

Electronic Supplementary Material (ESI) for New Journal of Chemistry
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Supporting Information

Two and three input molecular logic operations mediated by a novel azo-azomethine based chromogenic probe through intramolecular charge transfer processes

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Page No.	Contents
S2	IR spectrum of 1-(3-Formyl-4-hydroxyphenylazo)-4-nitrobenzene
S3	¹ H NMR spectrum of 1-(3-Formyl-4-hydroxyphenylazo)-4-nitrobenzene
S4	IR spectrum of 1
S5	¹ H NMR spectrum of 1
S6	UV-Vis titrations of 1 with (A) TBAOAc and (B) TBAH ₂ PO ₄ in 9:1, DMSO-water
S7	Benesi Hildebrand plots for titration of 1 with anions in 9:1, DMSO-water
S8	Job's plot for 1 with anions in 9:1, DMSO-water
S9	¹ H NMR spectra of 1 in DMSO- <i>d</i> ₆ (2×10 ⁻² mol L ⁻¹) in the absence and presence of TBAF
S10	UV-Vis titration of 1 with TBAOH in 9:1, DMSO-water
S11	UV-Vis titrations of 1 with (A) Co ²⁺ and (B) Ni ²⁺ cations in 9:1, DMSO-water
S12	Benesi Hildebrand plots for titration of 1 with cations in 9:1, DMSO-water
S13	Job's plot for 1 with cations in 9:1, DMSO-water
S14	FT-IR spectrum of 1 -Zn ²⁺
S15	FT-IR spectrum of 1 -Cu ²⁺
S16	Reversible absorbance titration responses of receptor 1 (2×10 ⁻⁵ mol L ⁻¹) binding to F ⁻ (5 equiv.) by the introduction of Ca ²⁺ (5 equiv.) to the system. The cyclic index is the number of alternating cycles.
S17	Reversible absorbance titration responses of receptor 1 (2×10 ⁻⁵ mol L ⁻¹) binding to (A) Zn ²⁺ (5 equiv.) and (B) Cu ²⁺ (5 equiv.) by the introduction of EDTA (sodium salt, 5 equiv.) to the system. The cyclic index is the number of alternating cycles.

