Electronic Supporting Information

A highly sensitive and selective chemosensors for Cu^{2+} and Al^{3+} based on photoinduced electron transfer (PET) mechanism

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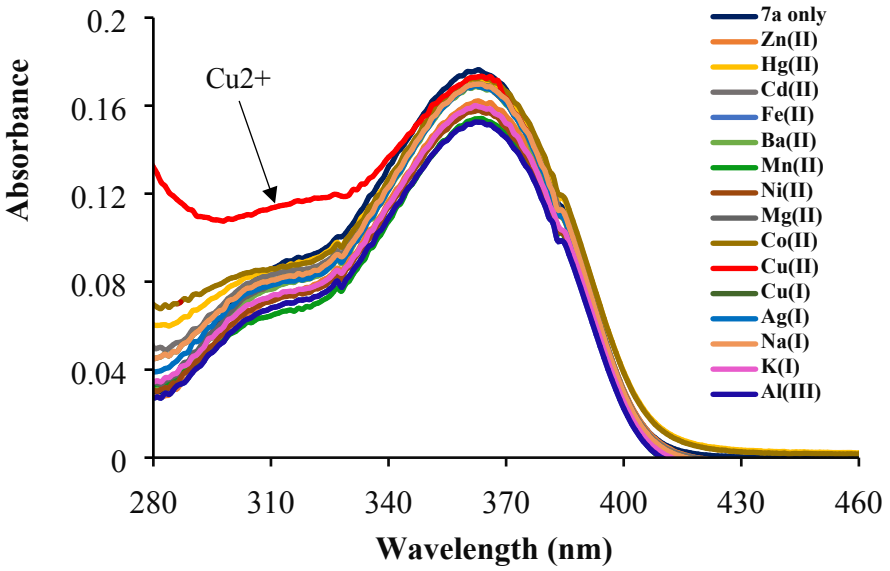

Fig. S1. Absorption spectra of **7a** (20μM) upon addition of Zn^{2+}, Hg^{2+}, Cd^{2+}, Fe^{2+}, Ba^{2+}, Mn^{2+}, Ni^{2+}, Mg^{2+}, Co^{2+}, Cu^{2+}, Cu^{+}, Ag^{+}, Na^{+}, K^{+} and Al^{3+} (5 equiv.) in CH_3CN.

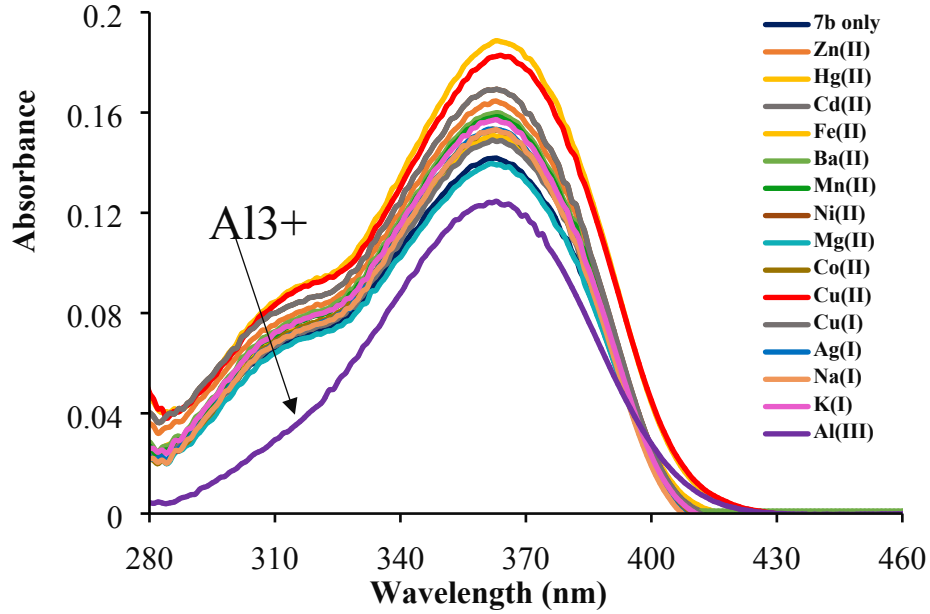

Fig. S2. Absorption spectra of **7b** (20μM) upon addition of Zn^{2+}, Hg^{2+}, Cd^{2+}, Fe^{2+}, Ba^{2+}, Mn^{2+}, Ni^{2+}, Mg^{2+}, Co^{2+}, Cu^{2+}, Cu^{+}, Ag^{+}, Na^{+}, K^{+} and Al^{3+} (5 equiv.) in CH_3CN.

