Electronic Supplementary Information (ESI)

A Dual Colorimetric Chemosensor for Hg(II) and Cyanide ions in Aqueous Media based on Nitrobenzoxadiazole (NBD)-Antipyrine Conjugate with INHIBIT logic gate behaviour

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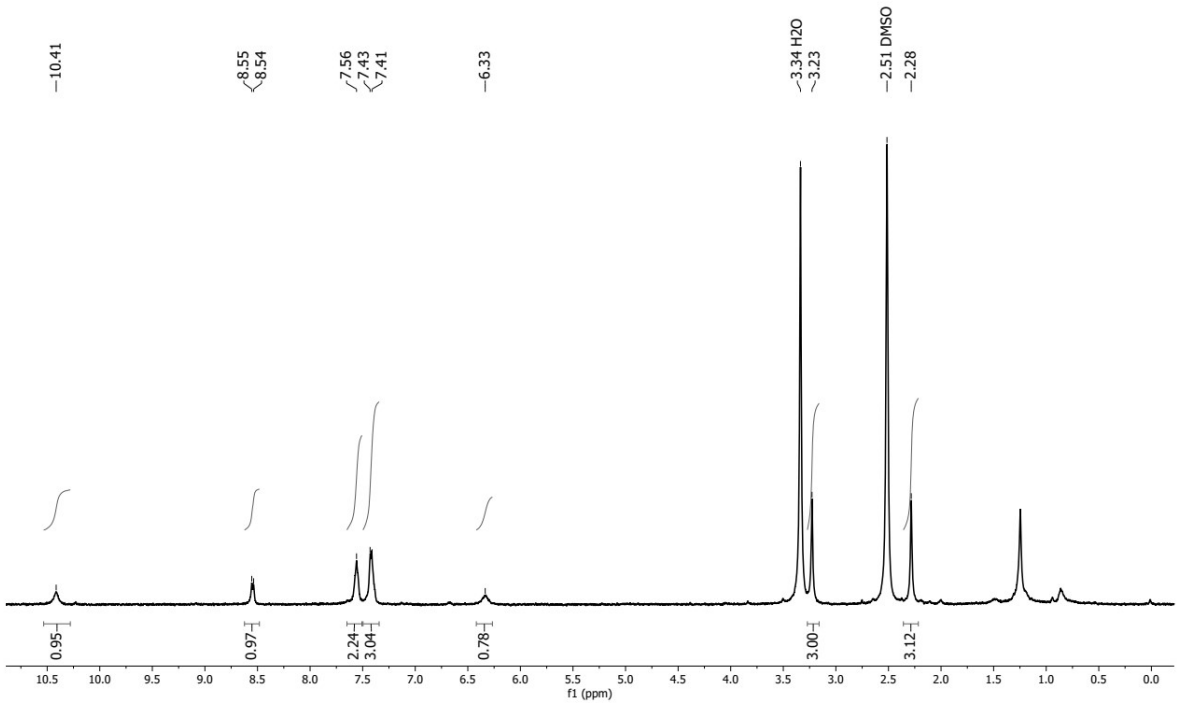

