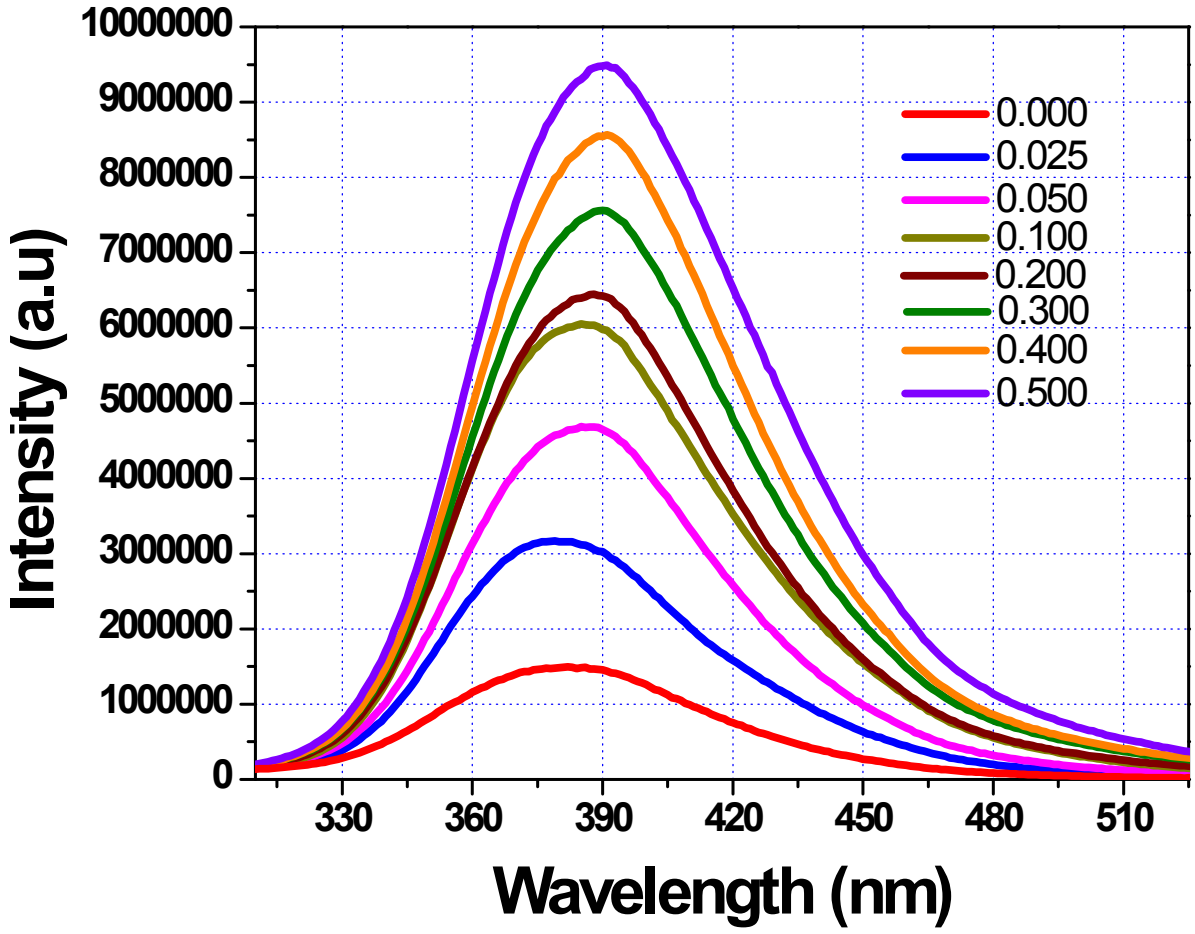

Fig. S9: Emission spectra of **1'** dispersed in acetonitrile upon the incremental addition of 0.001 N H_2SO_4 solutions (0.025-0.500% v/v). The excitation wavelength (λ) is 273 nm. The volume of the aqueous solution with respect to the volume of acetonitrile solution in the medium is indicated in the legend as % v/v. Note that 6.09 fold enhancement in emission intensity is observed based on 0.500% (v/v) addition.

