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Supporting Information

Studies on multifunctional chromo-fluorogenic sensor for dual channel recognition of Zn^{2+} and CN^- ions in aqueous media: mimicking multiple molecular logic gates and memory devices

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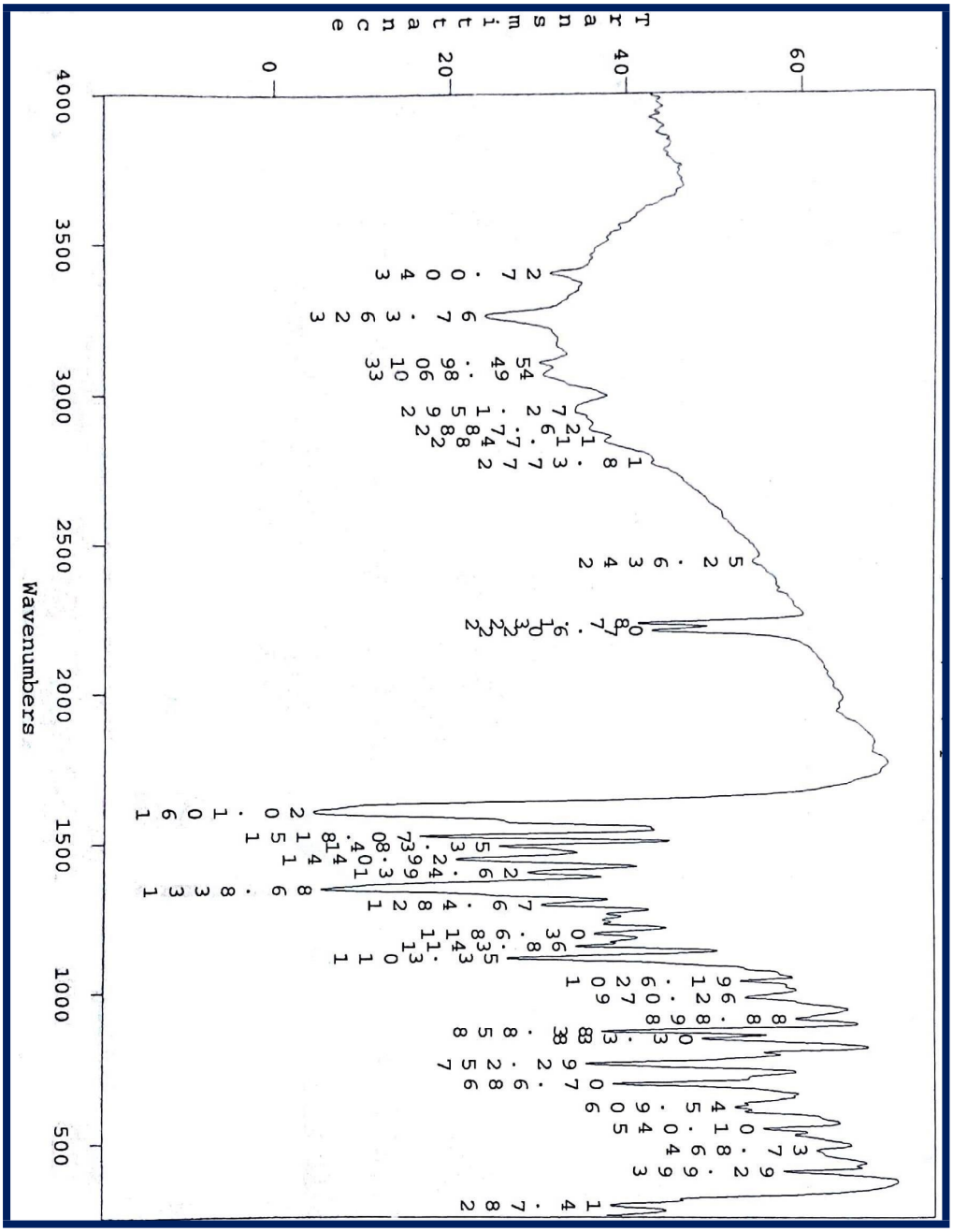