Fig. S1.[1]H- NMR spectrum of sensor **1** in DMSO-d_6 at 298 K

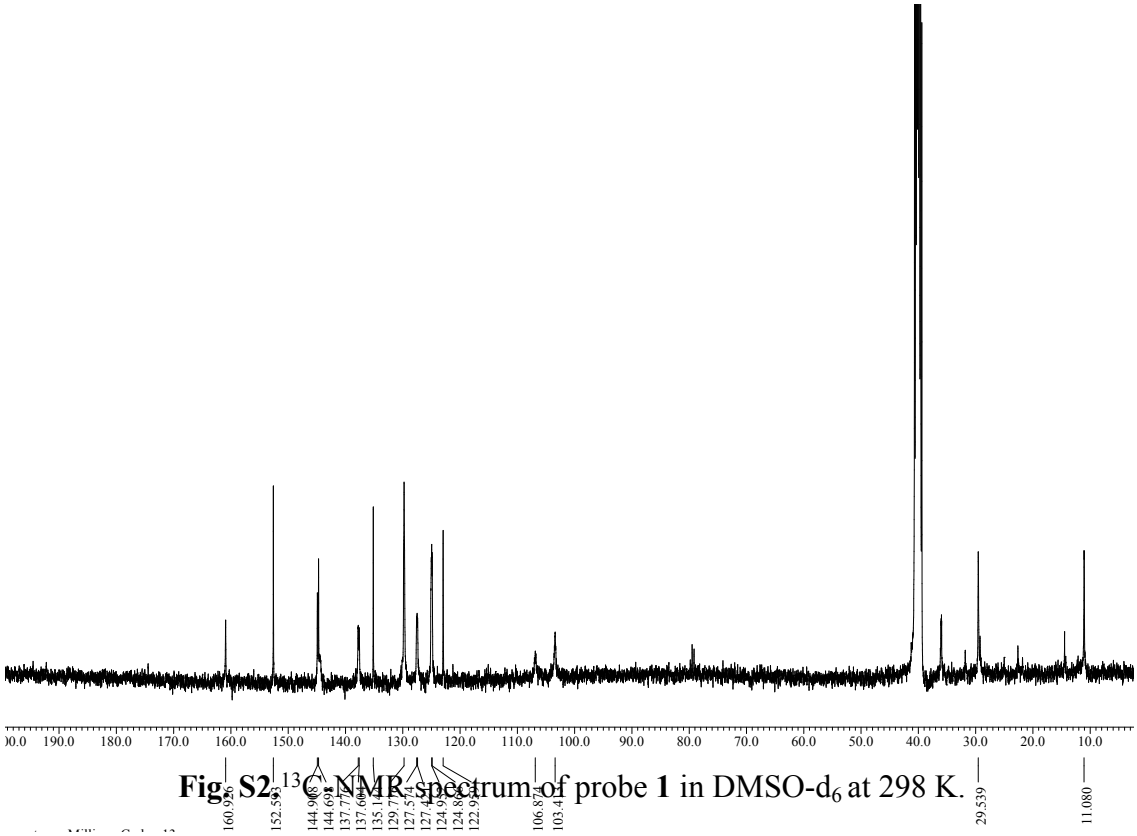

Fig. S2. ^{13}C NMR spectrum of probe **1** in DMSO-d_6 at 298 K.

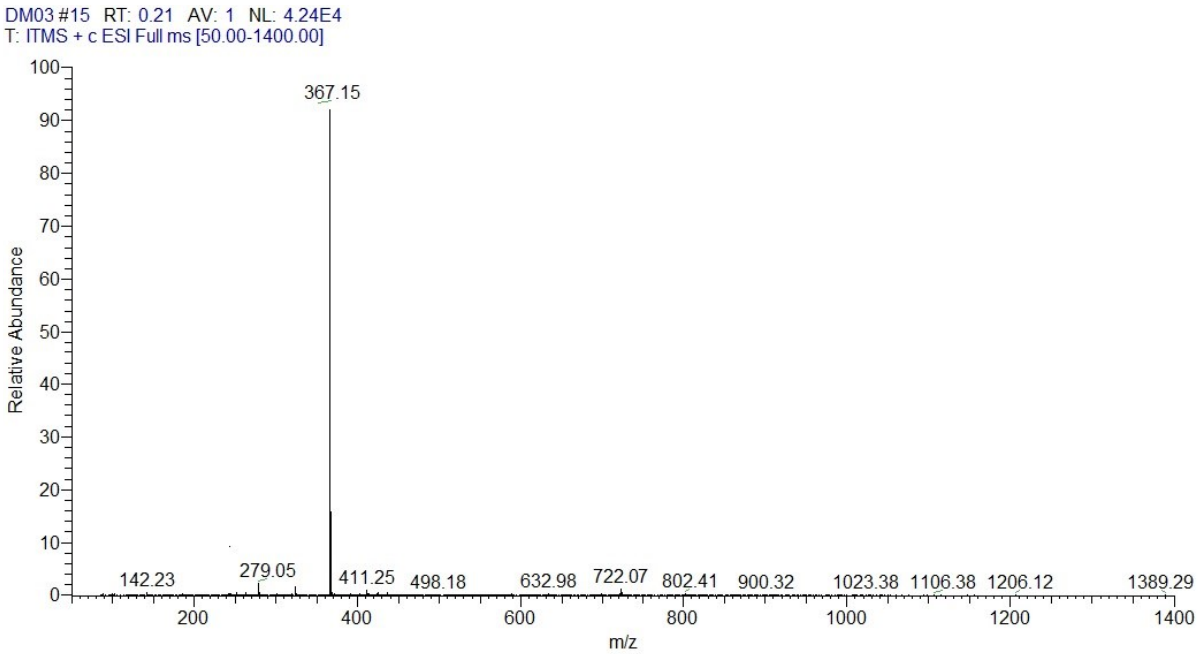

Fig. S3. ESI-MS spectrum of Probe **1** in positive ion mode.