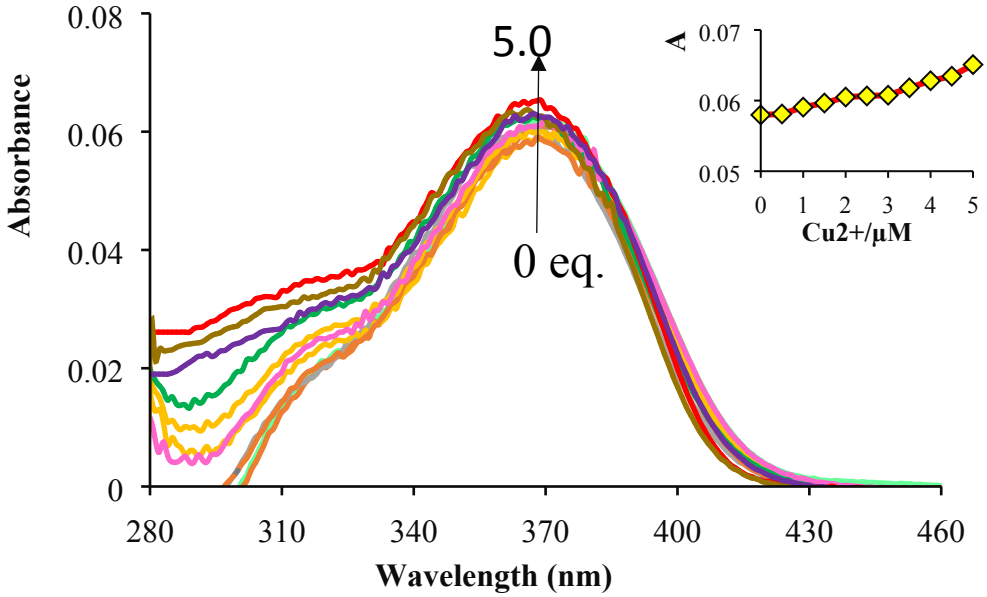

Fig. S3. Changes in the absorption spectra of probe **7a** (10 μM) upon titration with 0 to 5.0 eq. of Cu^{2+} in CH_3CN. Inset: Absorbance at 365 nm as a function of Cu^{2+} concentration.

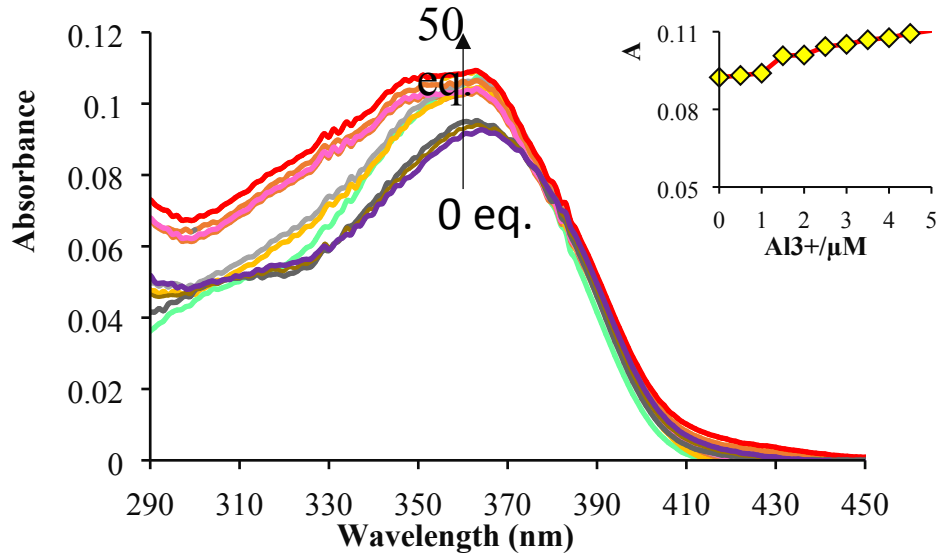

Fig. S4. Changes in the absorption spectra of probe **7b** (10 μM) upon titration with 0 to 5.0 eq. of Al^{3+} in CH_3CN. Inset: Absorbance at 365 nm as a function of Al^{3+} concentration.

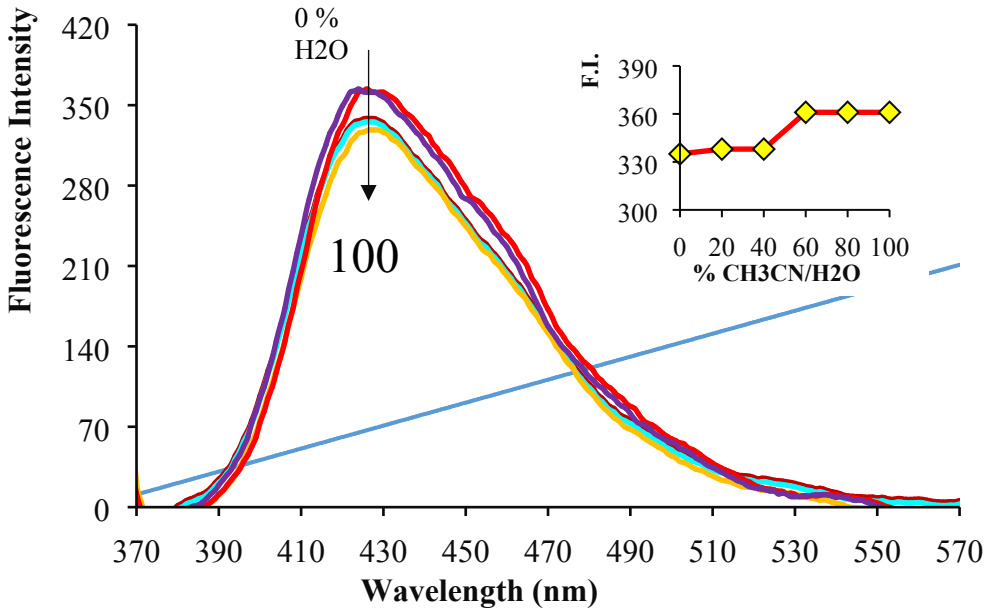

Fig. S5. Change in the fluorescence emission spectra of probe **7a** (10 μM) in CH_3CN/H_2O mixture upon titration with 5.0 eq. of Cu^{2+} at pH 9.0. Inset: The fluorescence intensity (F.I.) at 428 nm as a function of CH_3CN/H_2O mixture. λex = 365 nm (Slit widths: 2.5 nm/2.5 nm).