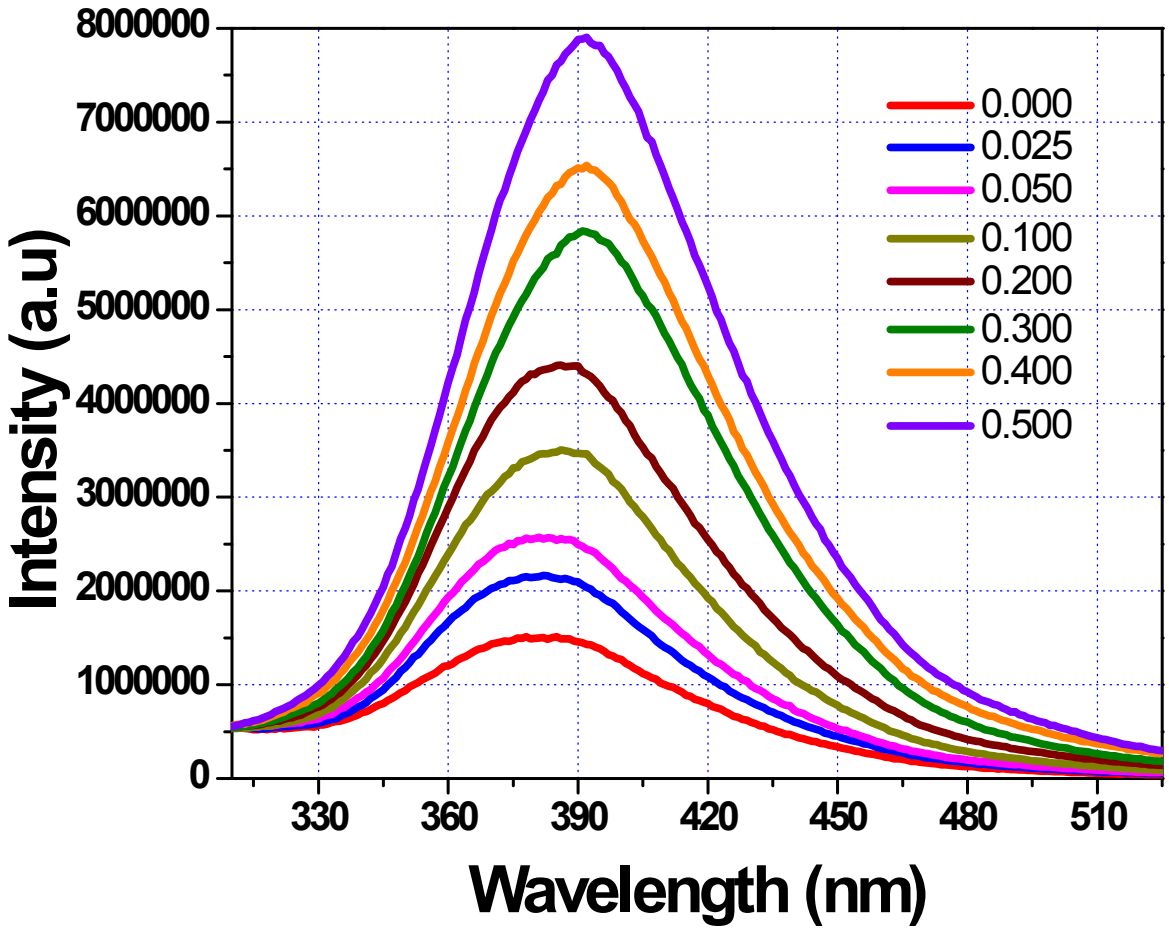

Fig. S10: Emission spectra of **1'** dispersed in acetonitrile upon the incremental addition of 0.001 N oxalic acid solutions (0.025-0.500% v/v). The excitation wavelength (λ) is 273 nm. The volume of the aqueous solution with respect to the volume of acetonitrile solution in the medium is indicated in the legend as % v/v. Note that 4.87 fold enhancement in emission intensity is observed based on 0.500% (v/v) addition.

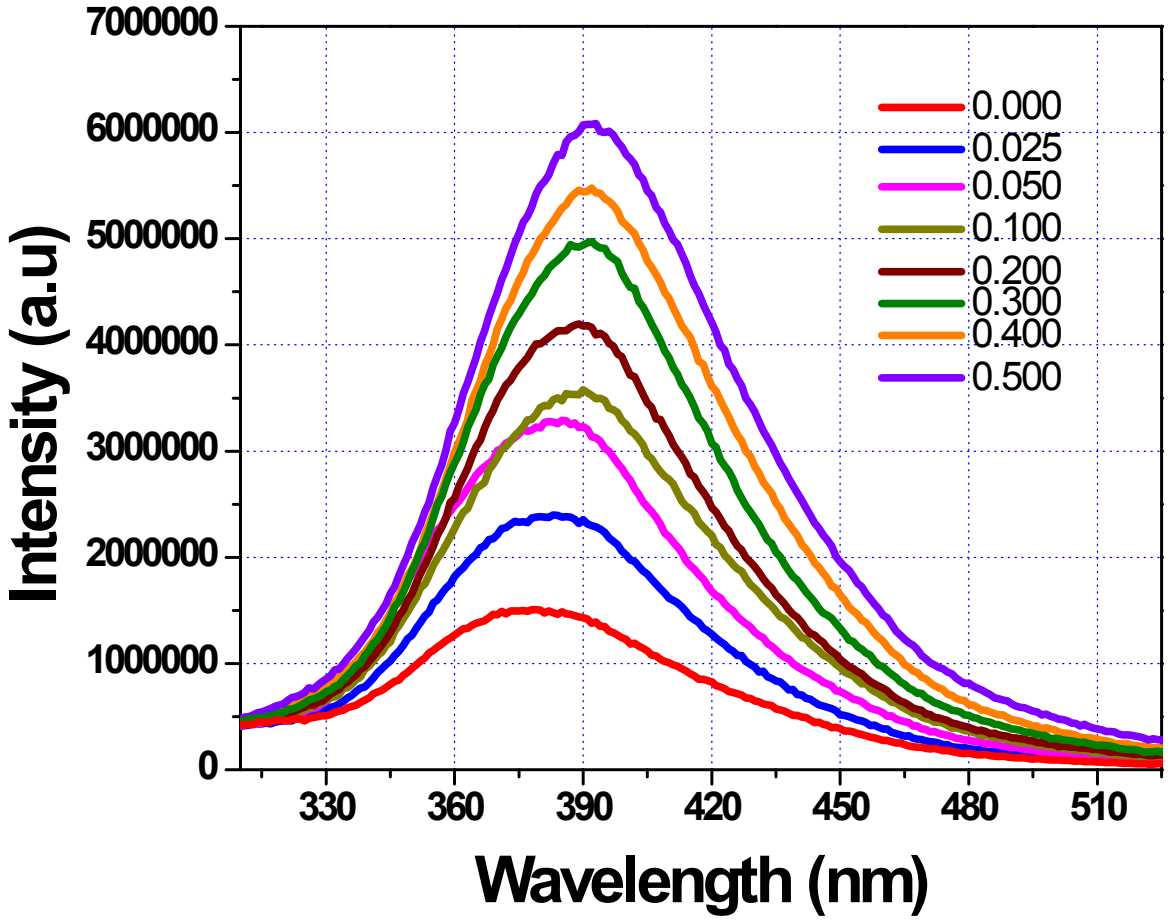

Fig. S11: Emission spectra of **1'** dispersed in acetonitrile upon the incremental addition of 0.001 N formic acid solutions (0.025-0.500% v/v). The excitation wavelength (λ) is 273 nm. The volume of the aqueous solution with respect to the volume of acetonitrile solution in the medium is indicated in the legend as % v/v. Note that 3.74 fold enhancement in emission intensity is observed based on 0.500% (v/v) addition.