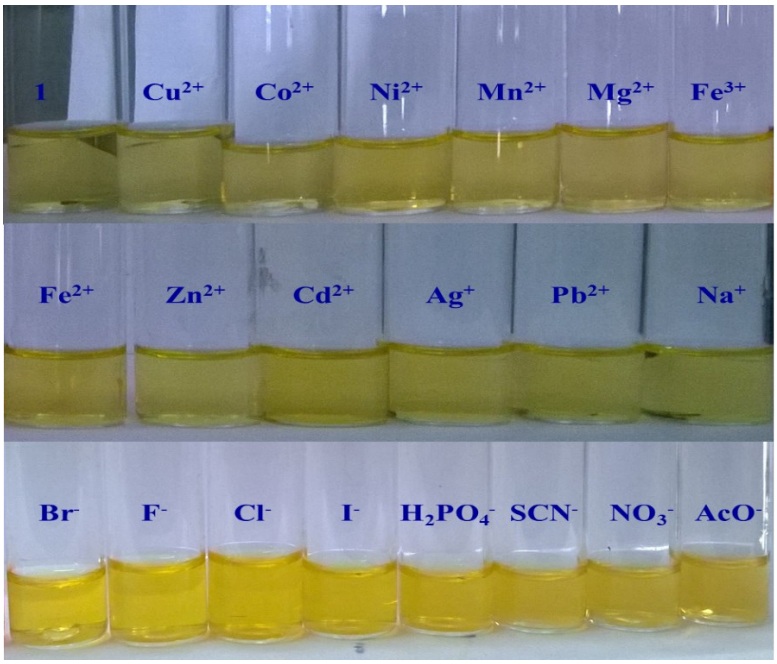

Fig. S4. The colour change of probe **1** (2 mL, 1×10^{-5} M) after the addition of various metal ions and anions (50 µL, 1×10^{-3} M) in aqueous methanol medium (1:1, v/v) observed by naked eyes.

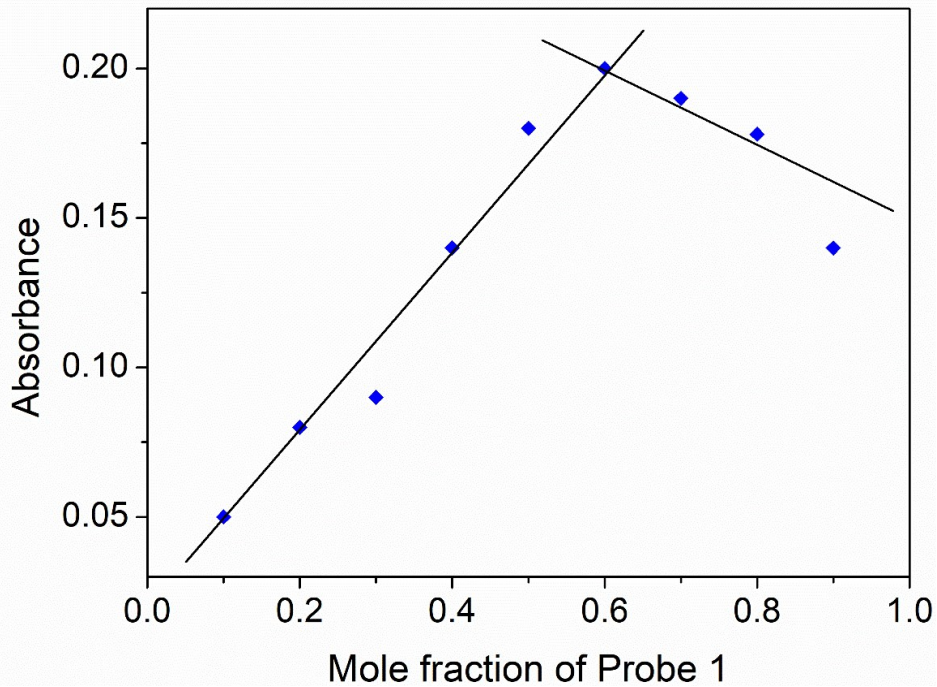

Fig. S5a. Job's plot; mole fraction of sensor **1** *vs* change in absorbance during Hg^{2+} addition.