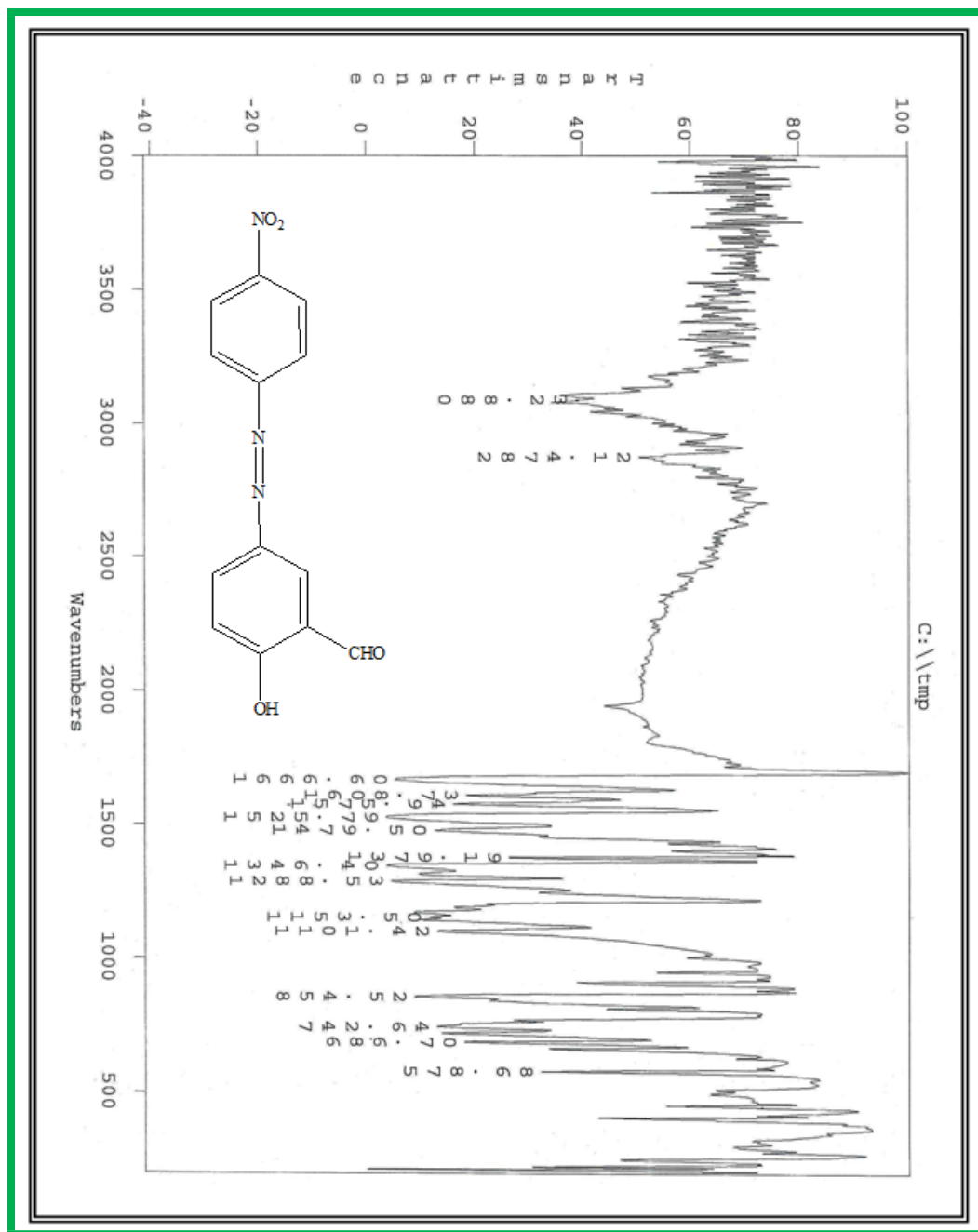


Figure S1. IR spectrum of 1-(3-Formyl-4-hydroxyphenylazo)-4-nitrobenzene

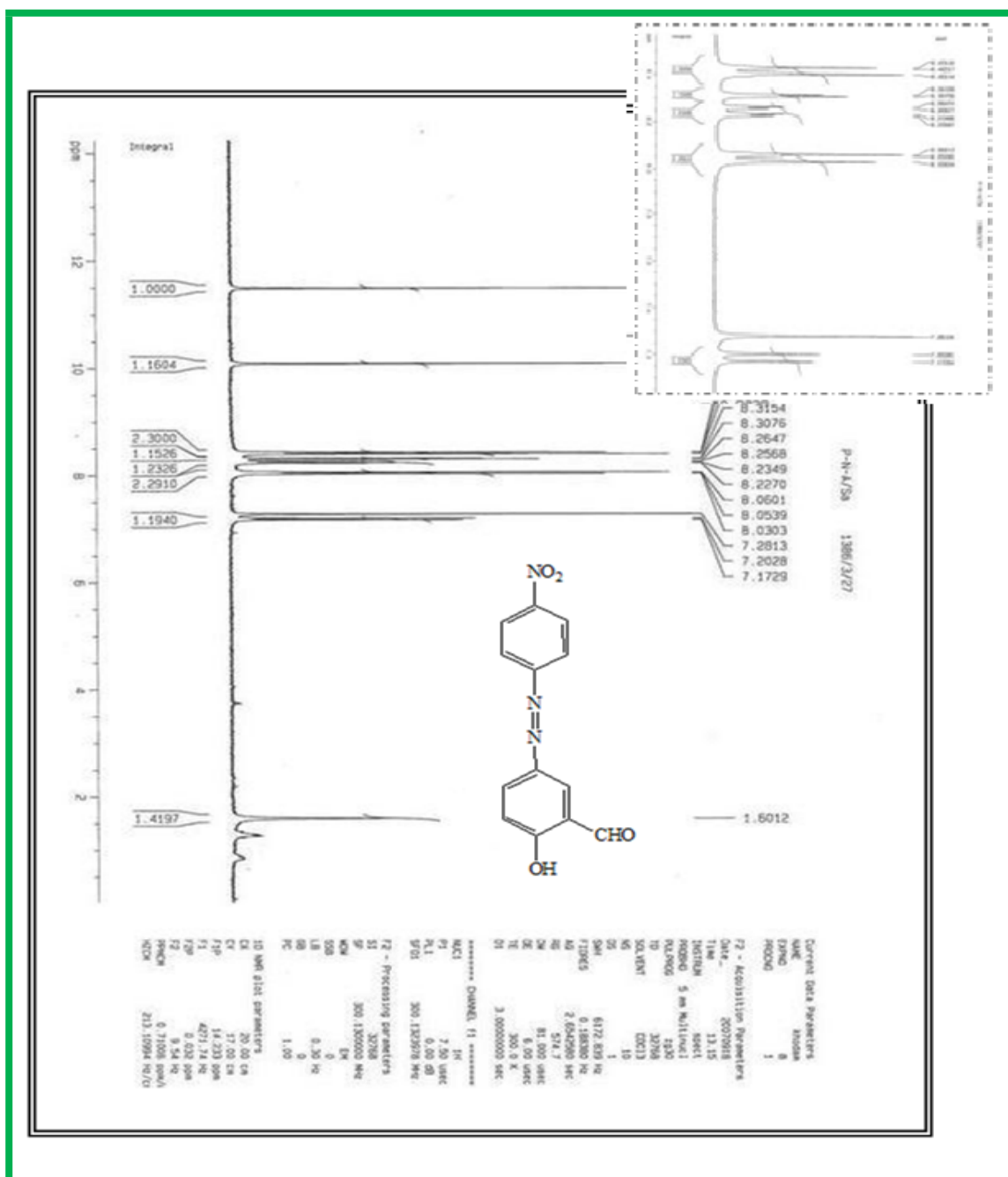


Figure S2. ¹H NMR spectrum of 1-(3-Formyl-4-hydroxyphenylazo)-4-nitrobenzene

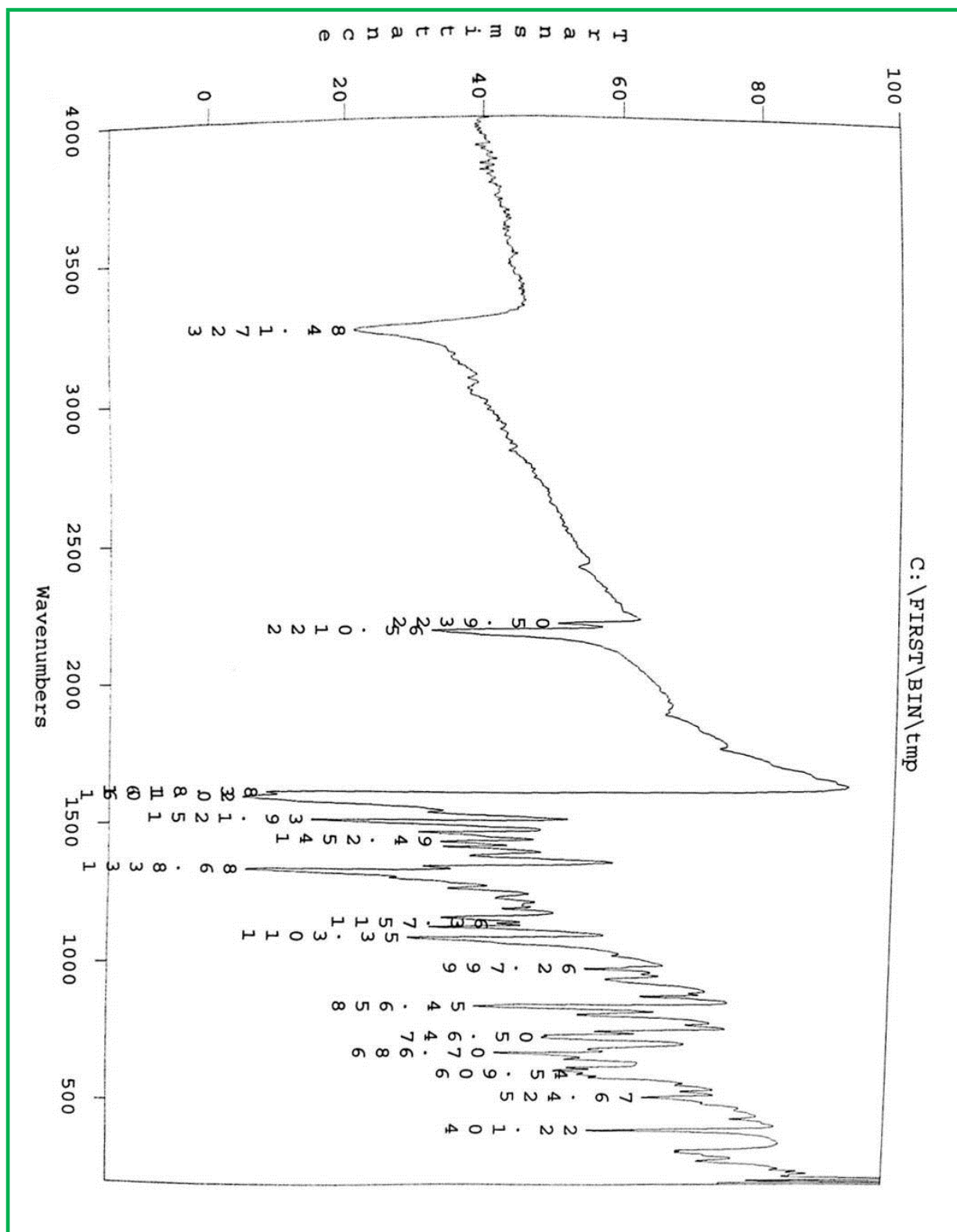


Figure S3. IR spectrum of 1