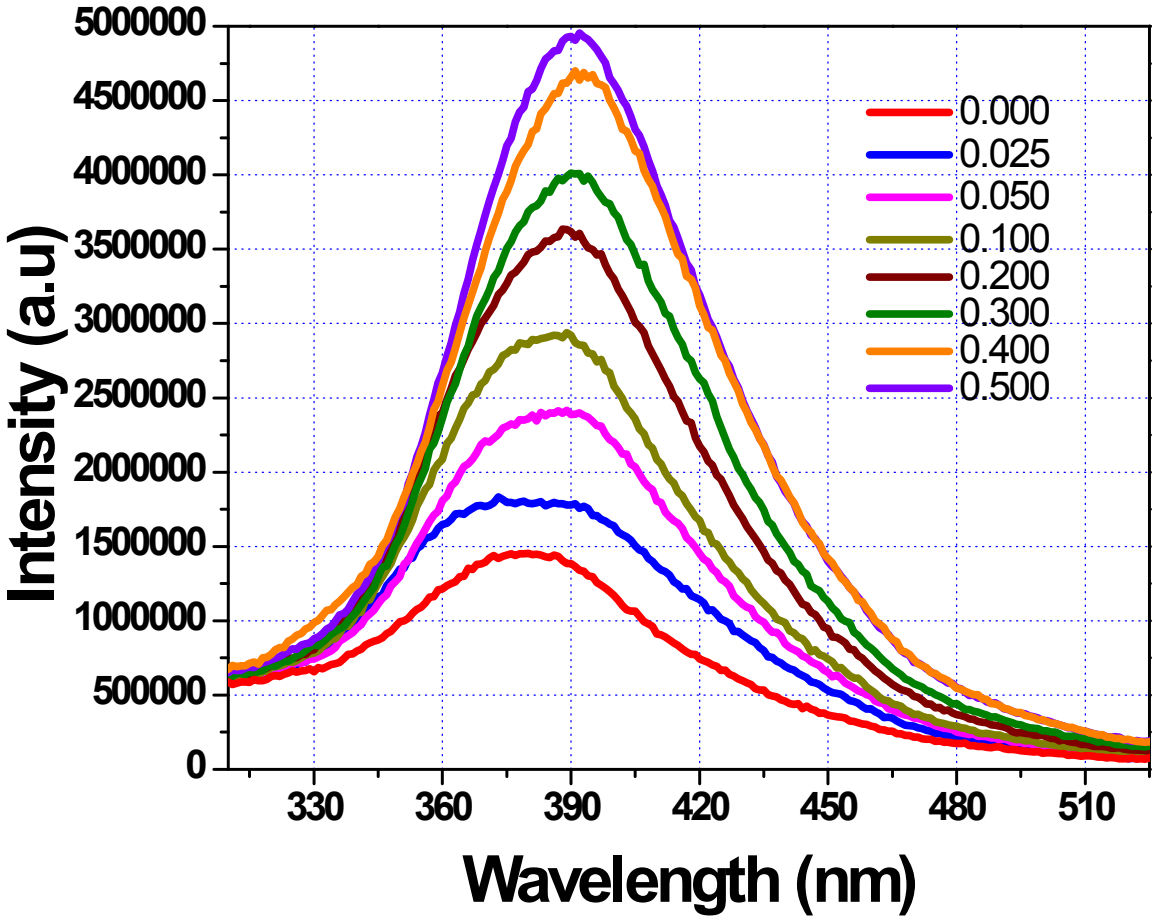

Fig. S12: Emission spectra of **1'** dispersed in acetonitrile upon the incremental addition of 0.001 N acetic acid solutions (0.025-0.500% v/v). The excitation wavelength (λ) is 273 nm. The volume of the aqueous solution with respect to the volume of acetonitrile solution in the medium is indicated in the legend as % v/v. Note that 3.19 fold enhancement in emission intensity is observed based on 0.500% (v/v) addition.

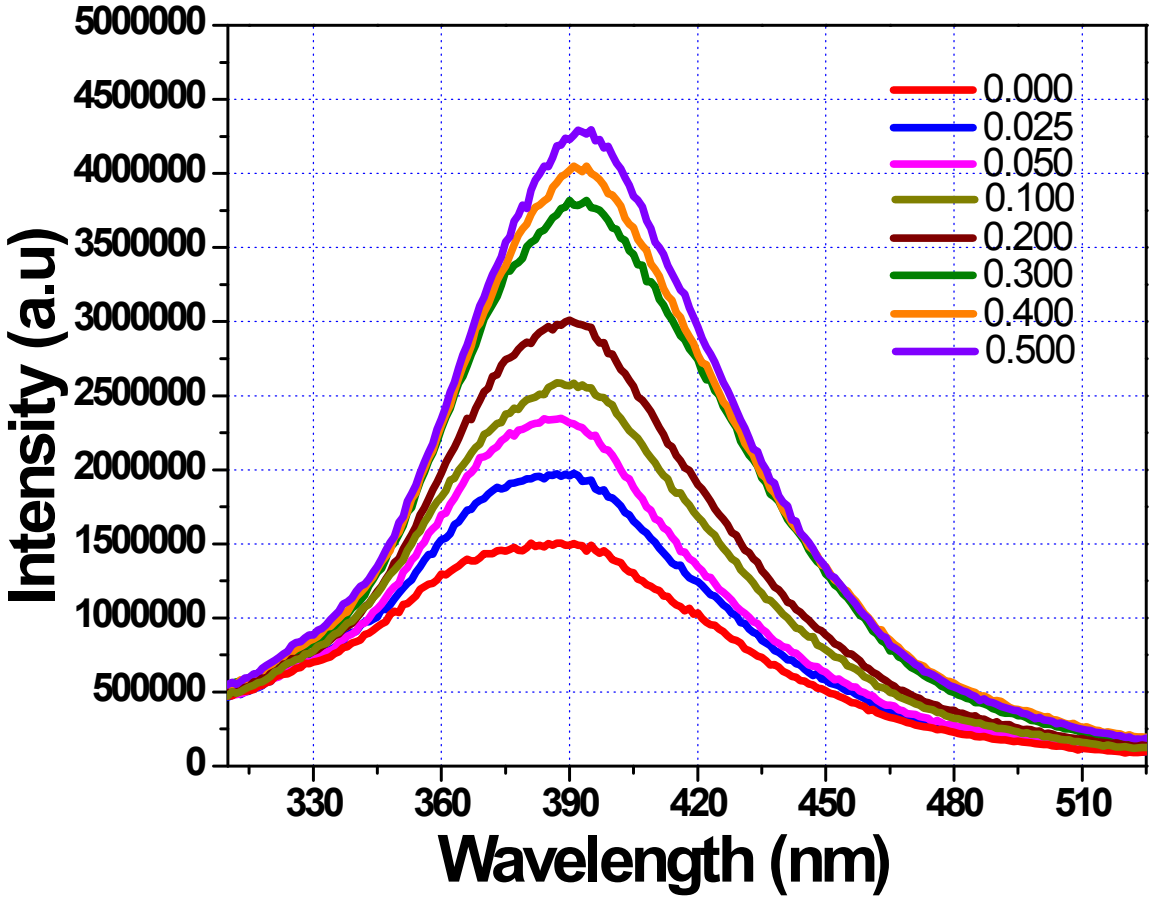

Fig. S13: Emission spectra of **1'** dispersed in acetonitrile upon the incremental addition of double distilled water (0.025-0.500% v/v). The excitation wavelength (λ) is 273 nm. The volume of the water with respect to the volume of acetonitrile solution in the medium is indicated in the legend as % v/v. Note that 2.66 fold enhancement in emission intensity is observed based on 0.500% (v/v) addition.