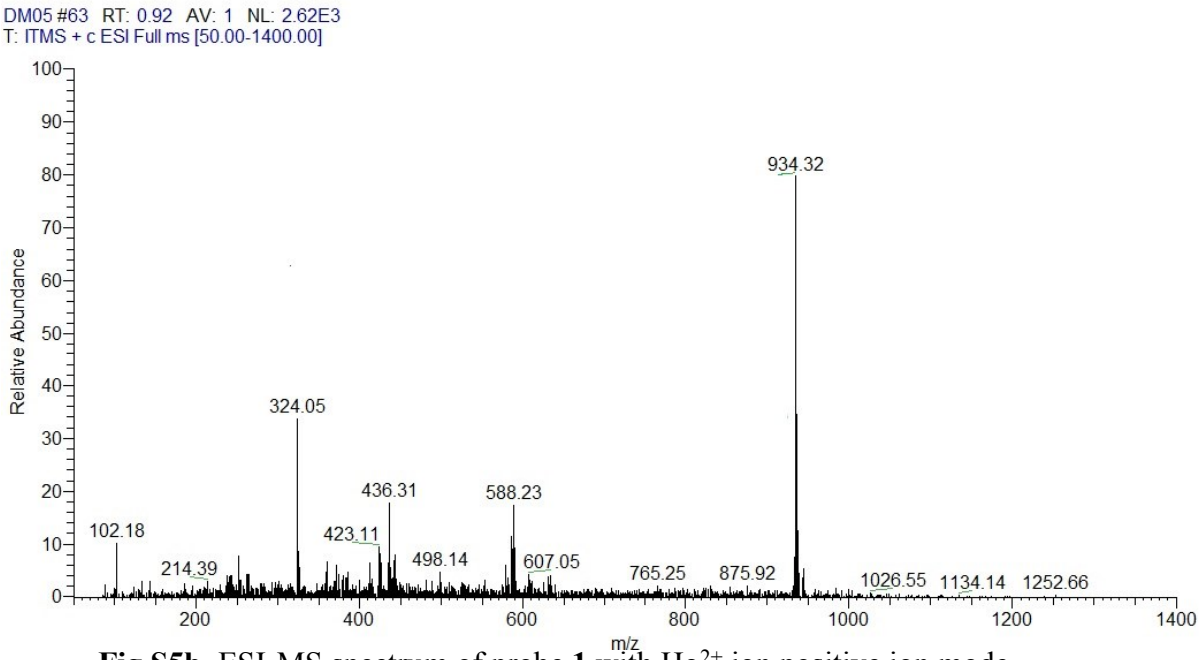

Fig.S5b. ESI-MS spectrum of probe **1** with Hg^{2+} ion positive ion mode.