Figure S1. IR spectrum of **1**

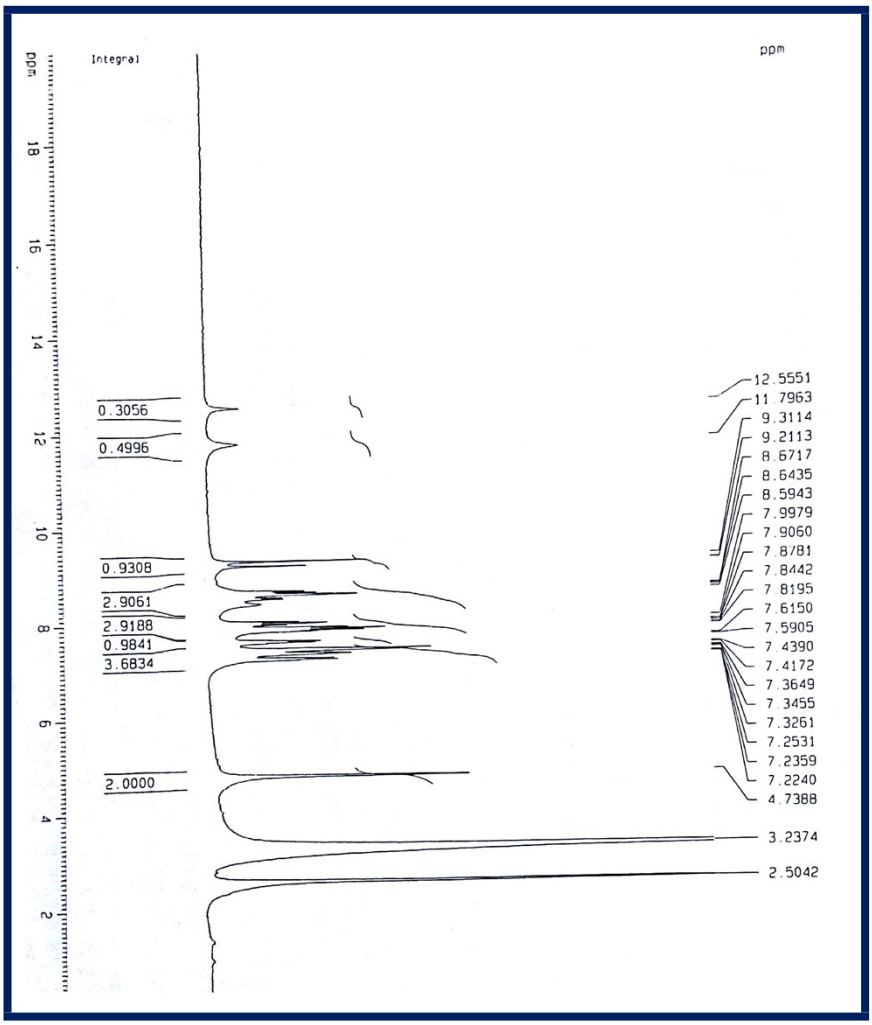

Figure S2. ^{1}H NMR spectrum of **1**

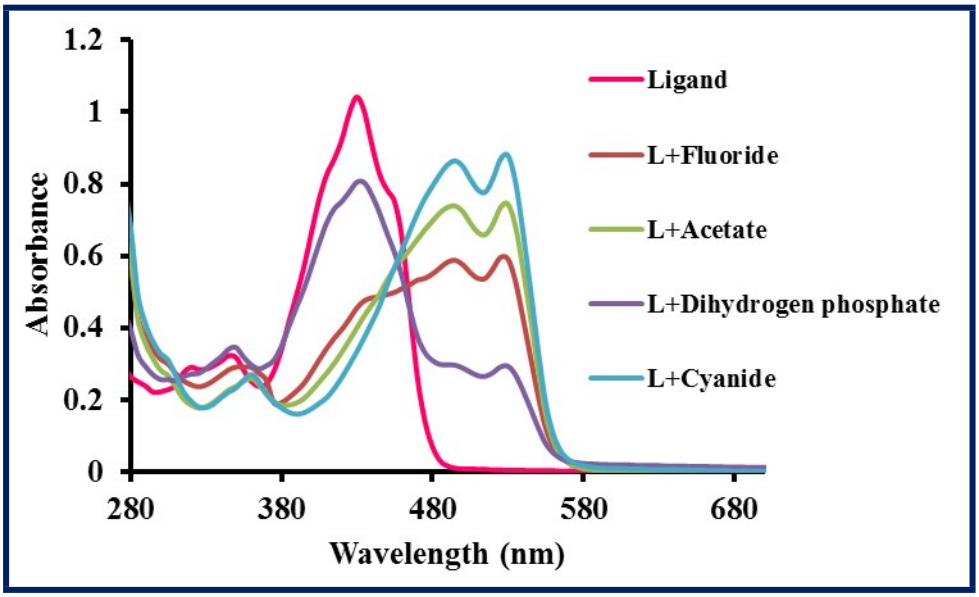

Figure S3. UV-Vis spectral changes of **1** (3×10^{-5} mol L^{-1}) upon addition of sodium salts of CN^-, AcO^-, F^-, and $H_2PO_4^-$ in pure DMSO