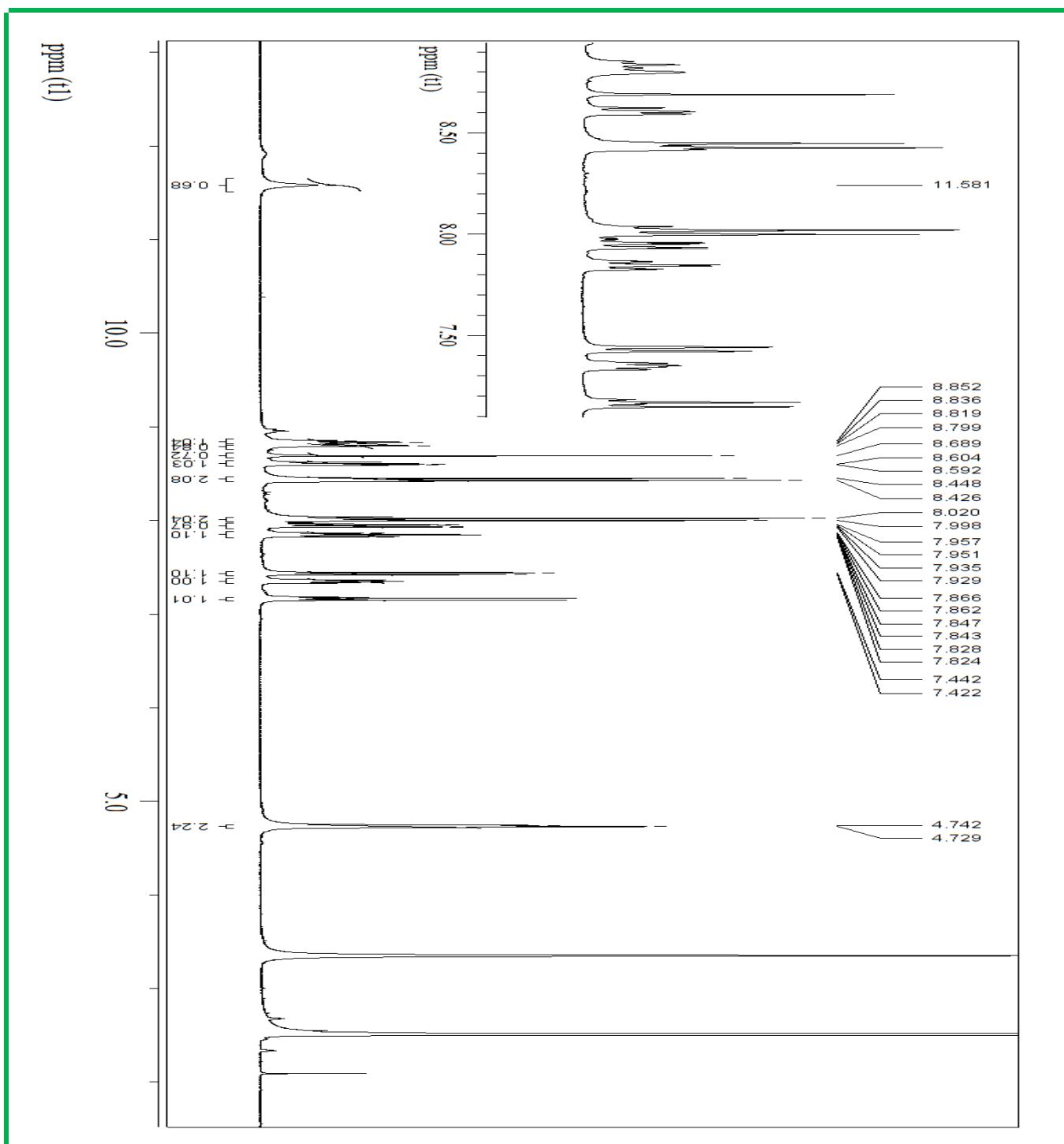
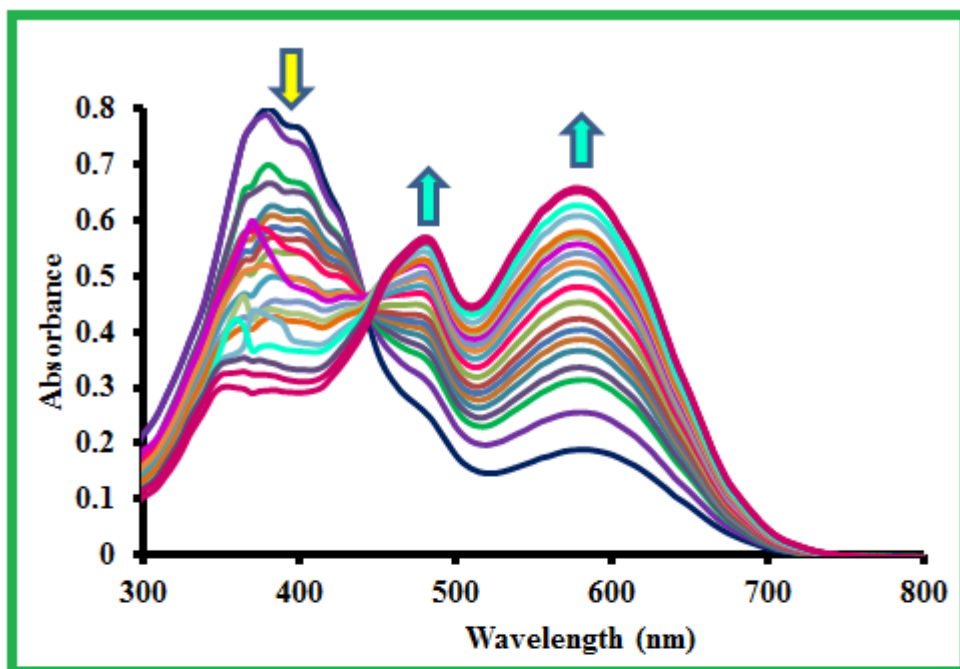
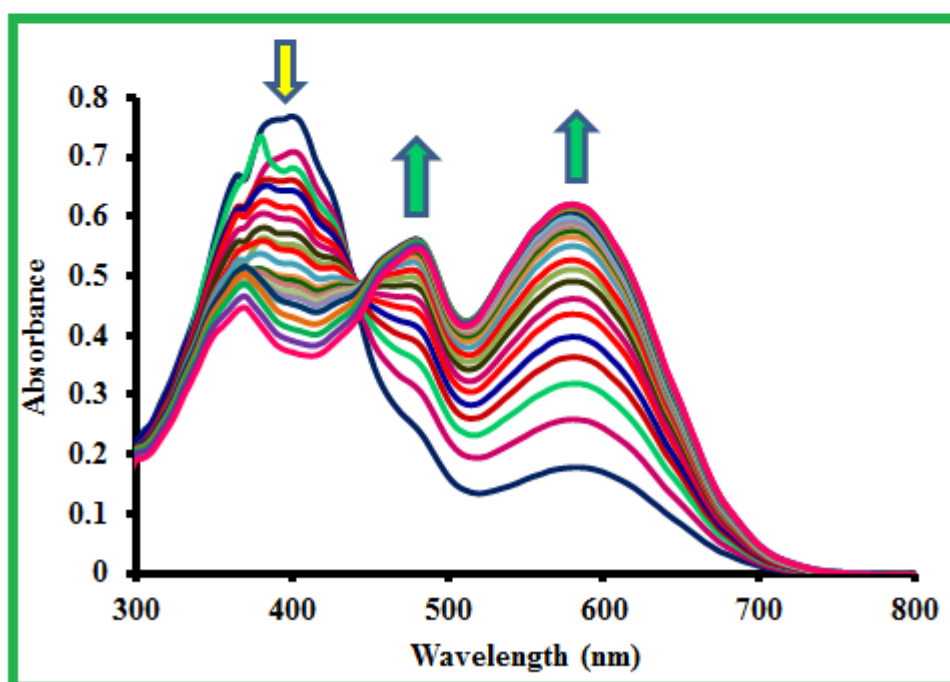


Figure S4. ^1H NMR spectrum of **1**



(A)



(B)

Figure S5. UV-Vis absorption spectra of sensor 1 (2 × 10⁻⁵ mol L⁻¹) in 9:1, DMSO-water upon addition of (A) TBAOAc and (B) TBAH₂PO₄ (0-5 equiv.).