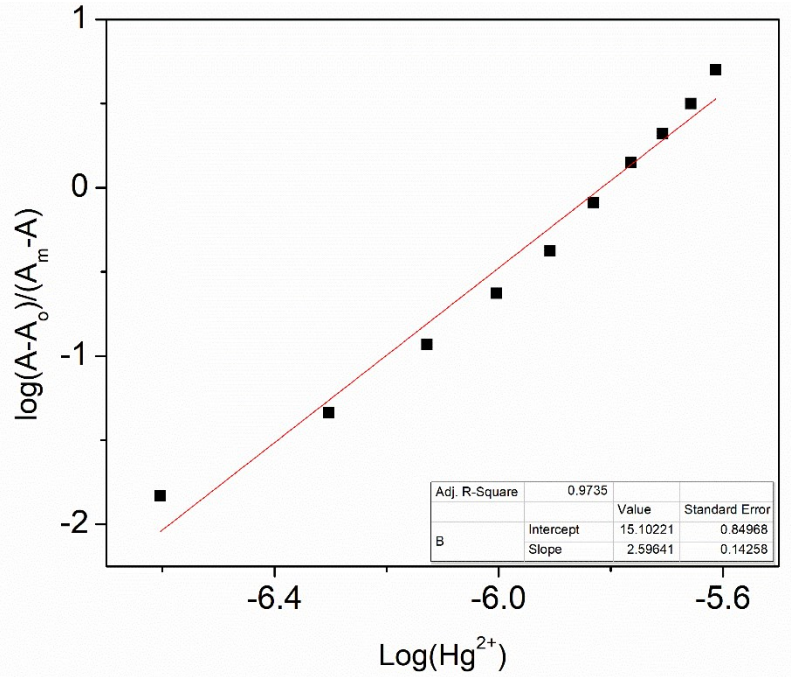

Fig.S6a. Binding constants of binding of probe **1** with Hg^{2+} ion**.**

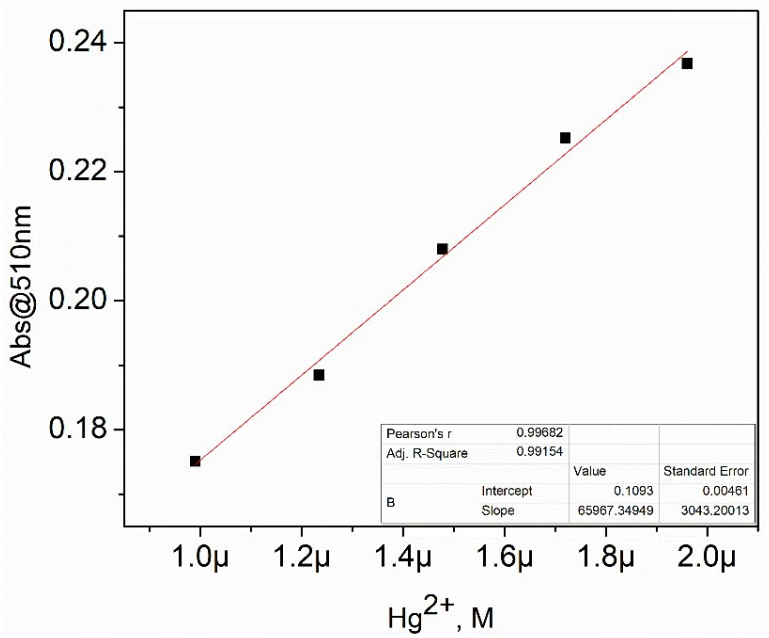

Fig. S6b. Change in absorbance of sensor **1** with different concentrations of Hg^{2+} in aqueous methanol solution.

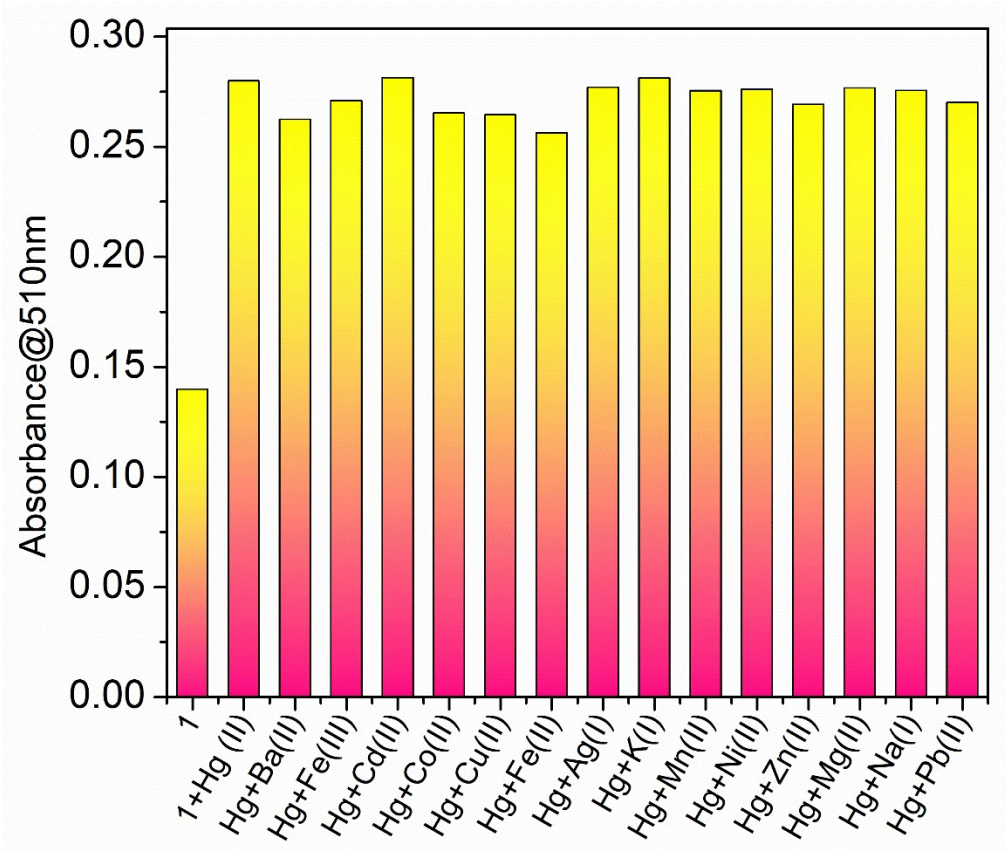

Fig. S7. Bar chart illustrates the absorbance changes (abs 510 nm) of probe **1** (2 mL, 1×10^{-5} M) with Hg^{2+} (50 µL, 1×10^{-3} M) ion in the presence of other metal ions (50 µL, 1×10^{-3} M) in aqueous methanol medium (1:1, v/v).