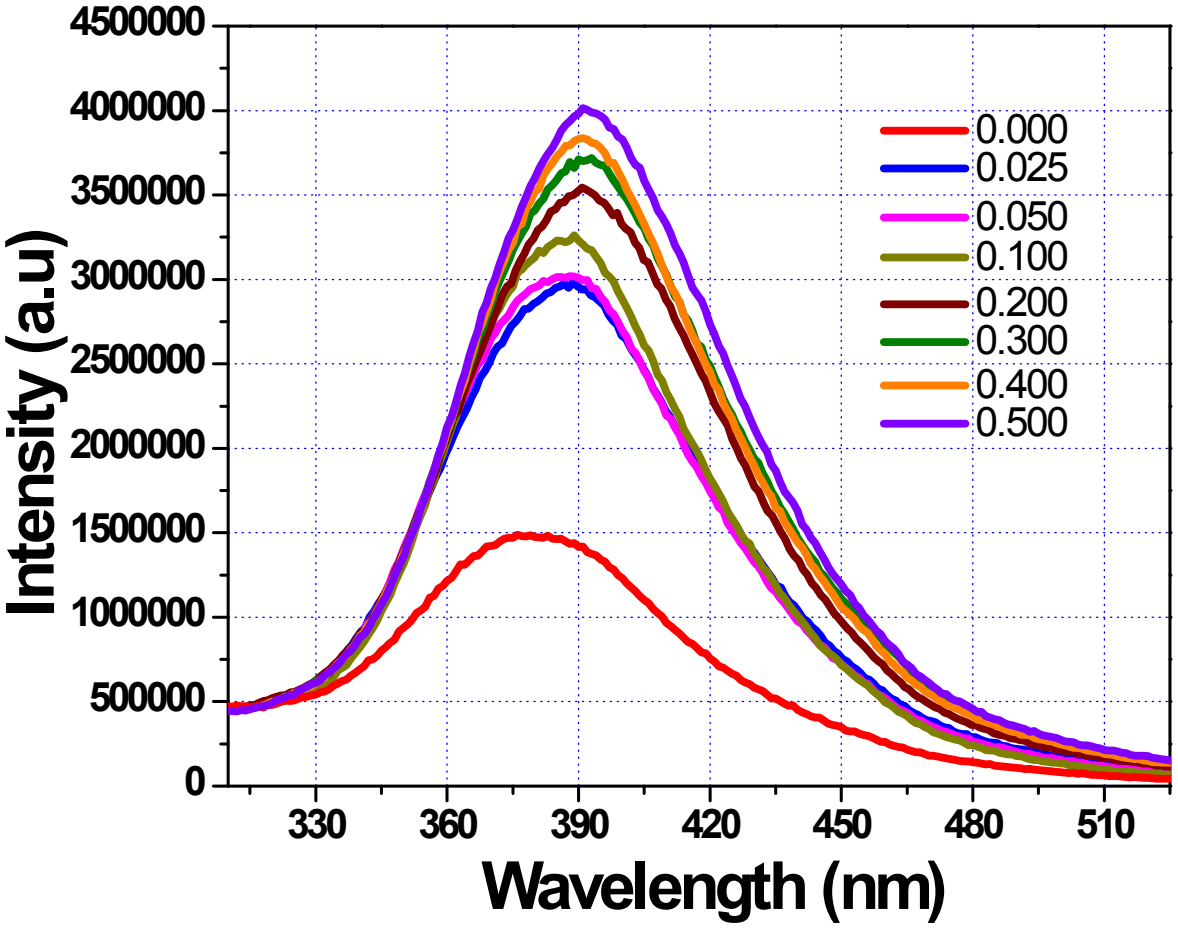

Fig. S14: Emission spectra of **1'** dispersed in acetonitrile upon the incremental addition of 0.001 N aqueous NaCl solution (0.025-0.500% v/v). The excitation wavelength (λ) is 273 nm. The volume of the aqueous solution with respect to the volume of acetonitrile solution in the medium is indicated in the legend as % v/v. Note that 2.51 fold enhancement in emission intensity is observed based on 0.500% (v/v) addition.

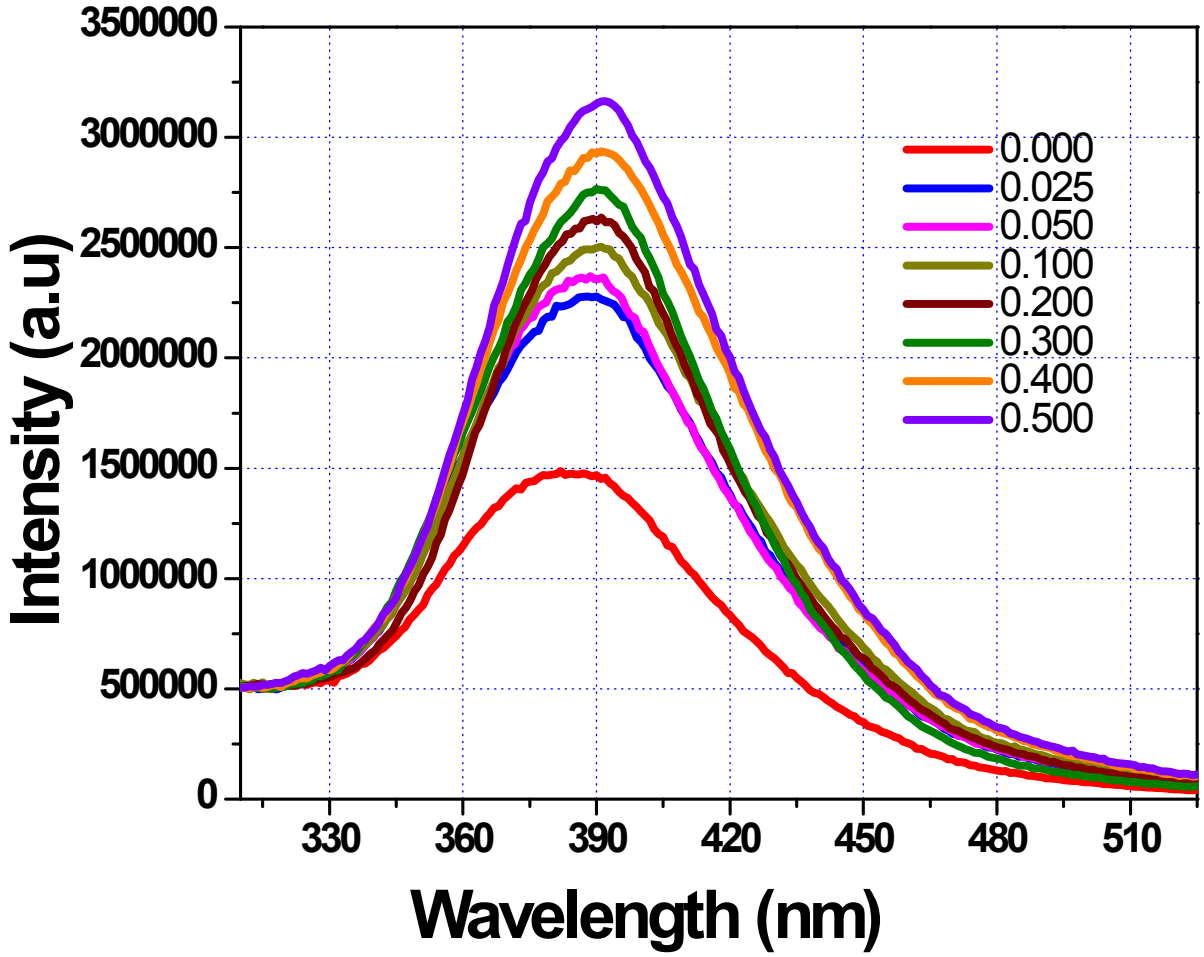

Fig. S15: Emission spectra of **1'** dispersed in acetonitrile upon the incremental addition of 0.001 N aqueous $NaNO_3$ solution (0.025-0.500% v/v). The excitation wavelength (λ) is 273 nm. The volume of the aqueous solution with respect to the volume of acetonitrile solution in the medium is indicated in the legend as % v/v. Note that 2.0 fold enhancement in emission intensity is observed based on 0.500% (v/v) addition.