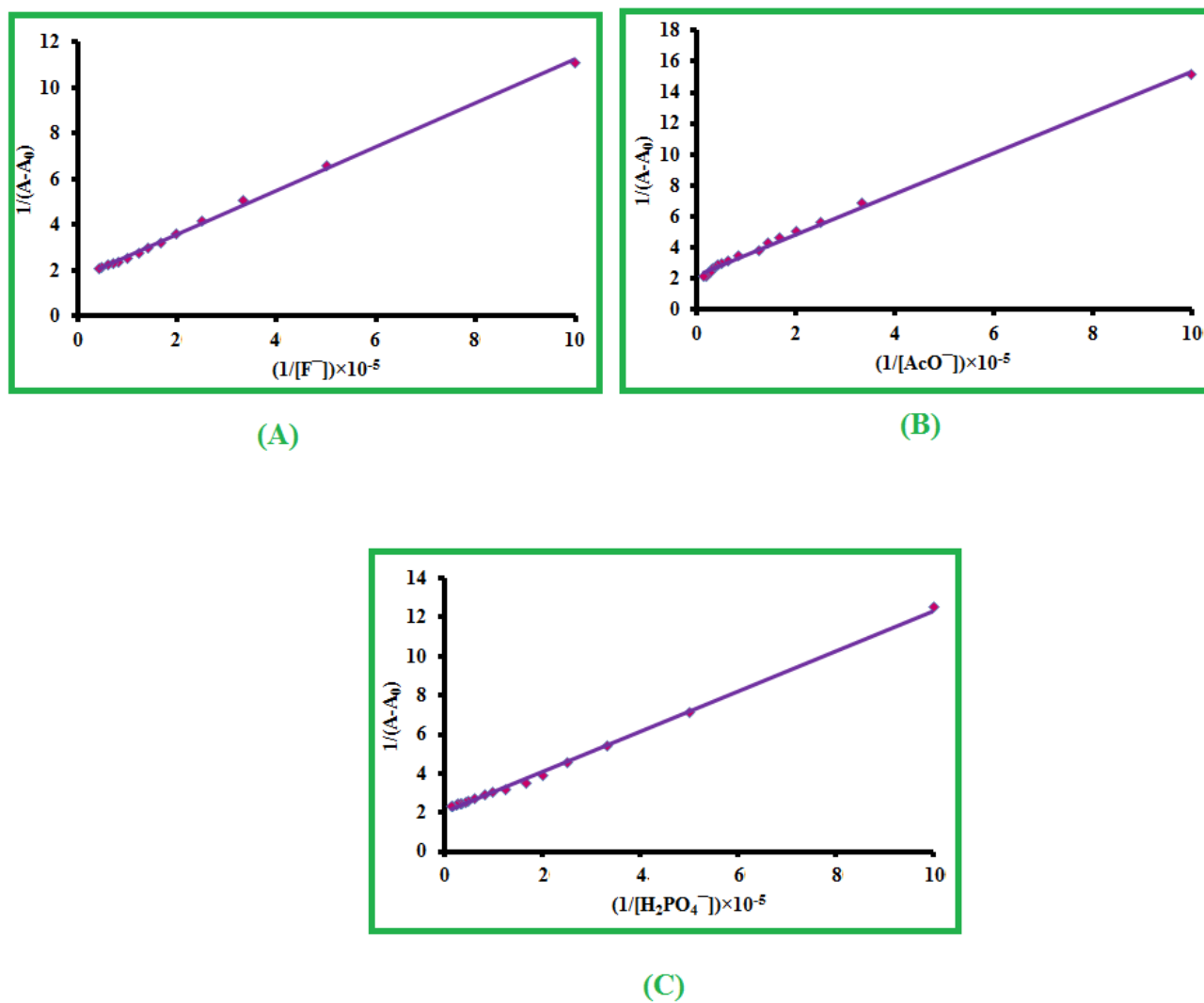


Figure S6. Benesi–Hildebrand plots of receptor **1** with (A) TBAF, (B) TBAOAc and (C) TBAH₂PO₄ associated with absorbance change at 585 nm in 9:1, DMSO-water.

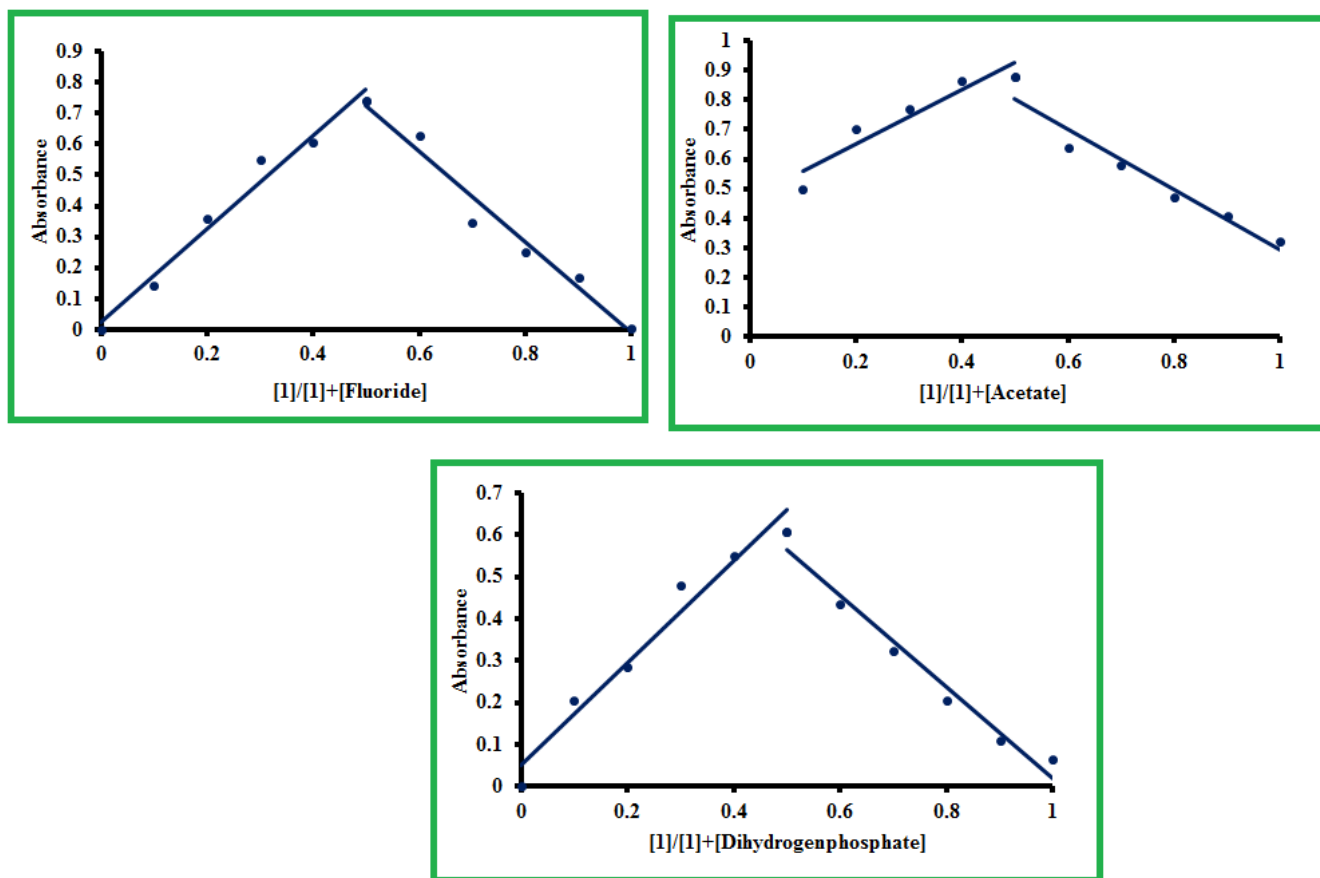


Figure S7. Job's plot for sensor 1 and anions with a total concentration of 2.0×10^{-5} M in 9:1, DMSO-water at 585 nm.