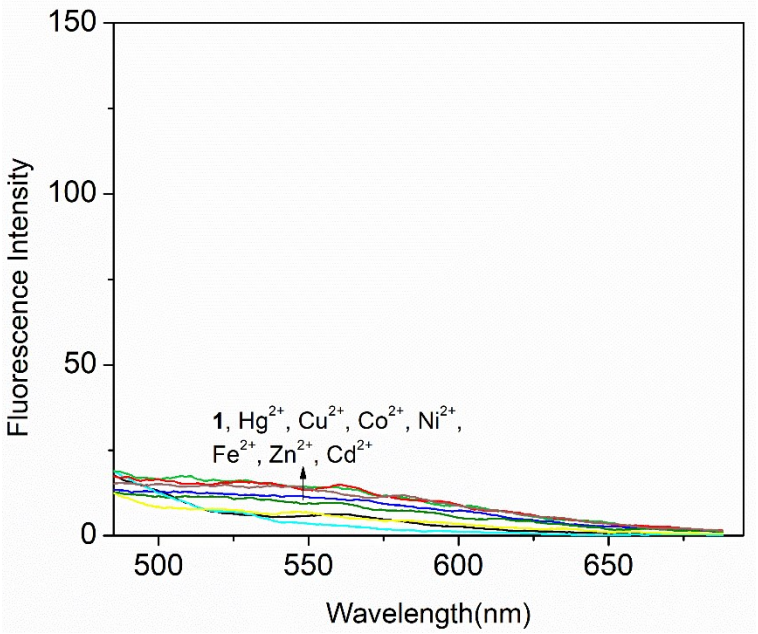

Fig.S8. Fluorescence spectra of probe **1** (2 mL, 1×10^{-5} M) with metal ions in CH_3OH:H_2O (1:1, v/v) excited at 450 nm.

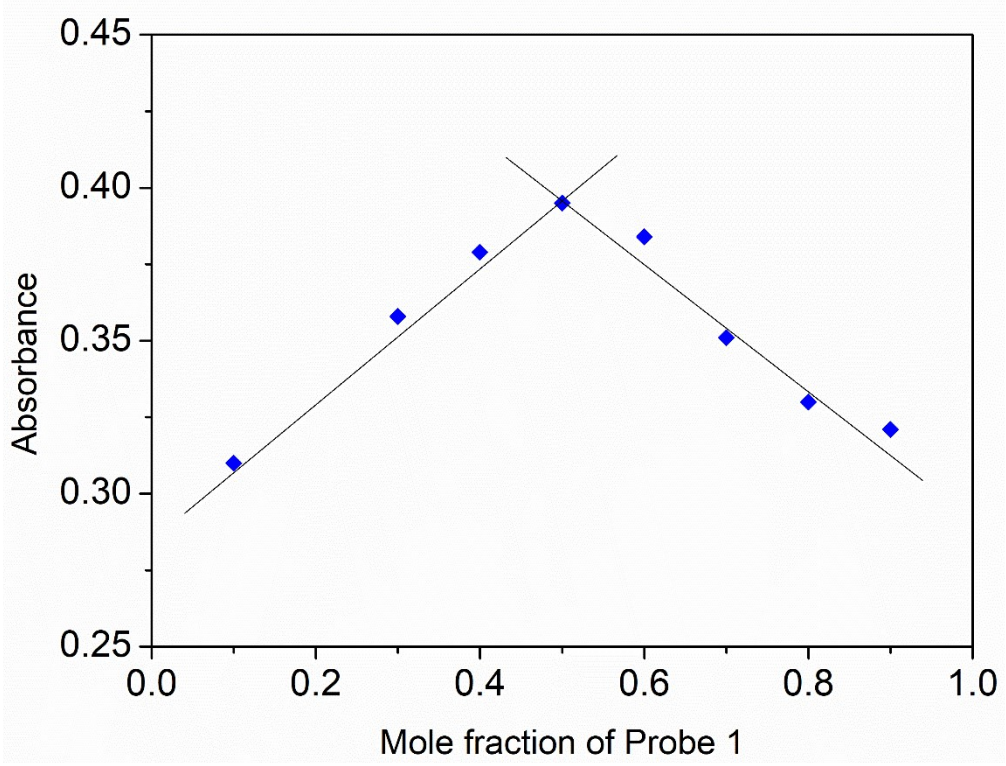

Fig. S9a. Job's plot: the mole fraction of sensor **1** *vs* change in absorbance during CN^- ions addition.