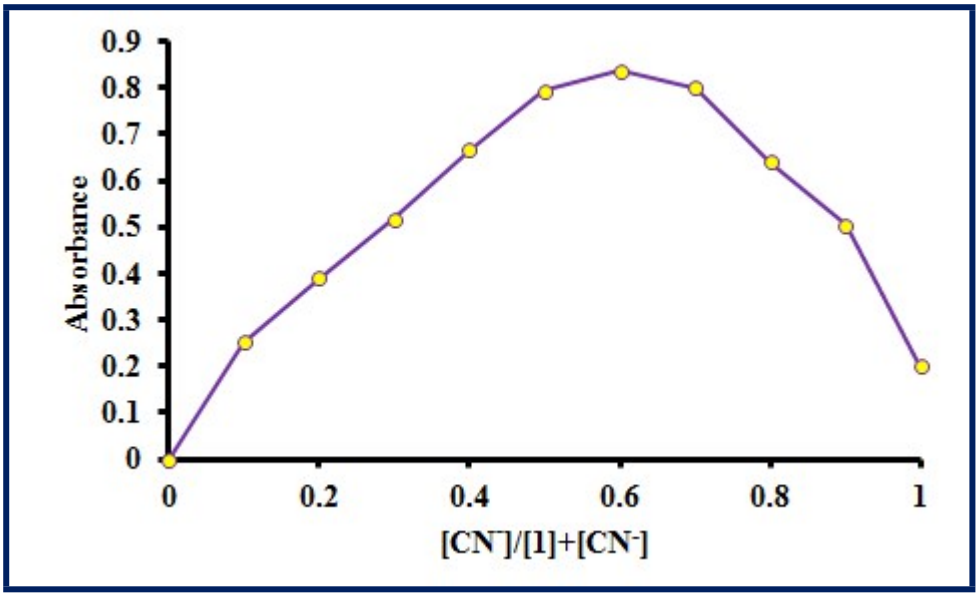

Figure S4. Job's plot for **1** (3×10^{-5} mol L^{-1}) with CN^- in 1:1 DMSO-water solution.

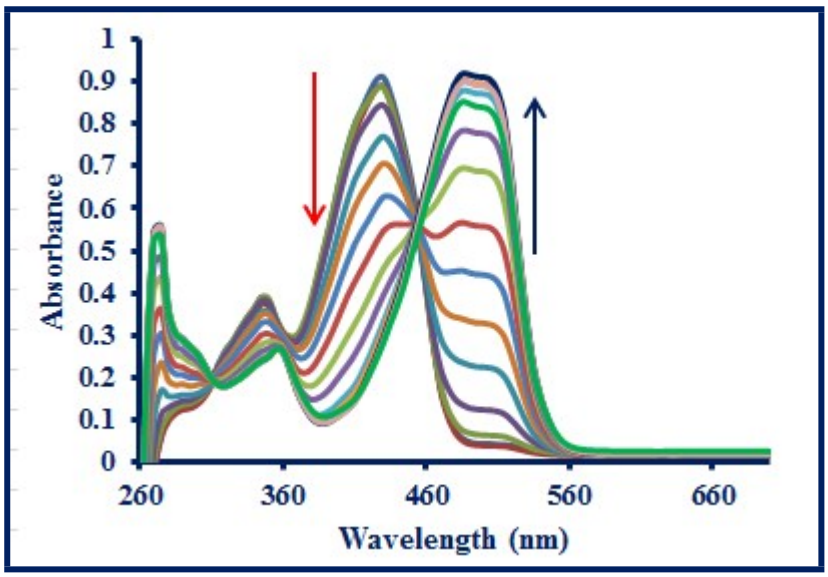

Figure S5. UV-Vis titration of **1** (3×10^{-5} mol L^{-1}) in 50% aq. DMSO with incremental addition of standard solution of NaOH (0-5 equiv.)