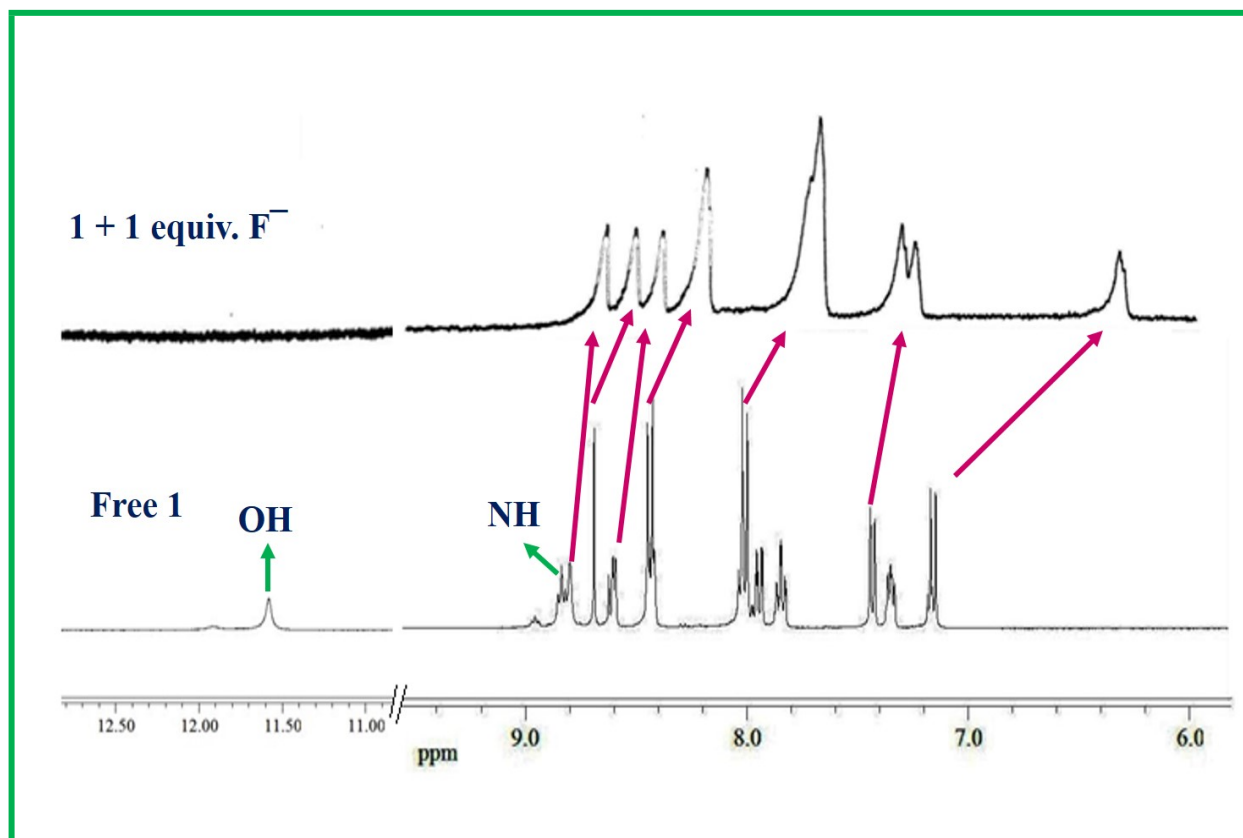


Figure S8. ¹H NMR spectra of 1 in DMSO-*d*₆ (2×10^{-2} mol L⁻¹) in the absence and presence of TBAF

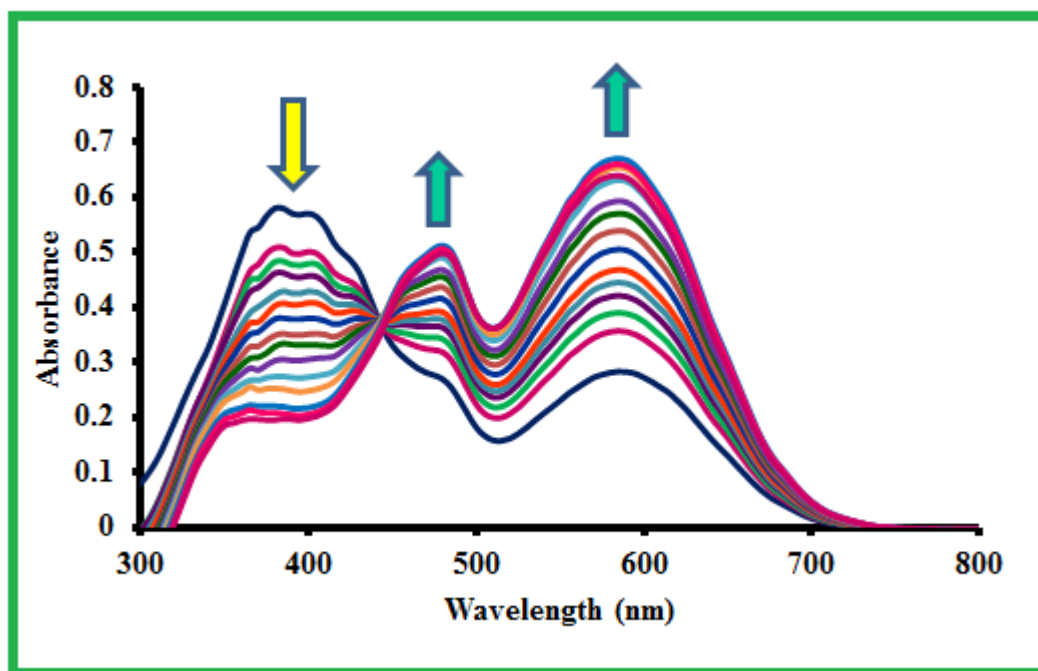
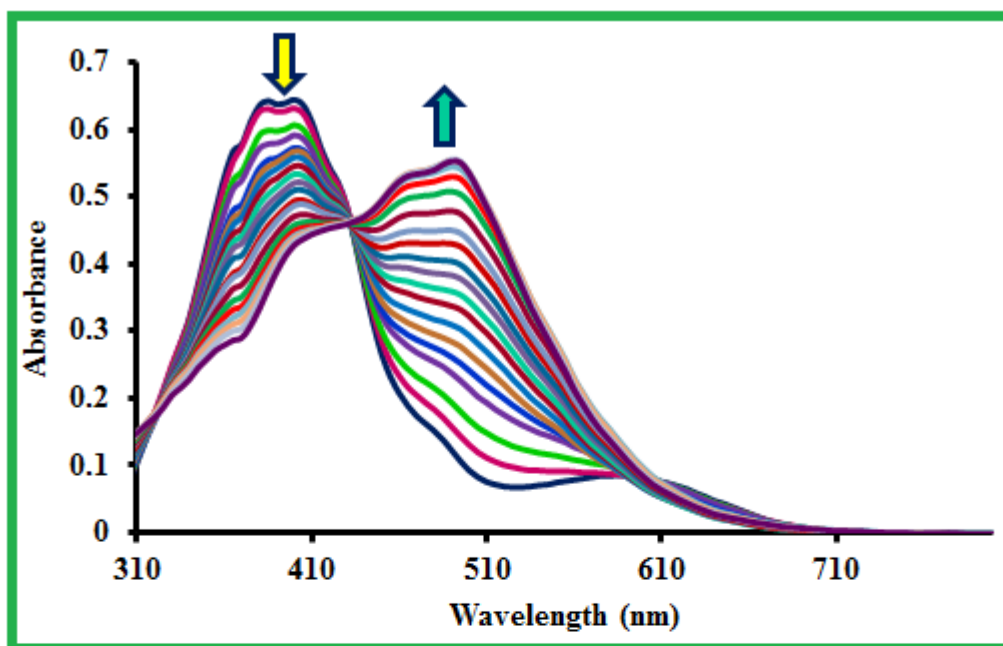
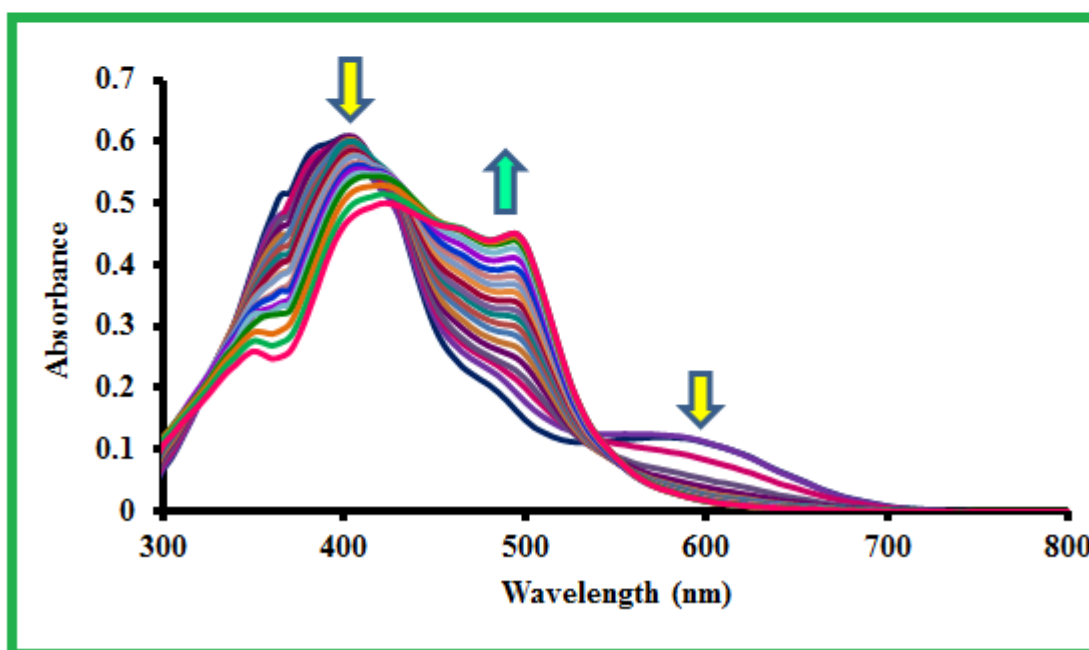