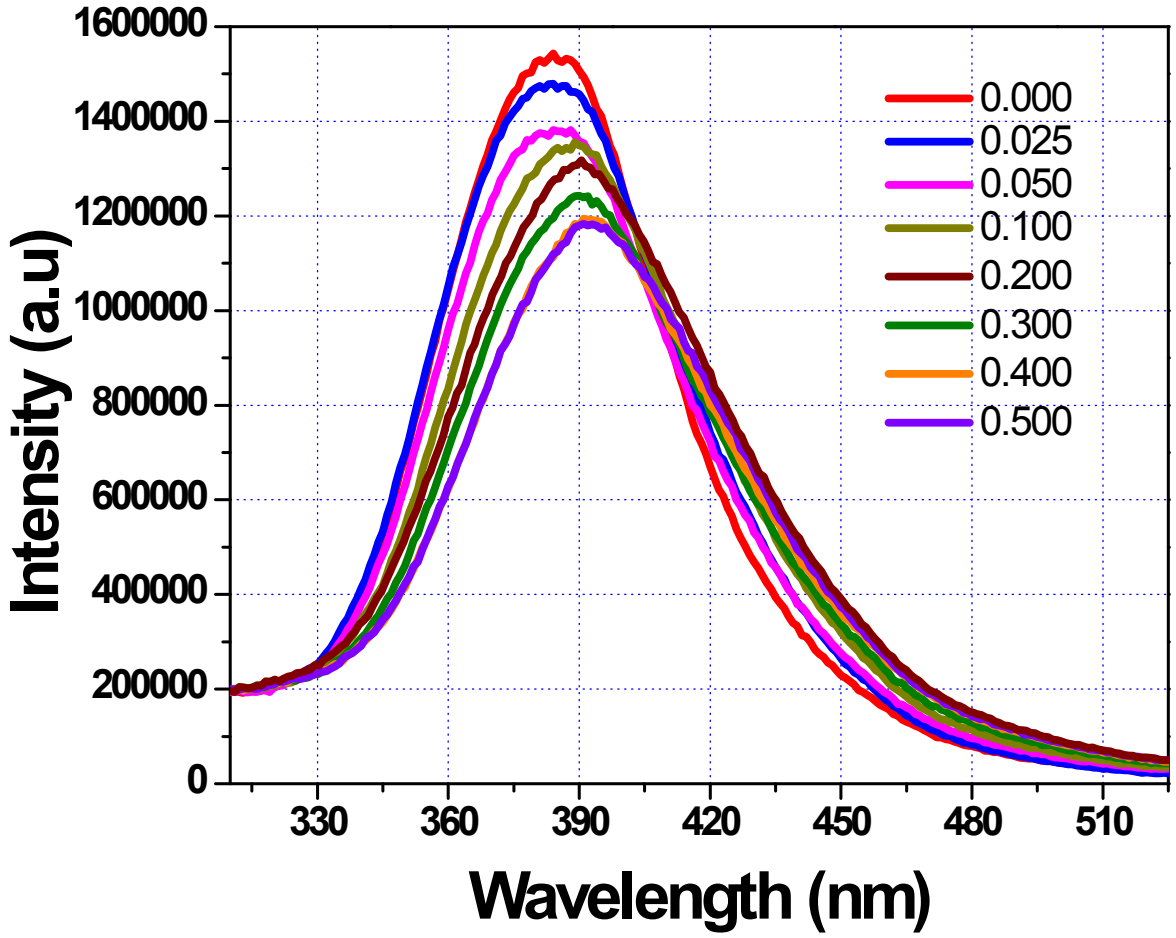

Fig. S16: Emission spectra of **1'** dispersed in acetonitrile upon the incremental addition of 0.001 N aqueous Na_2SO_4 solution (0.025-0.500% v/v). The excitation wavelength (λ) is 273 nm. The volume of the aqueous solution with respect to the volume of acetonitrile solution in the medium is indicated in the legend as % v/v. Note that 1.38 fold reduction in emission intensity is observed based on 0.500% (v/v) addition.