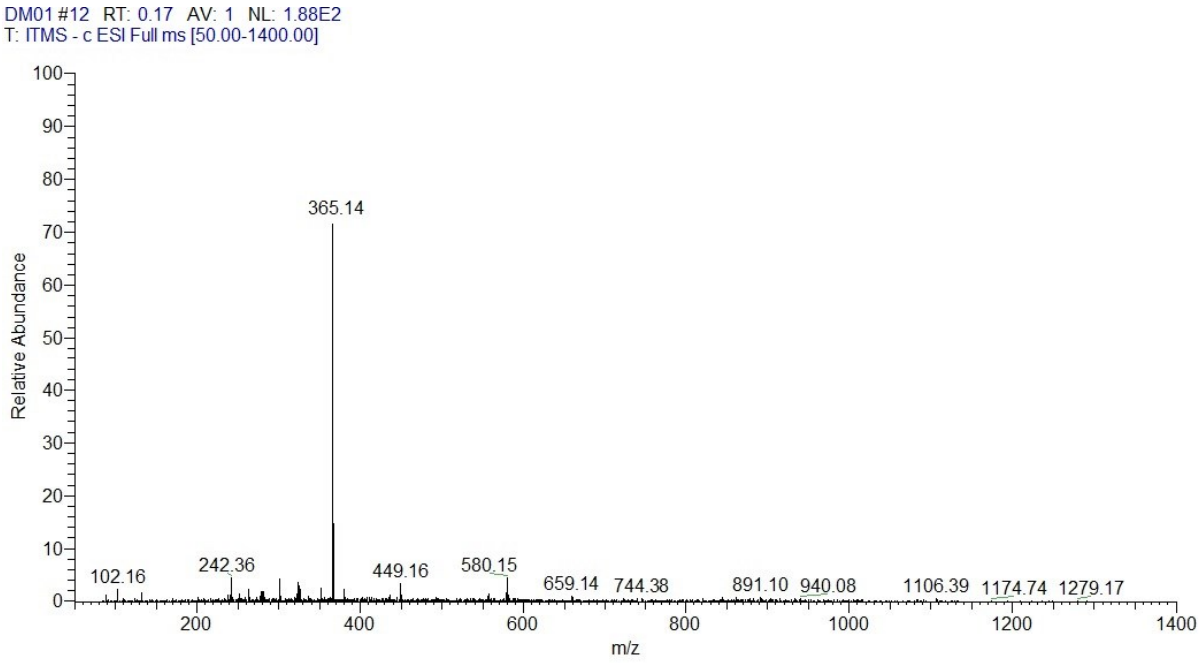

Fig. S9b. ESI-MS spectrum of sensor **1** with CN^- ions in negative ion mode.

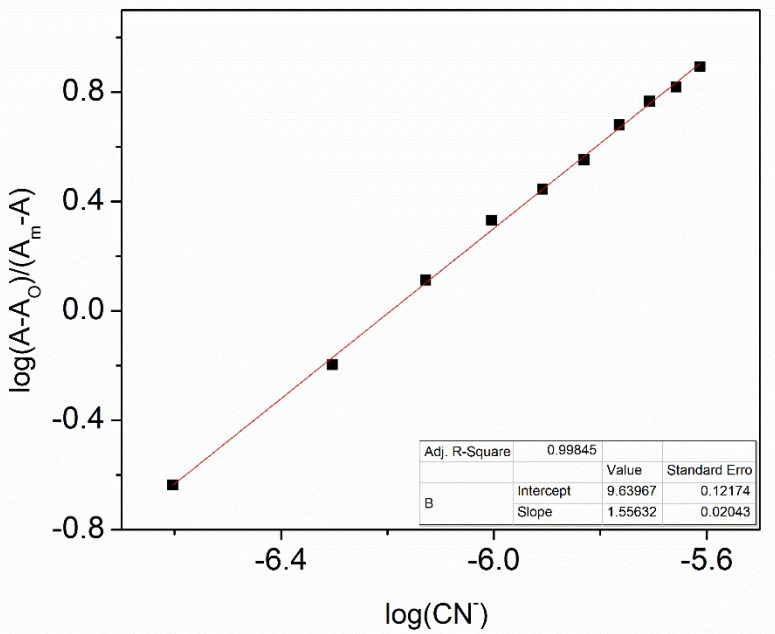

Fig.S10a. Binding constant of binding of probe **1** with CN^- ion.

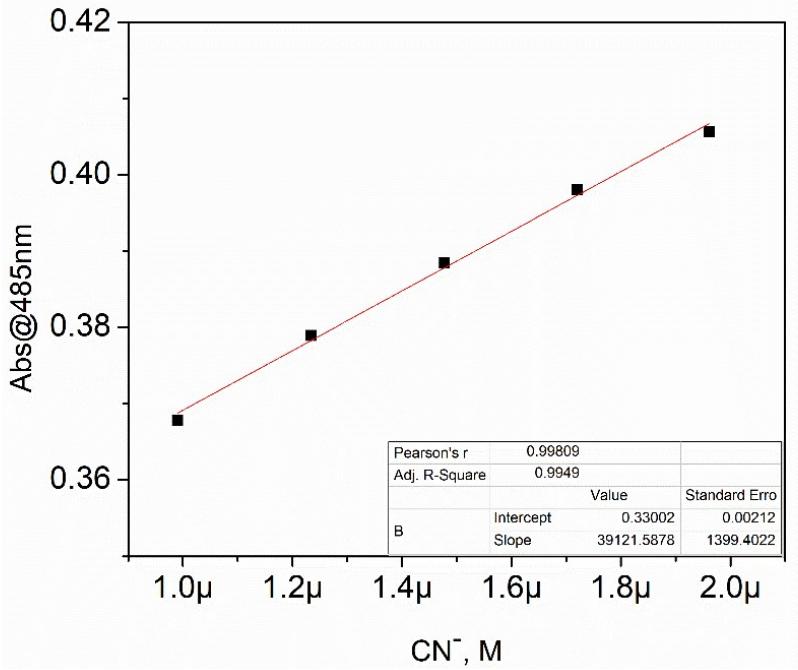

Fig. S10b. The plot of absorbance changes of sensor **1** during the addition of CN^- ions in aqueous methanol solution.