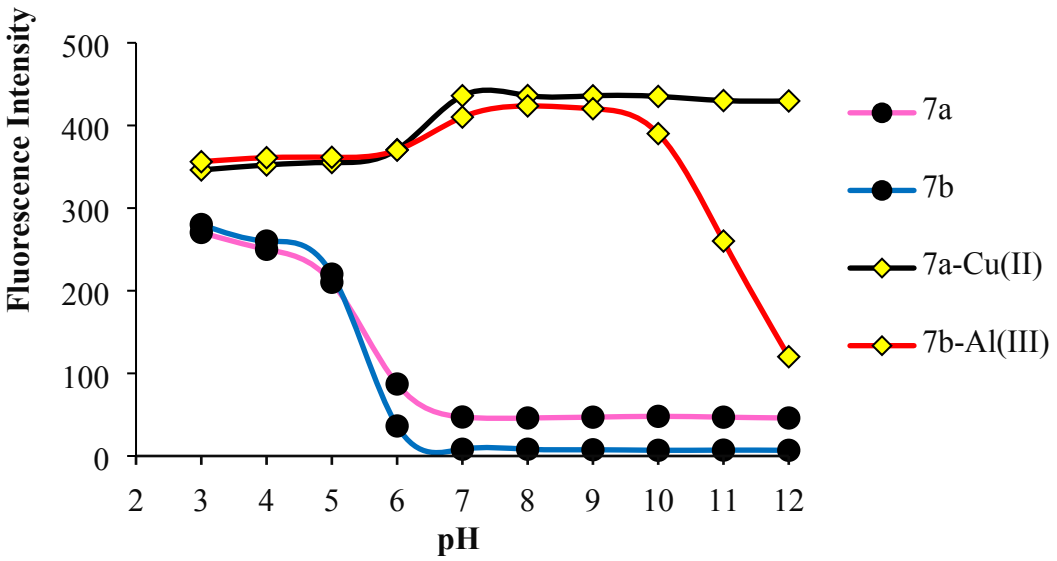

Fig. S6. Fluorescence response of free chemosensor **7a** (10.0 μM) and after addition of Cu^{2+} (10.0 μM) and **7b** (10.0 μM) and after addition of Al^{3+} (10.0 μM) in ACN-Phosphate buffer (10 mM, 9:1, v/v) as a function of different pH values. λex = 365 nm (Slit widths: 5 nm/5 nm).

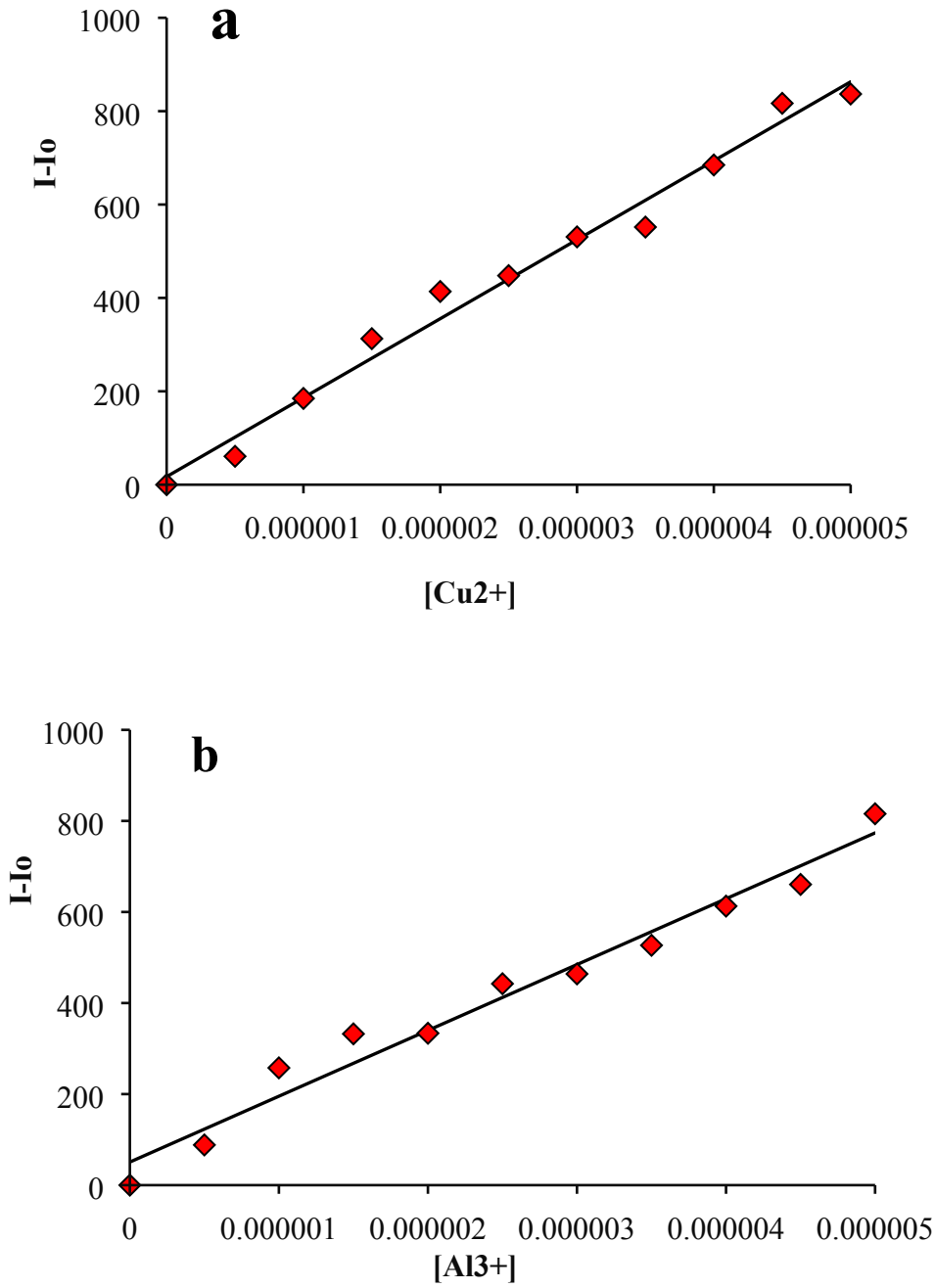

Fig. S7. Limit of detection calculation for **7a-Cu**$^{2+}$ (a) and **7b-Al**$^{3+}$ (b) complexes from linear curve fit of emission values.