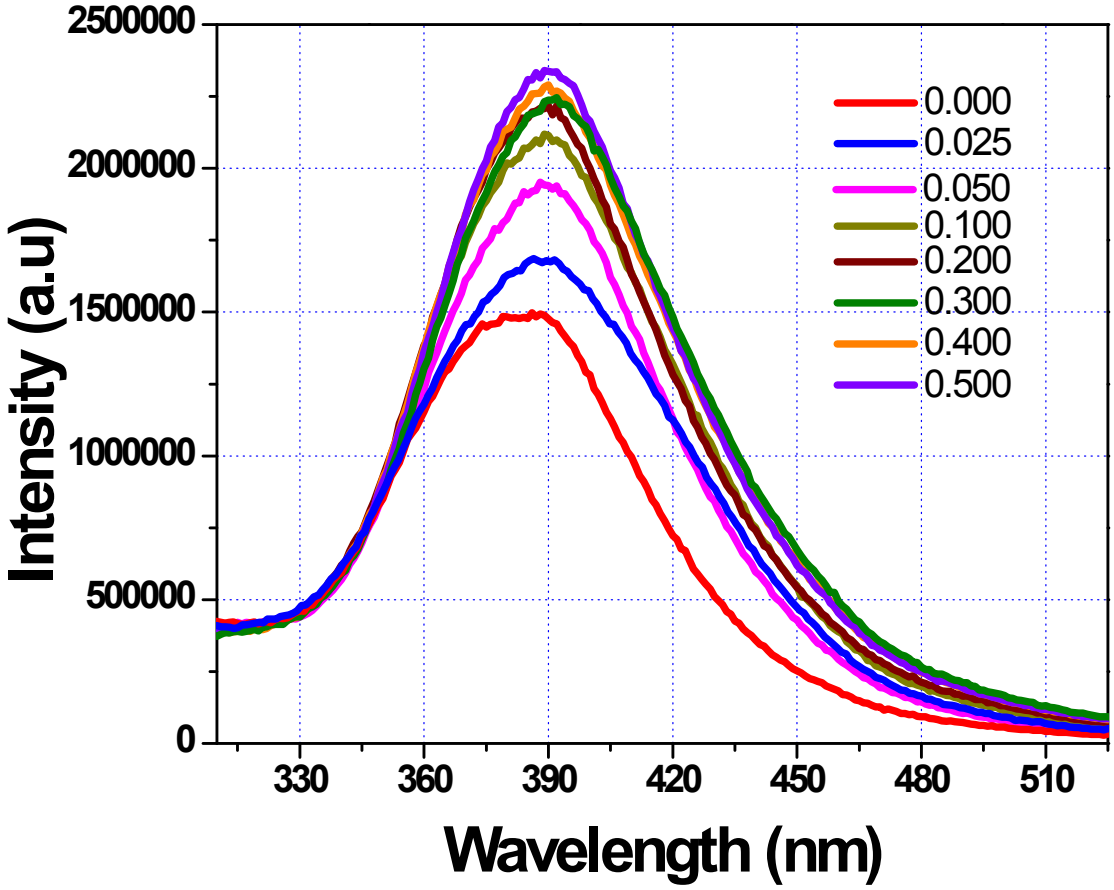

Fig. S17: Emission spectra of **1'** dispersed in acetonitrile upon the incremental addition of 0.001 N aqueous $Na_2C_2O_4$ solution (0.025-0.500% v/v). The excitation wavelength (λ) is 273 nm. The volume of the aqueous solution with respect to the volume of acetonitrile solution in the medium is indicated in the legend as % v/v. Note that 1.51 fold enhancement in emission intensity is observed based on 0.500% (v/v) addition.

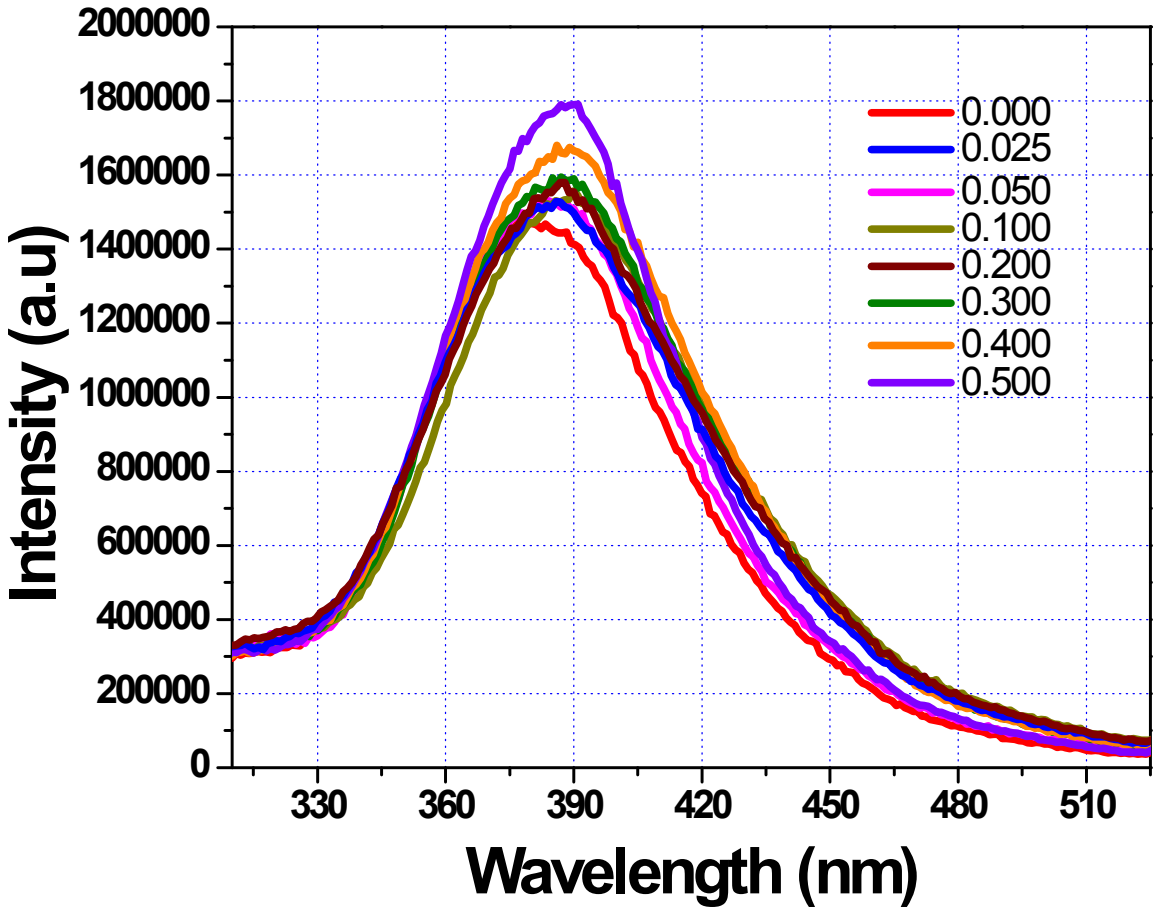

Fig. S18: Emission spectra of **1'** dispersed in acetonitrile upon the incremental addition of 0.001 N aqueous HCOONa solution (0.025-0.500% v/v). The excitation wavelength (λ) is 273 nm. The volume of the aqueous solution with respect to the volume of acetonitrile solution in the medium is indicated in the legend as % v/v. Note that 1.18 fold enhancement in emission intensity is observed based on 0.500% (v/v) addition.