Figure S9. UV-Vis absorption spectra of sensor **1** (2×10^{-5} mol L⁻¹) in 9:1, DMSO-water upon addition of TBAOH.

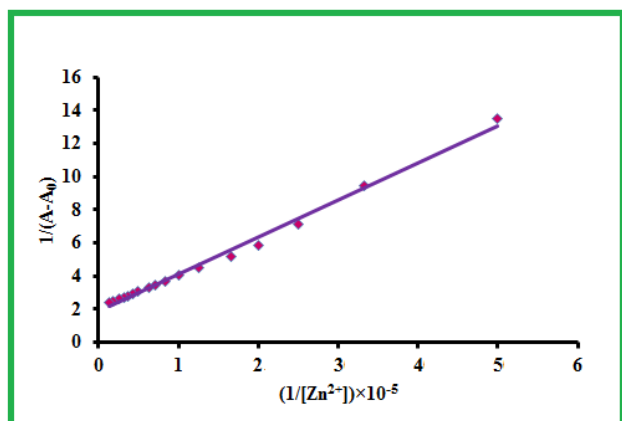


(A)

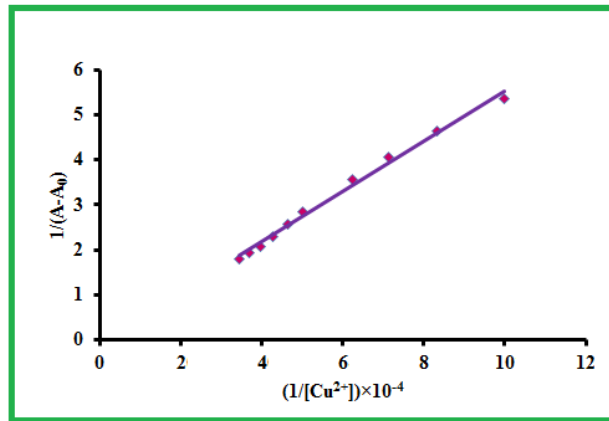


(B)

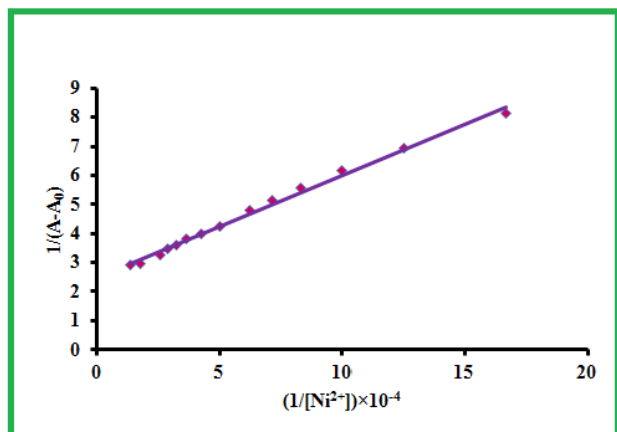
Figure S10. UV-Vis absorption spectra of receptor 1 (2 × 10⁻⁵ mol L⁻¹) in 9:1, DMSO-water upon addition of (A) Co²⁺ and (B) Ni²⁺ cations (0-5 equiv.).



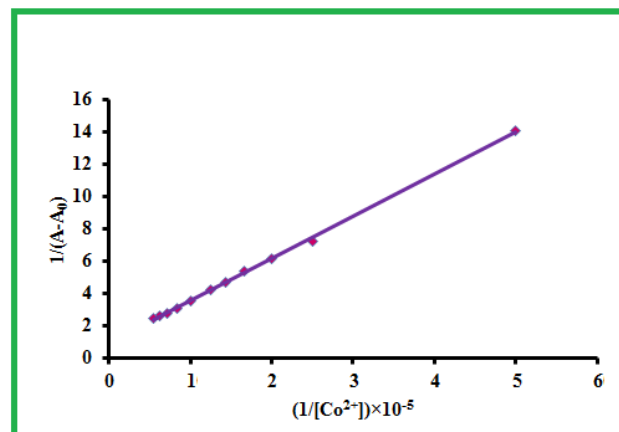
(A)



(B)



(C)



(D)

Figure S11. Benesi-Hildebrand plots of receptor **1** with (A) Zn²⁺, (B) Cu²⁺, (C) Ni²⁺ and (D) Co²⁺ cations associated with absorbance change at 495 nm in 9:1, DMSO-water.