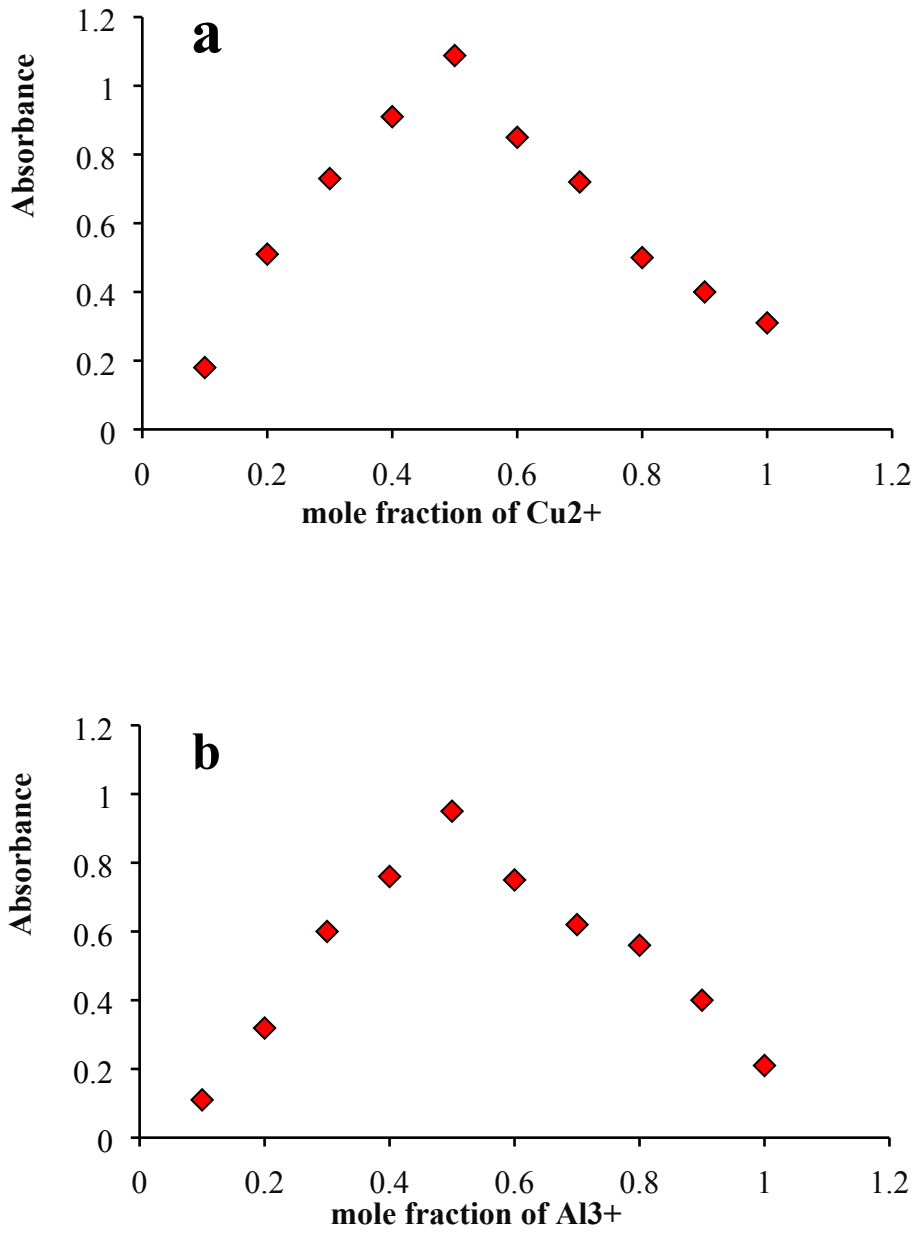

Fig. S8. Job's plot of the (a) **7a**-Cu^{2+} and (b) **7b**-Al^{3+} complexes in CH_3CN. The total concentration of L-metal was 1.0 x 10^{-4} M.

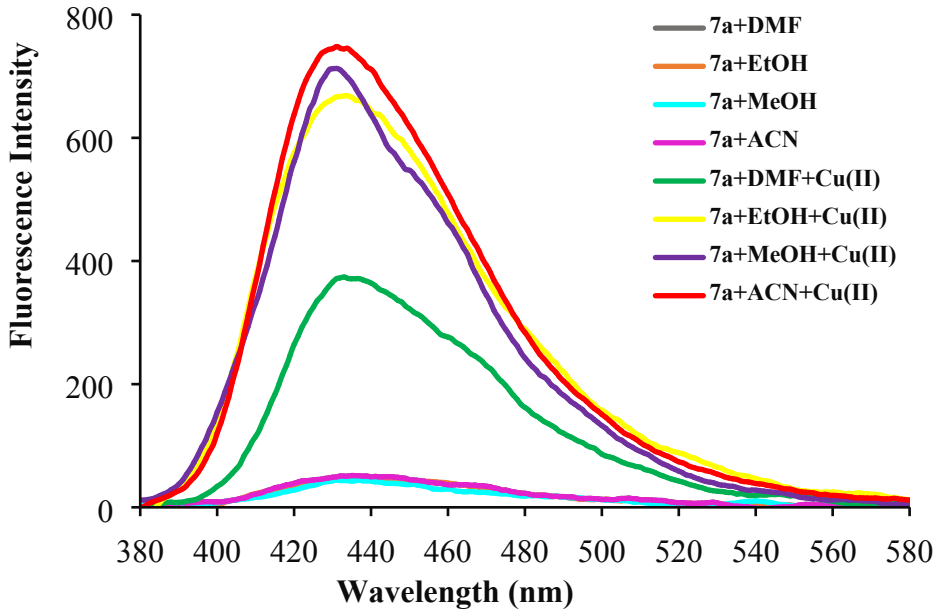

Fig. S9. Effect of the solvents on the fluorescence intensity of **7a** (20 μM) in the presence or absence of Cu^{2+} ions (5 equiv.). λex = 365 nm (Slit widths: 5 nm/5 nm).