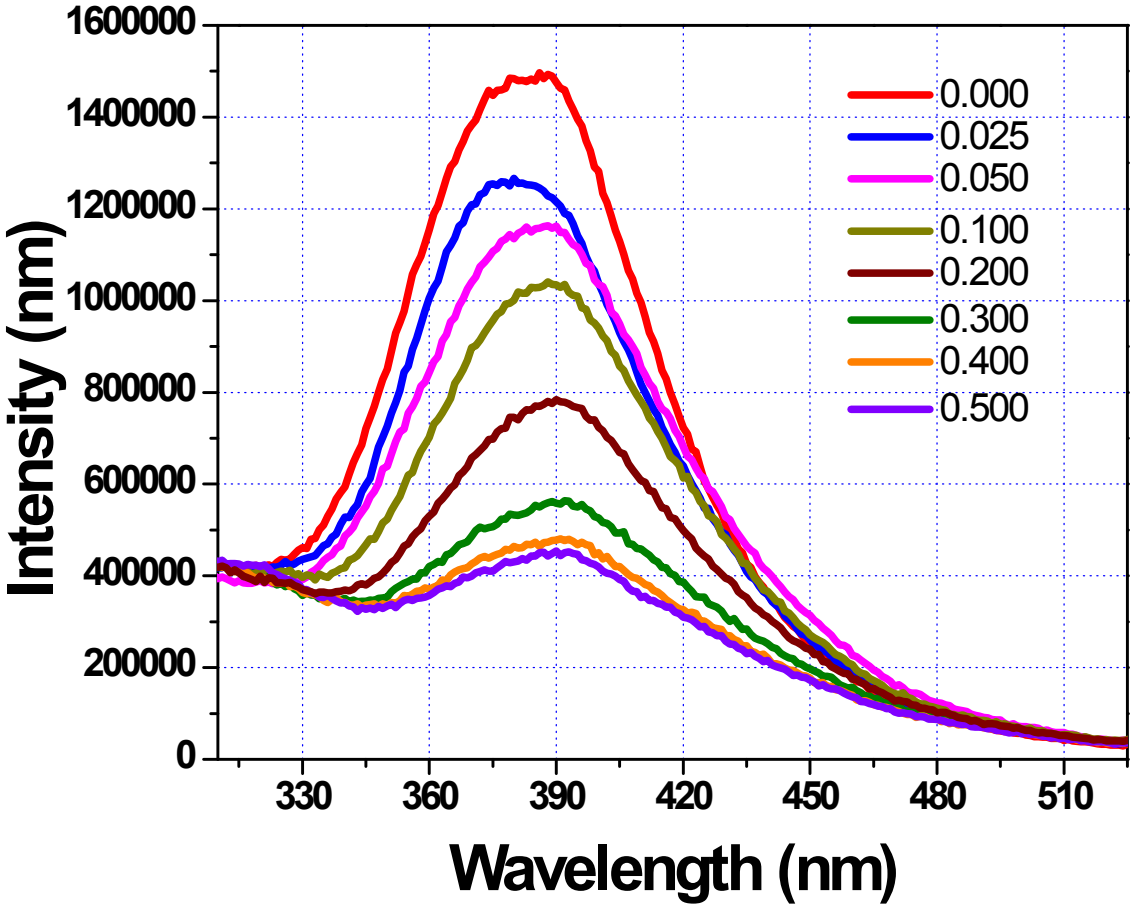

Fig. S19: Emission spectra of **1'** dispersed in acetonitrile upon the incremental addition of 0.001 N aqueous CH_3COONa solution (0.025-0.500% v/v). The excitation wavelength (λ) is 273 nm. The volume of the aqueous solution with respect to the volume of acetonitrile solution in the medium is indicated in the legend as % v/v. Note that 3.38 fold reduction in emission intensity is observed based on 0.500% (v/v) addition.

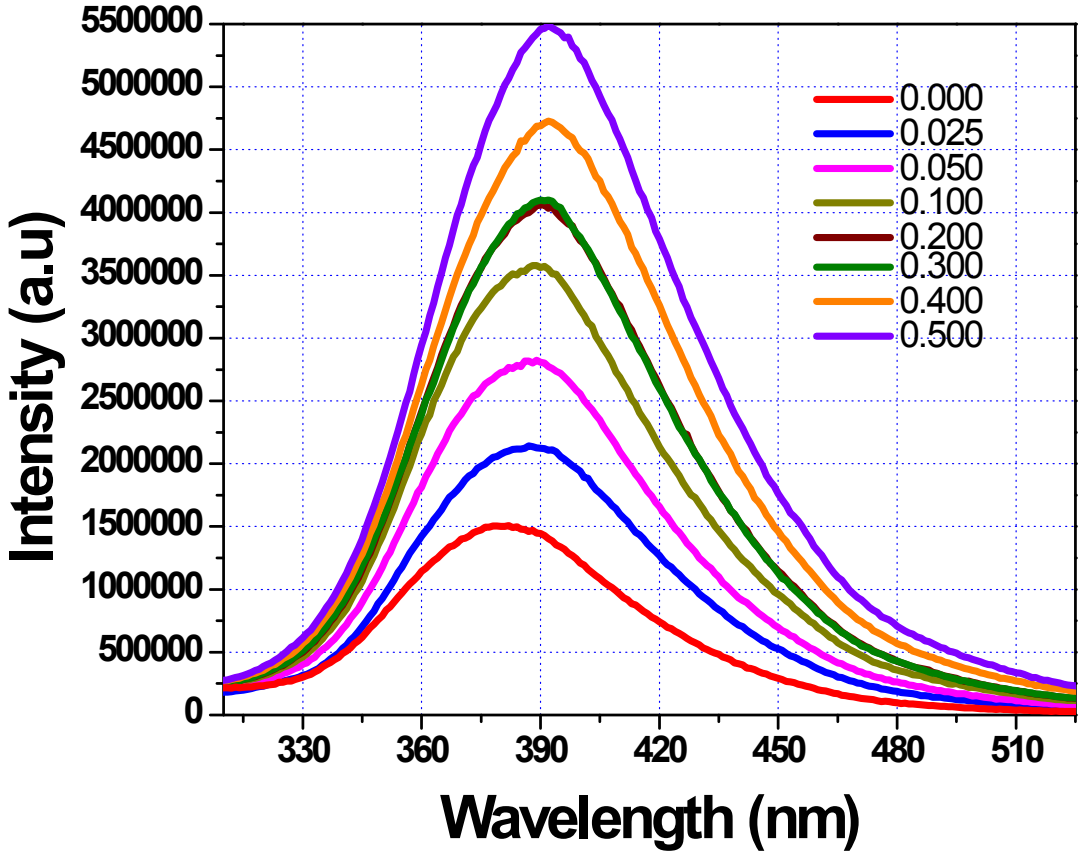

Fig. S20: Emission spectra of **1'** dispersed in acetonitrile upon the incremental addition of 0.001 N L-aspartic acid solutions (0.025-0.500% v/v). The excitation wavelength (λ) is 273 nm. The volume of the aqueous solution with respect to the volume of acetonitrile solution in the medium is indicated in the legend as % v/v. Note that 3.36 fold enhancement in emission intensity is observed based on 0.500% (v/v) addition.