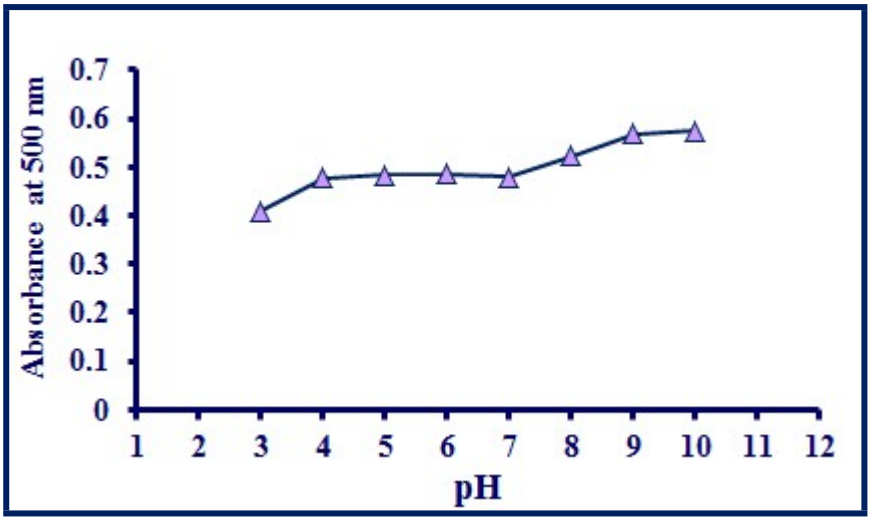

Figure S6. Effect of pH on the UV–Vis spectra of **1**–Zn^{2+} complex at 500 nm (3×10^{-5} mol L^{-1} in 1:1 DMSO-water)

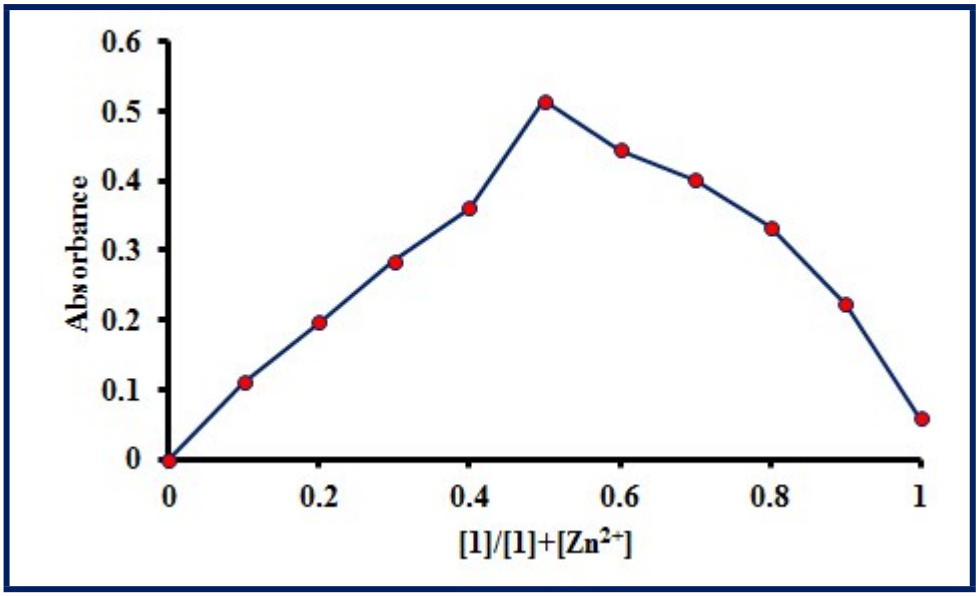

Figure S7. Job's plot for **1** (3×10^{-5} mol L^{-1}) with Zn^{2+} in 50% aq. DMSO.