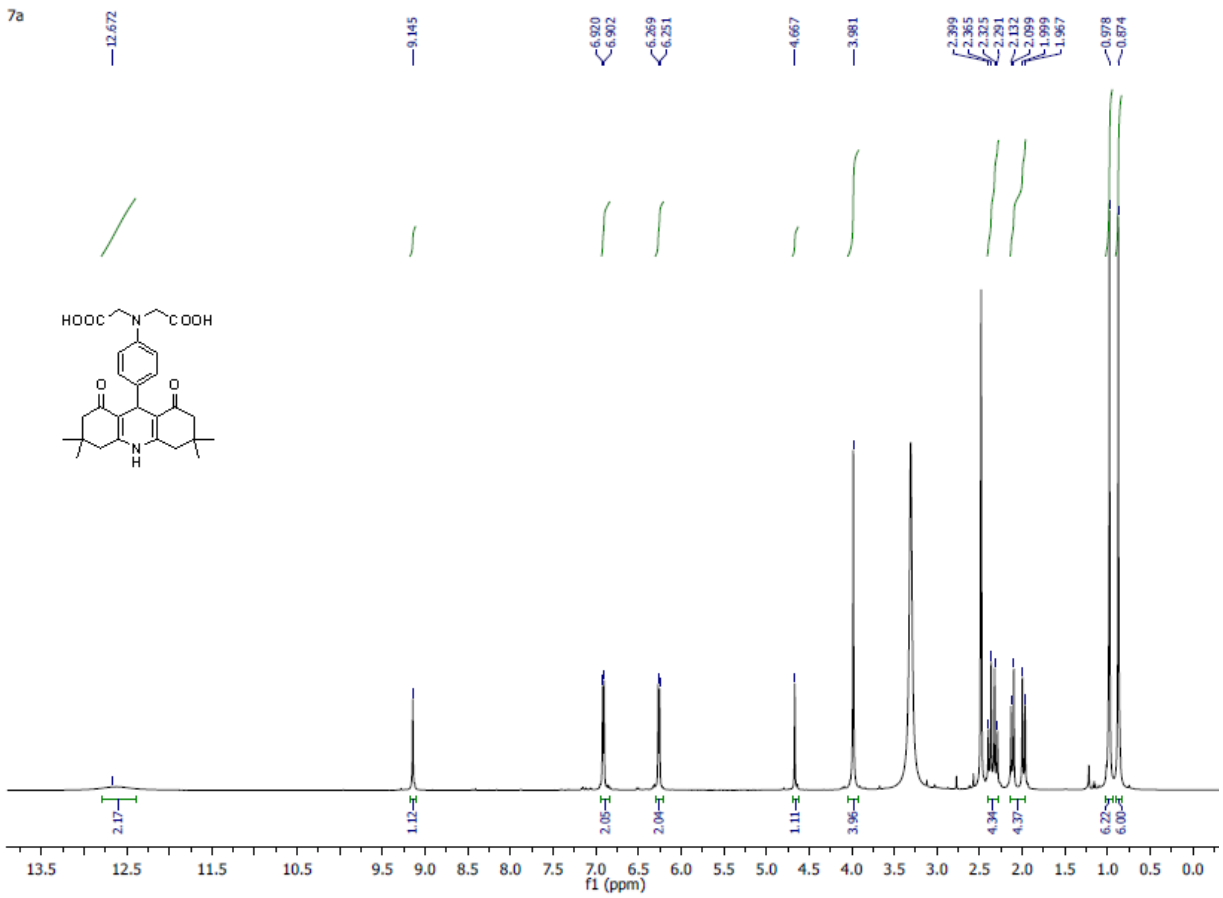

Fig. S10. ^{1}H NMR spectra of **7a** in DMSO-*d6*.