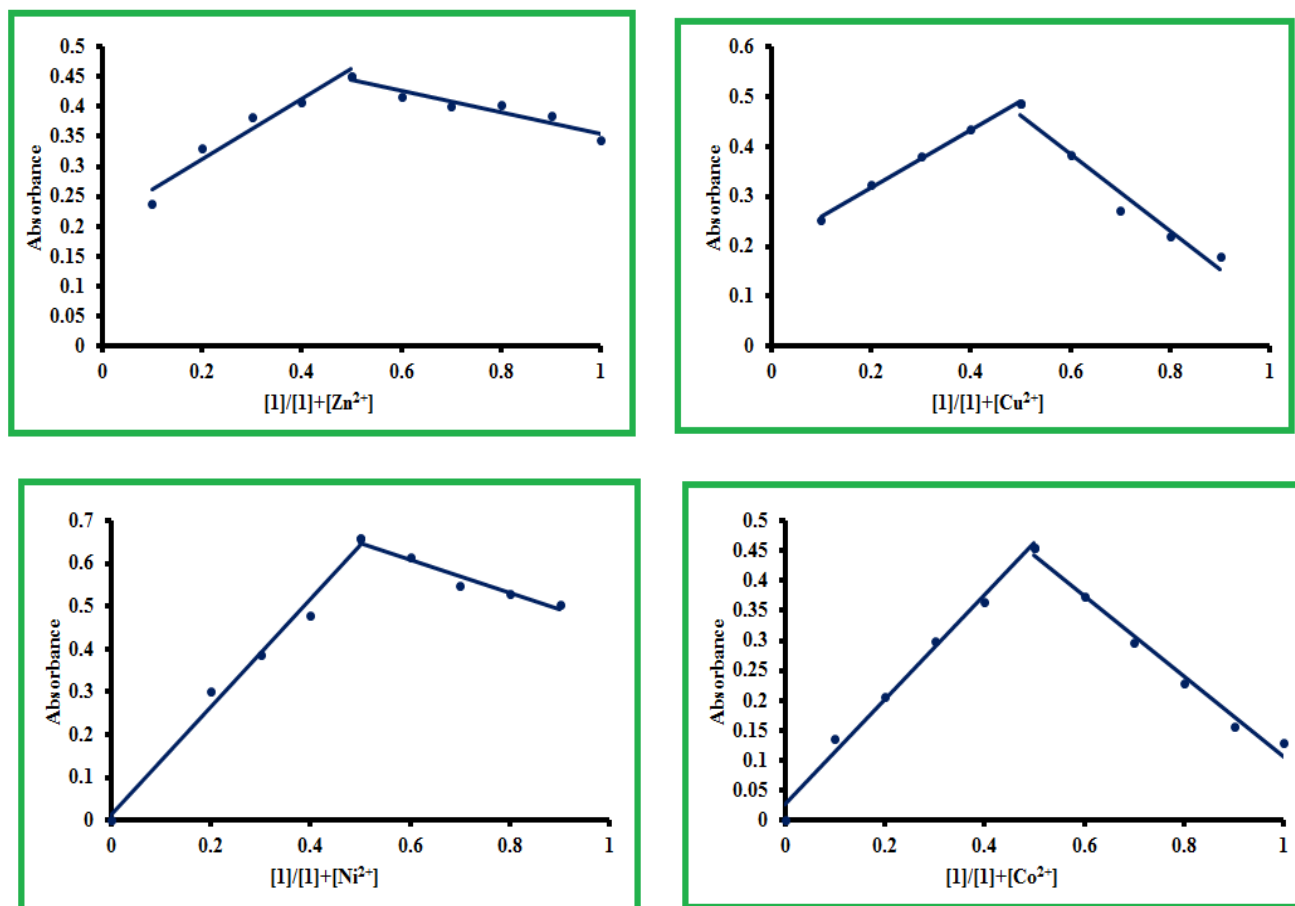


Figure S12. Job's plot for receptor 1 and cations with a total concentration of 2.0×10^{-5} M in 9:1, DMSO-water at 495 nm.