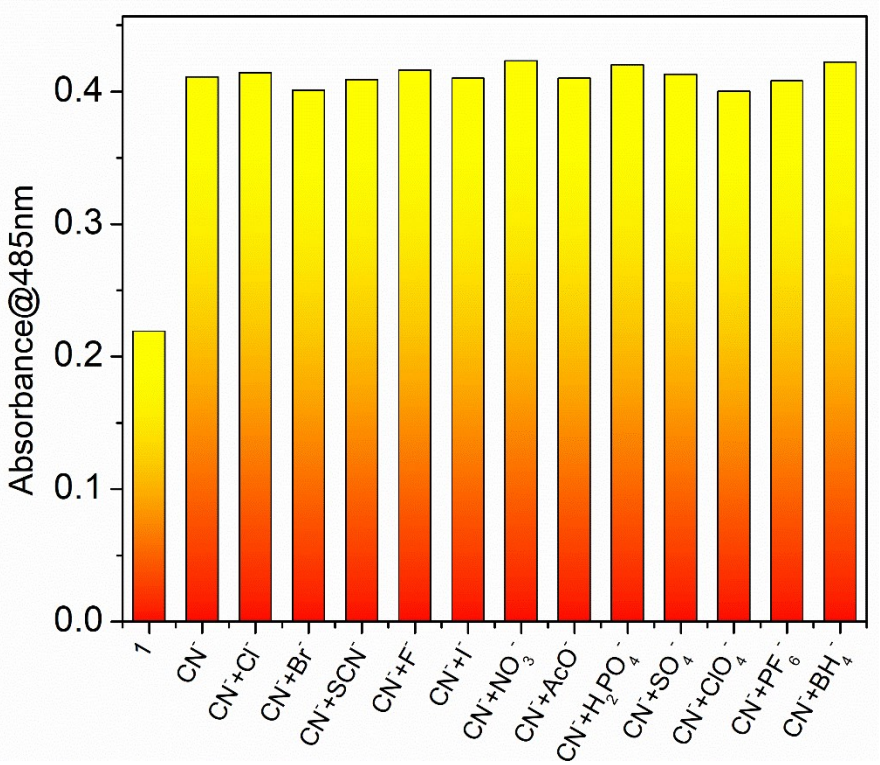

Fig. S11. Bar chart illustrates the absorbance changes (abs 485nm) of probe **1** (2 mL, 1×10^{-5} M) with CN^- (50 µL, 1×10^{-3} M) ion in the presence of other anions (50 µL, 1×10^{-3} M) in aqueous methanol medium (1:1, v/v).

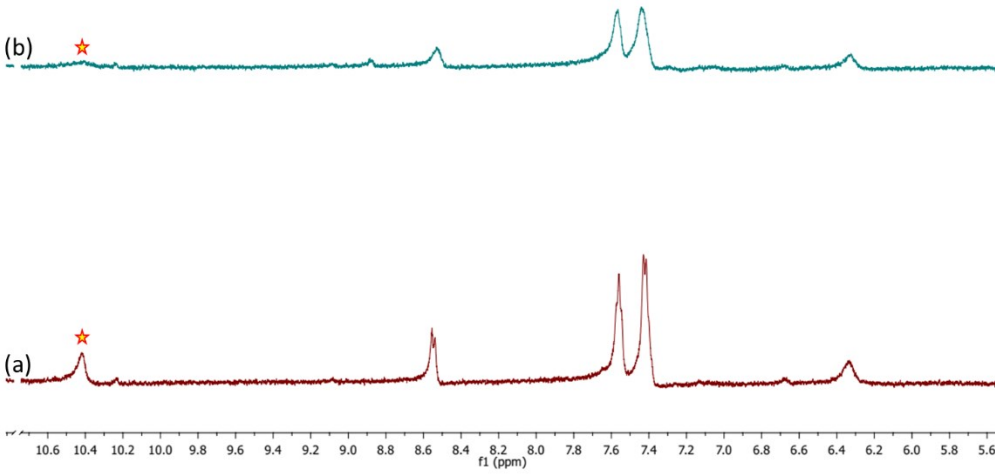

Fig. S12. ^{1}H NMR spectrum of sensor **1** in DMSO-d_6 with the addition of CN^- ions.