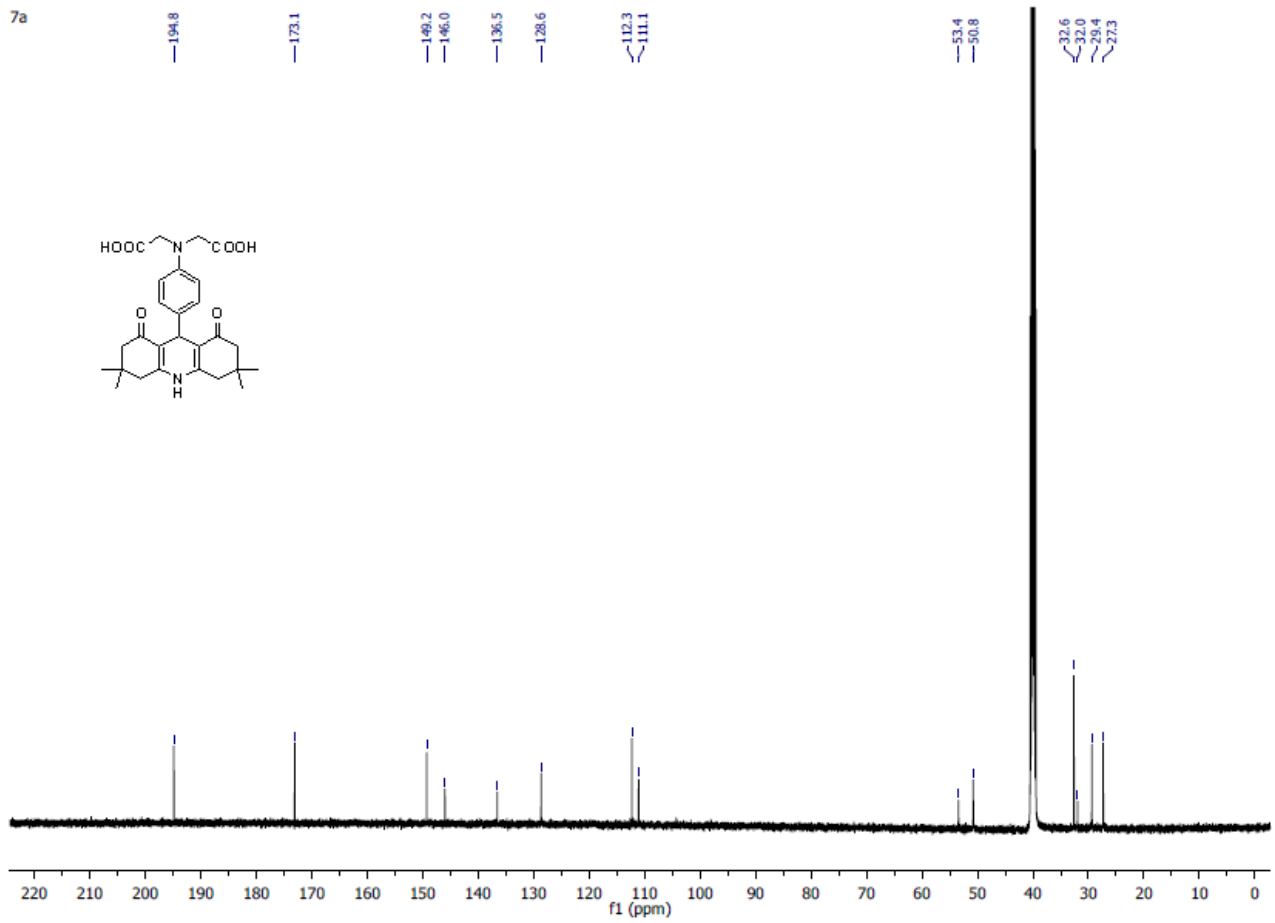

Fig. S11. ^{13}C NMR spectra of **7a** in DMSO-*d6*.

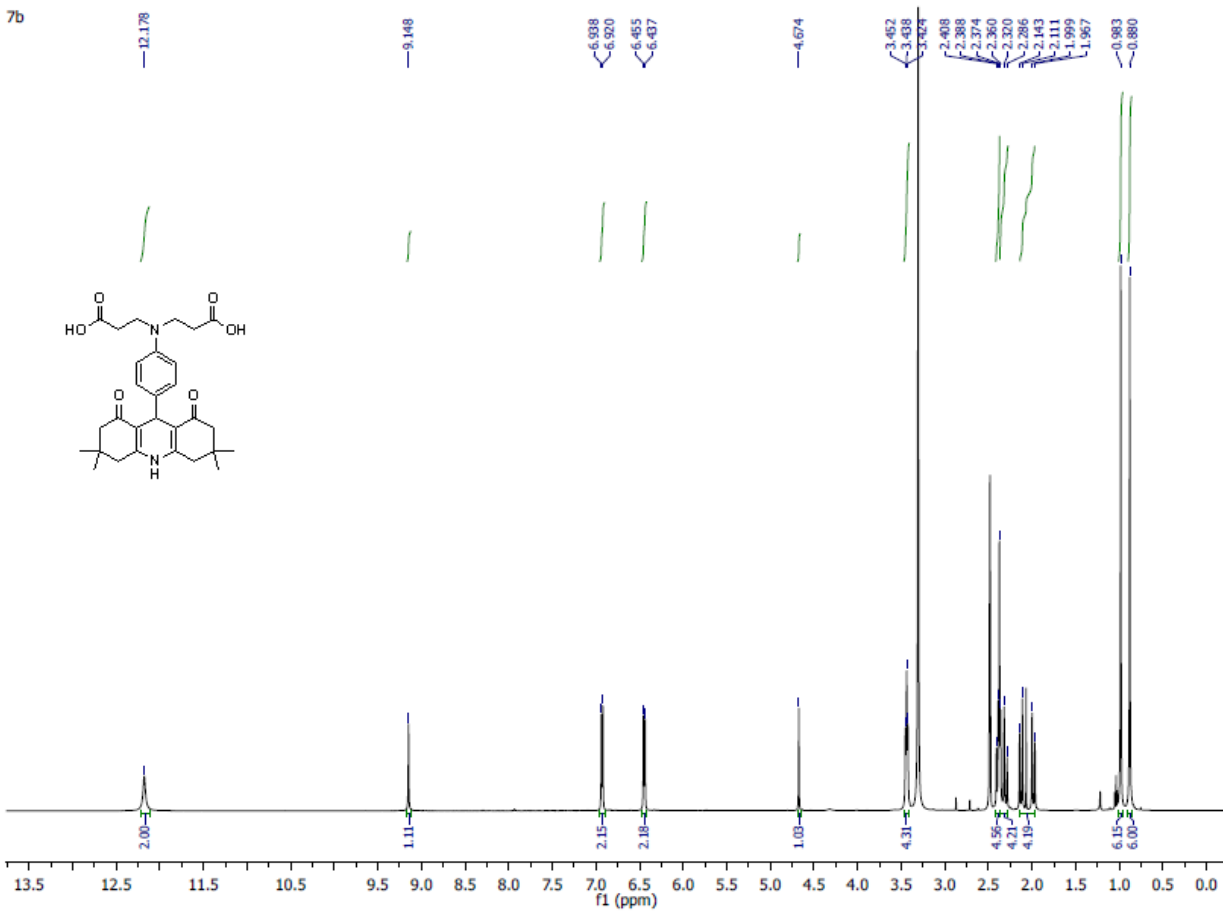

Fig. S12. ^{1}H NMR spectra of **7b** in DMSO-*d6*.