General procedures for FT-IR experiment:

To perform FT-IR experiment in solid state, zinc complex of azomethine sensor was prepared:
A solution of $ZnCl_2$ (1 mmol) in methanol (10 mL) was added to a suspension of **1** (1 mmol) in $CHCl_3$ (50 mL) over a period of 5 min. The reaction mixture was allowed to stir for 24 h at 45 °C. The obtained solution was left to stand at room temperature for several days to give solid product. The resultant product was collected by filtration and washed successively with methanol and then dried in air overnight.

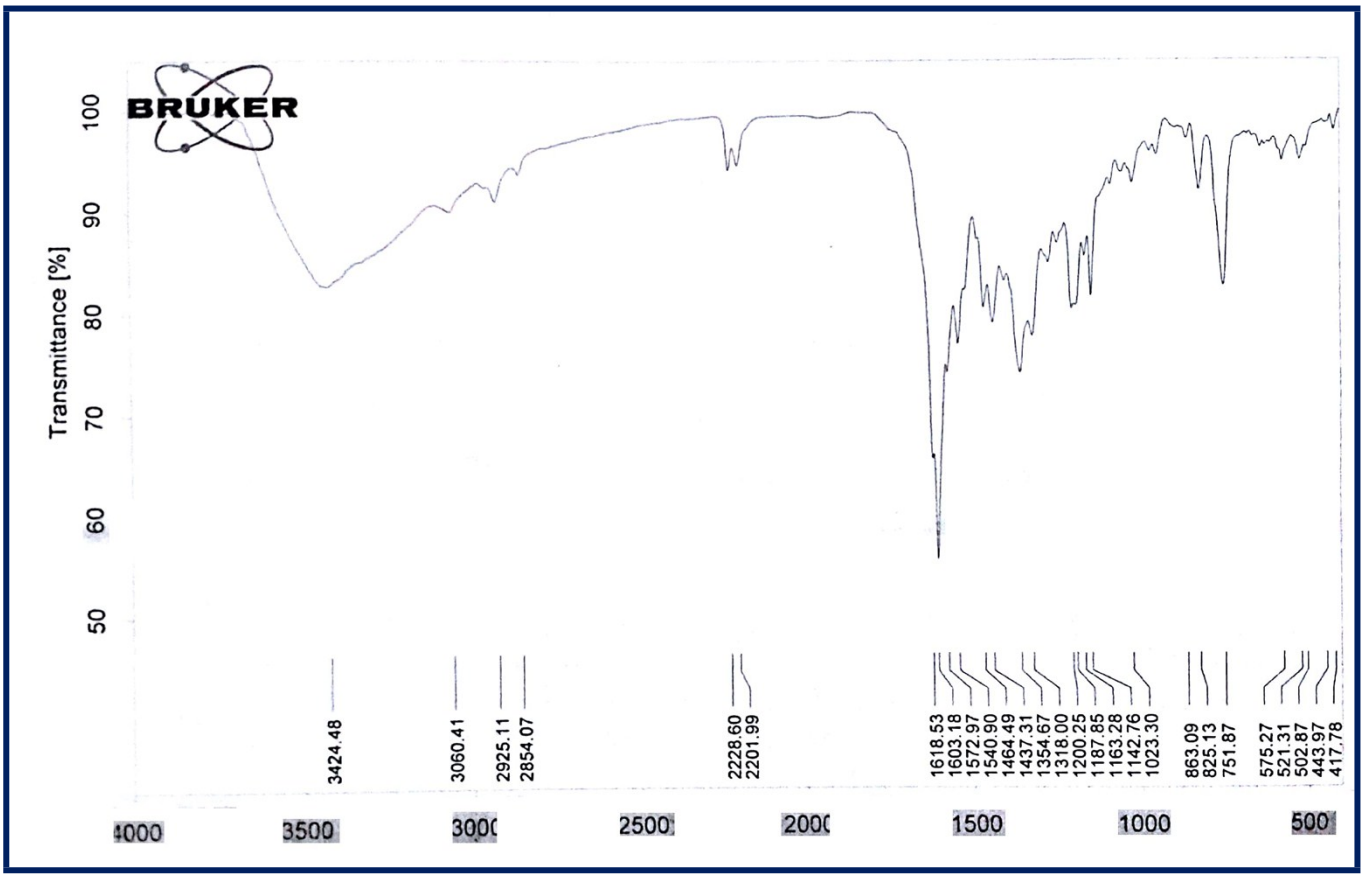

Figure S8. IR spectrum of **1**–Zn^{2+} complex in solid state.