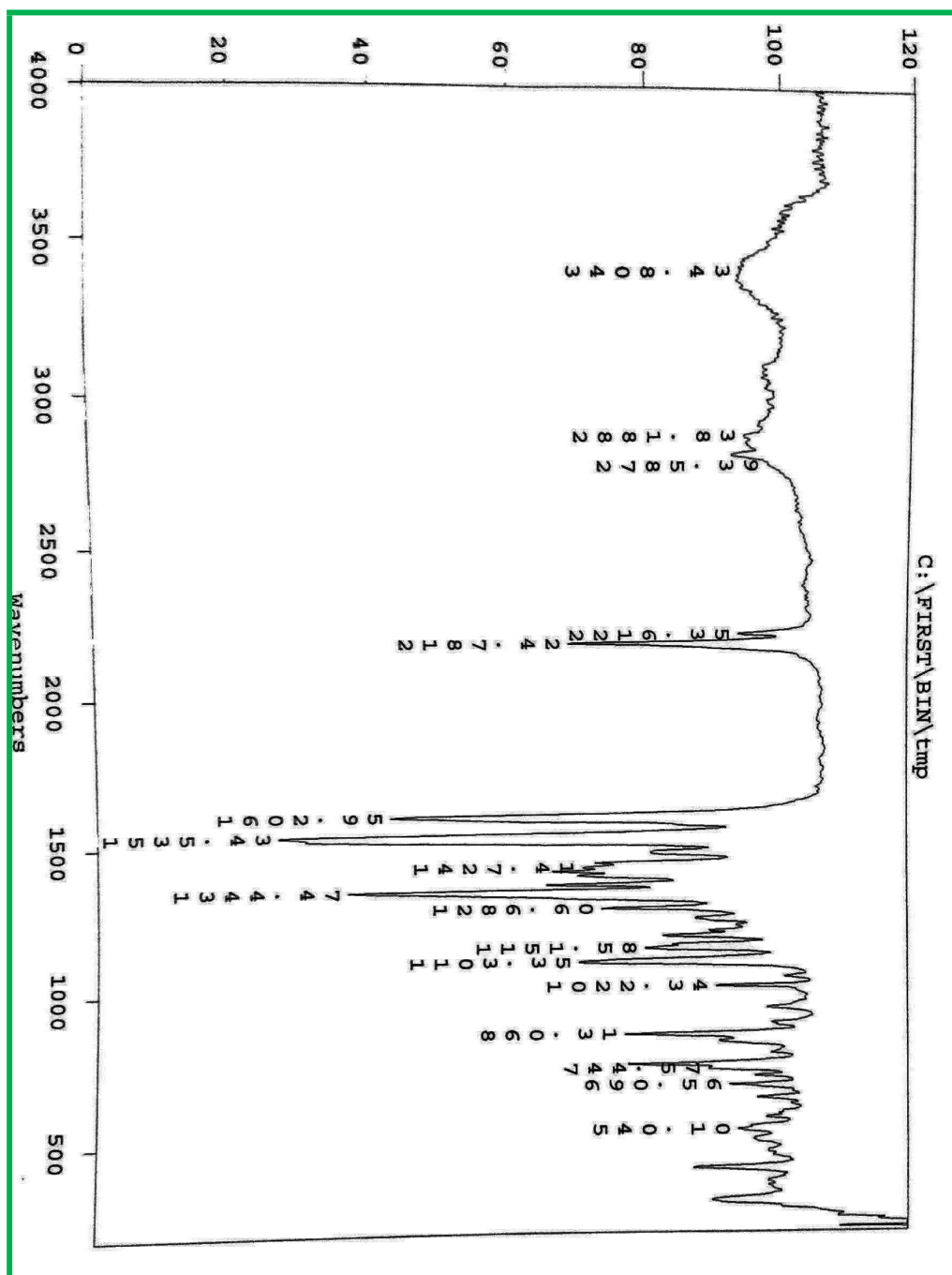


Figure S13. FT-IR spectrum of 1-Zn²⁺

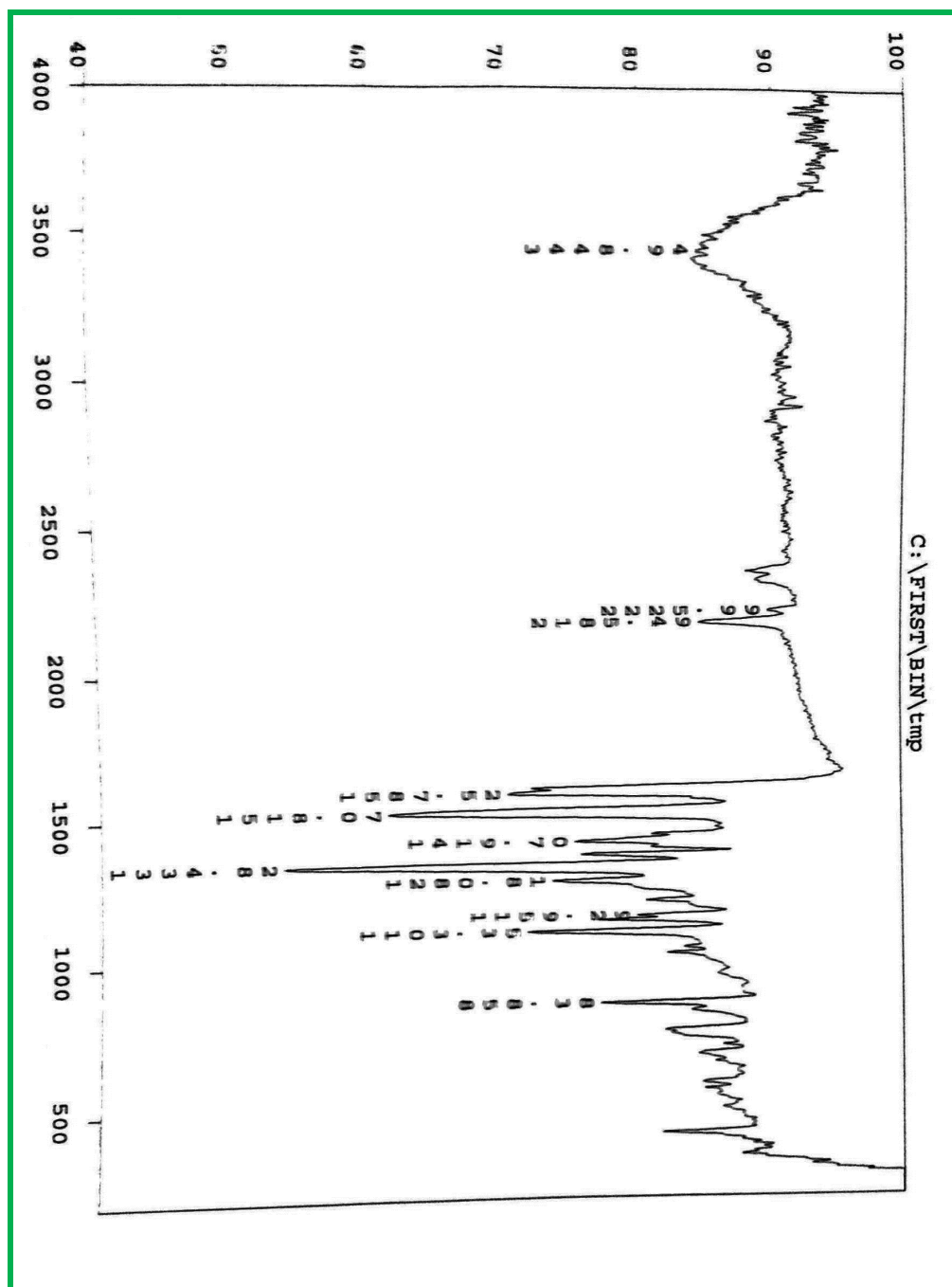


Figure S14. FT-IR spectrum of 1-Cu²⁺

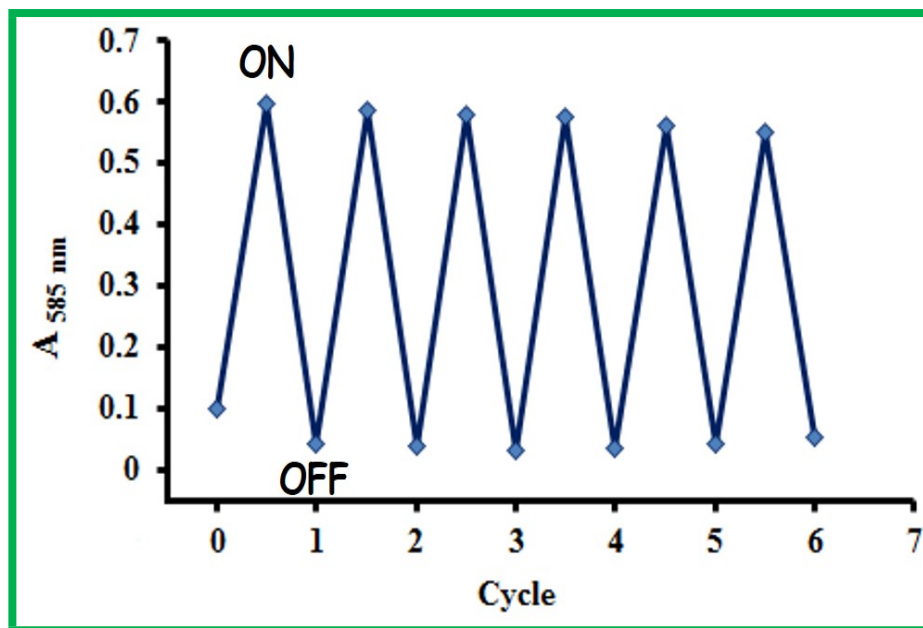
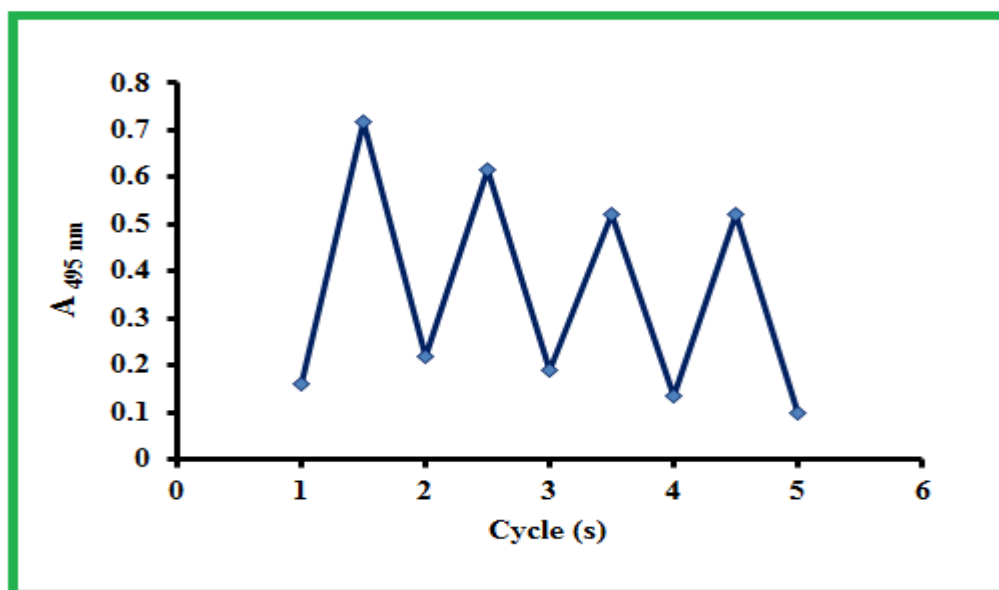
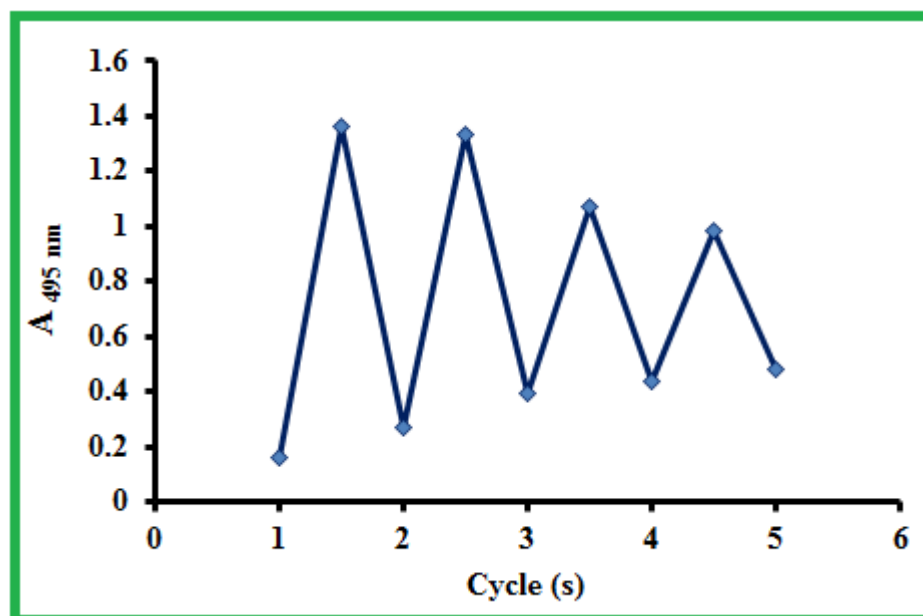


Figure S15. Reversible absorbance titration responses of receptor **1** (2×10^{-5} mol L⁻¹) binding to F⁻ (5 equiv.) by the introduction of Ca²⁺ (5 equiv.) to the system. The cyclic index is the number of alternating cycles.



(A)



(B)

Figure S16. Reversible absorbance titration responses of receptor **1** (2×10^{-5} mol L⁻¹) binding to (A) Zn²⁺ (5 equiv.) and (B) Cu²⁺ (5 equiv.) by the introduction of EDTA (sodium salt, 5 equiv.) to the system. The cyclic index is the number of alternating cycles.