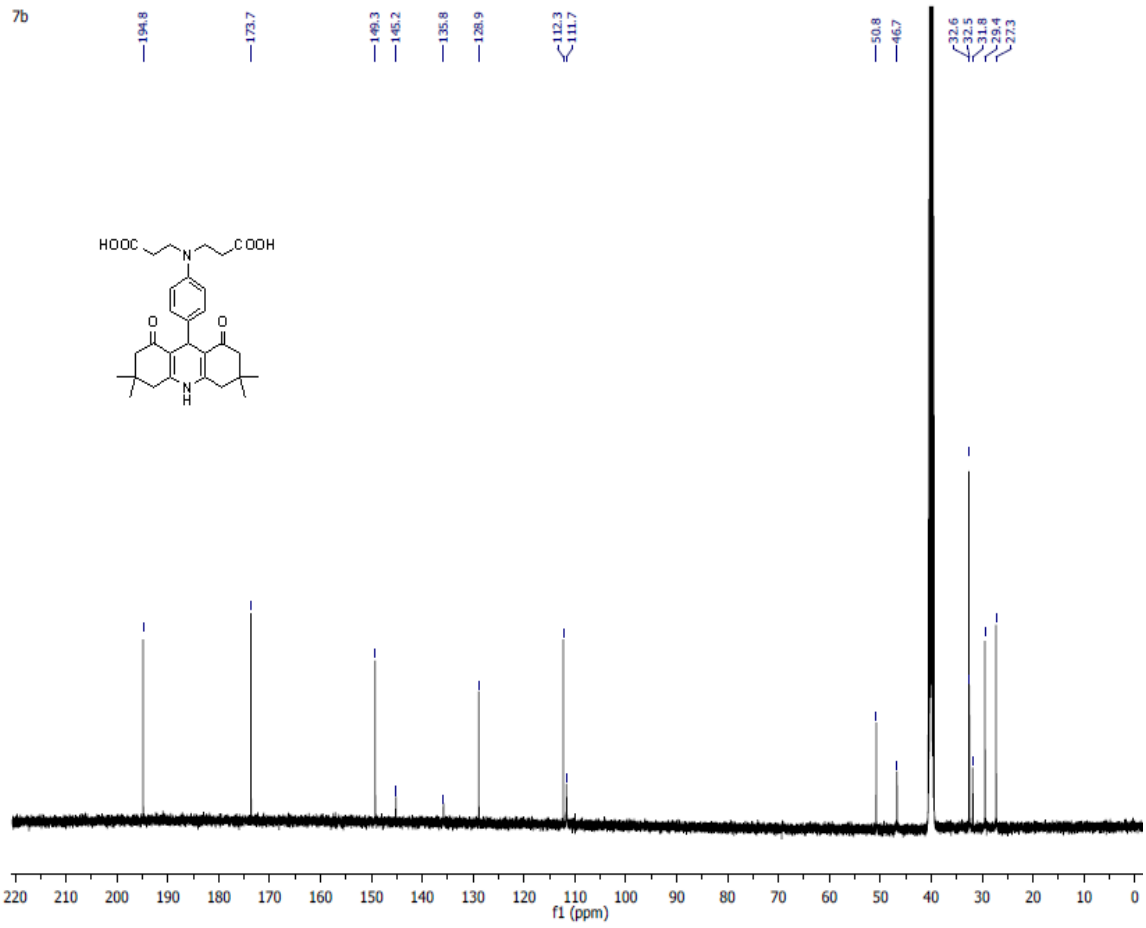

Fig. S13. ^{13}C NMR spectra of **7b** in DMSO-*d6*.