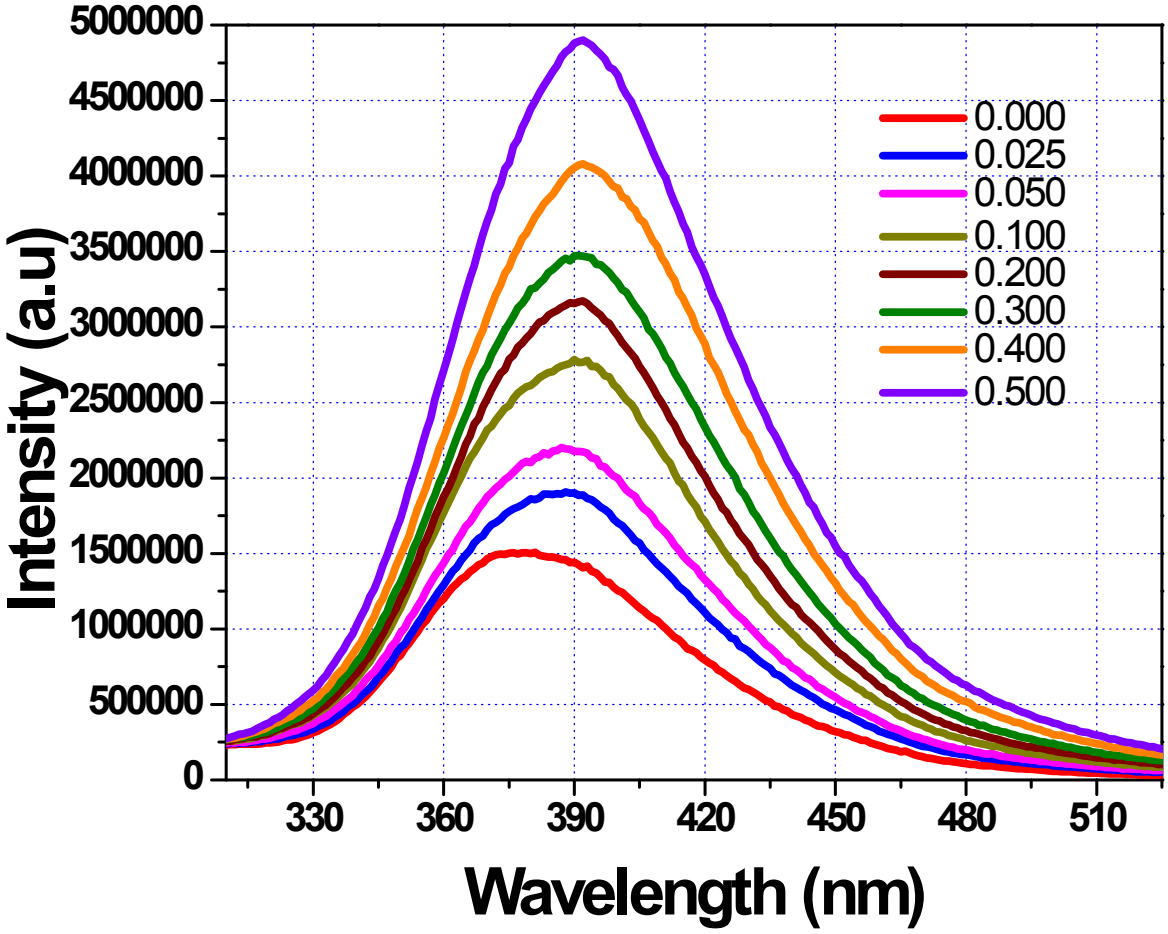

Fig. S21: Emission spectra of **1'** dispersed in acetonitrile upon the incremental addition of 0.001 N L-glutamic acid solutions (0.025-0.500% v/v). The excitation wavelength (λ) is 273 nm. The volume of the aqueous solution with respect to the volume of acetonitrile solution in the medium is indicated in the legend as % v/v. Note that 3.05 fold enhancement in emission intensity is observed based on 0.500% (v/v) addition.

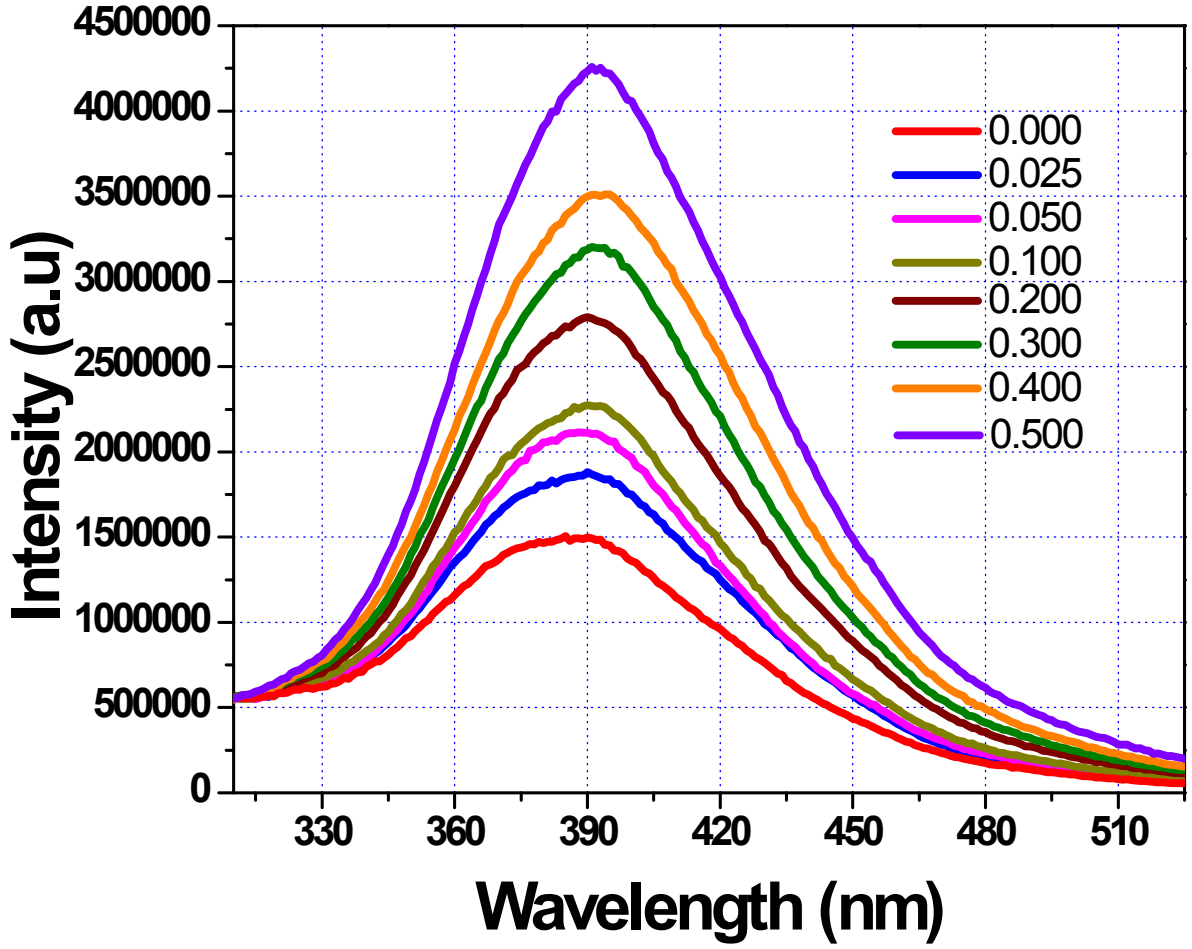

Fig. S22: Emission spectra of **1'** dispersed in acetonitrile upon the incremental addition of 0.001 N L-alanine solutions (0.025-0.500% v/v). The excitation wavelength (λ) is 273 nm. The volume of the aqueous solution with respect to the volume of acetonitrile solution in the medium is indicated in the legend as % v/v. Note that 2.71 fold enhancement in emission intensity is observed based on 0.500% (v/v) addition.