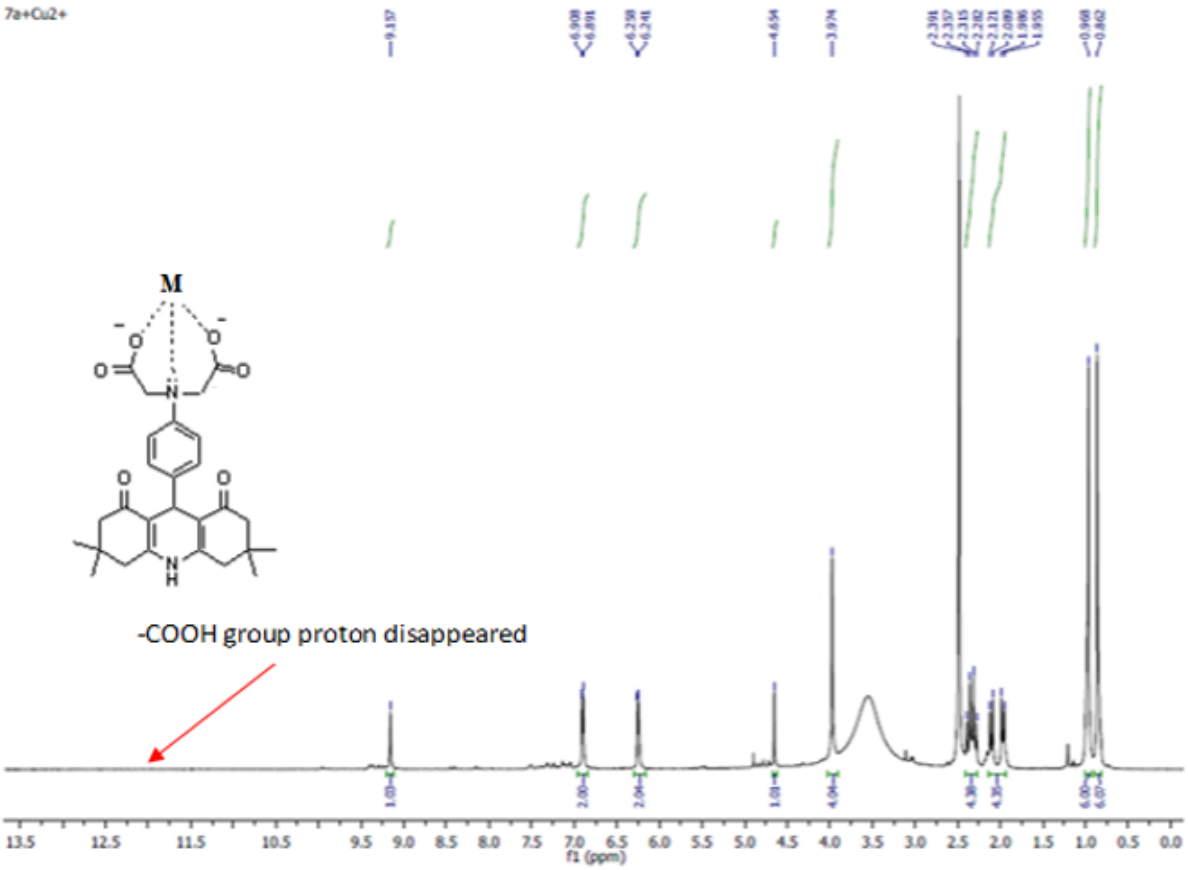

Fig. S14. ^{1}H NMR spectra of **7a**-Cu^{2+} (1:1) in DMSO-*d6*.

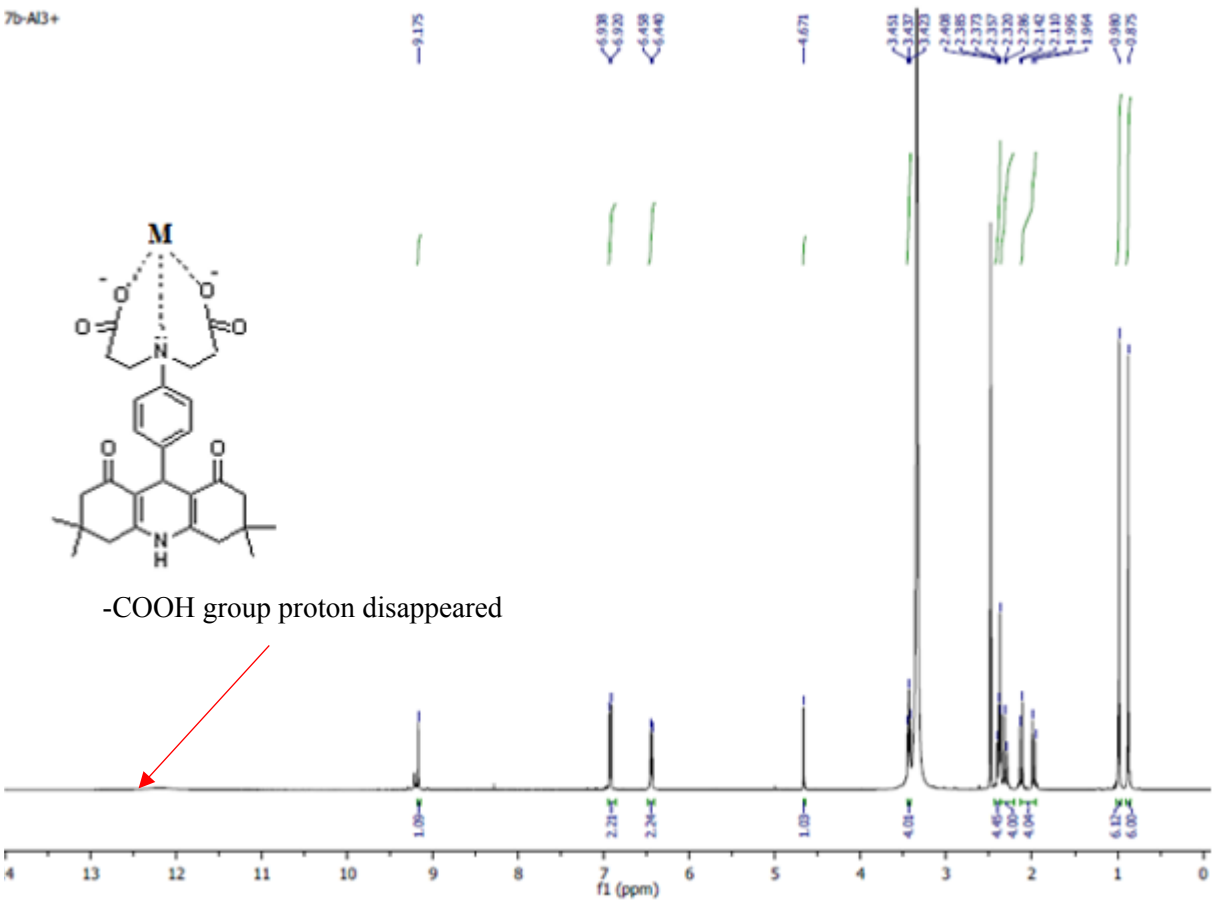

Fig. S15. ^{1}H NMR spectra of **7b-Al^{3+}** (1:1) in DMSO-*d6*.