Supplementary Information

For

A Novel Fluorescent 'Off-On-Off' Probe for Relay Recognition of Zn^{2+} and Cu^{2+} Derived from *N*,*N*-Bis(2-pyridylmethyl)amine

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1. Supplementary spectral data

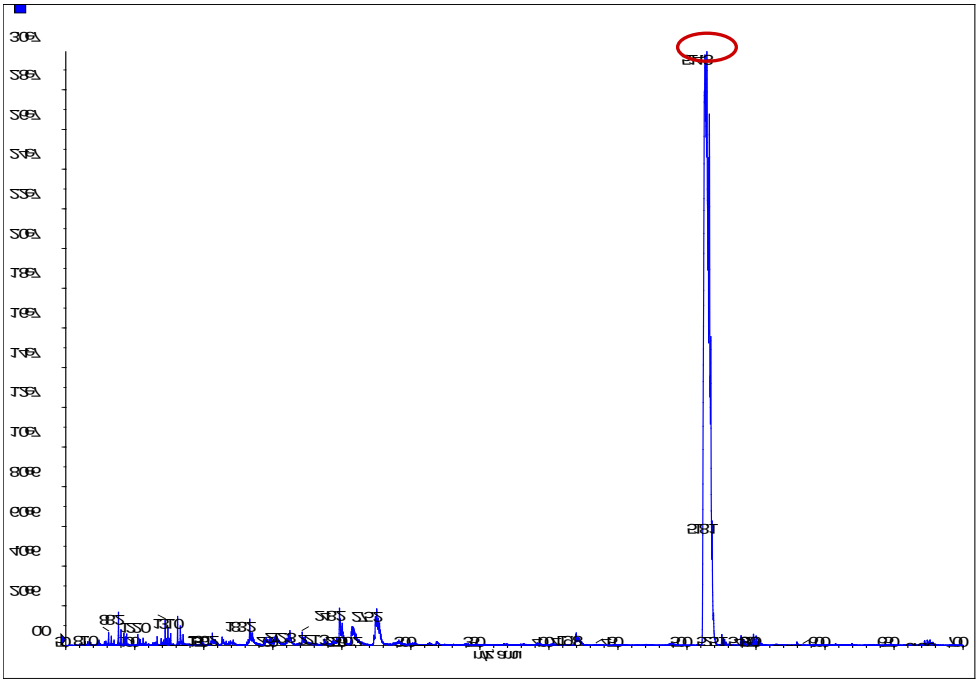


Figure S-1. ESI-MS of NBPA-Zn^{2+} in CH_3OH

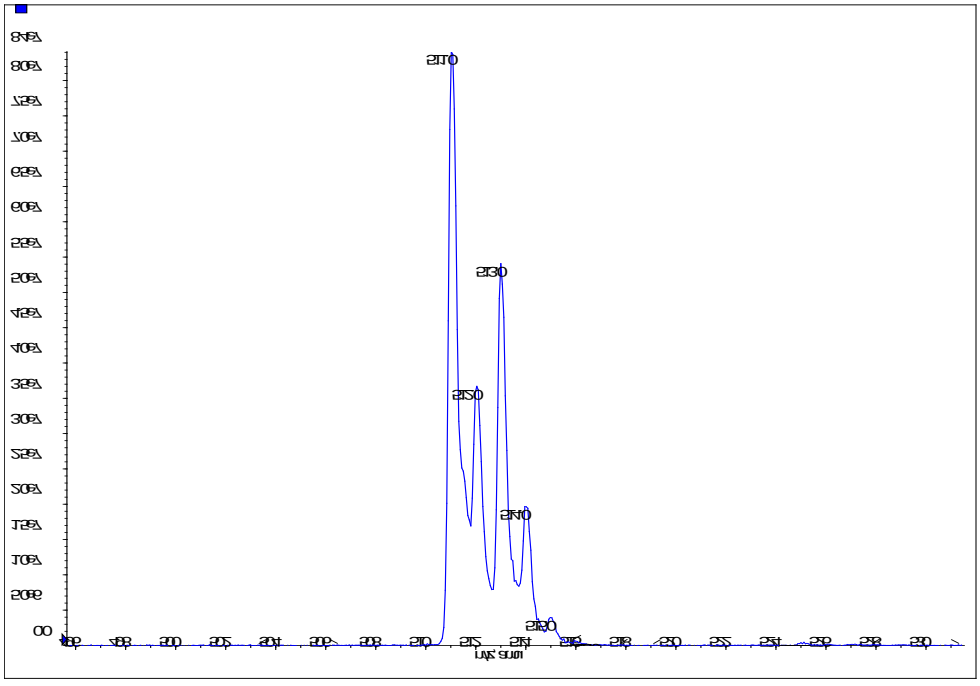


Figure S-2. ESI-MS of NBPA-Zn^{2+}-Cu^{2+} in CH_3OH

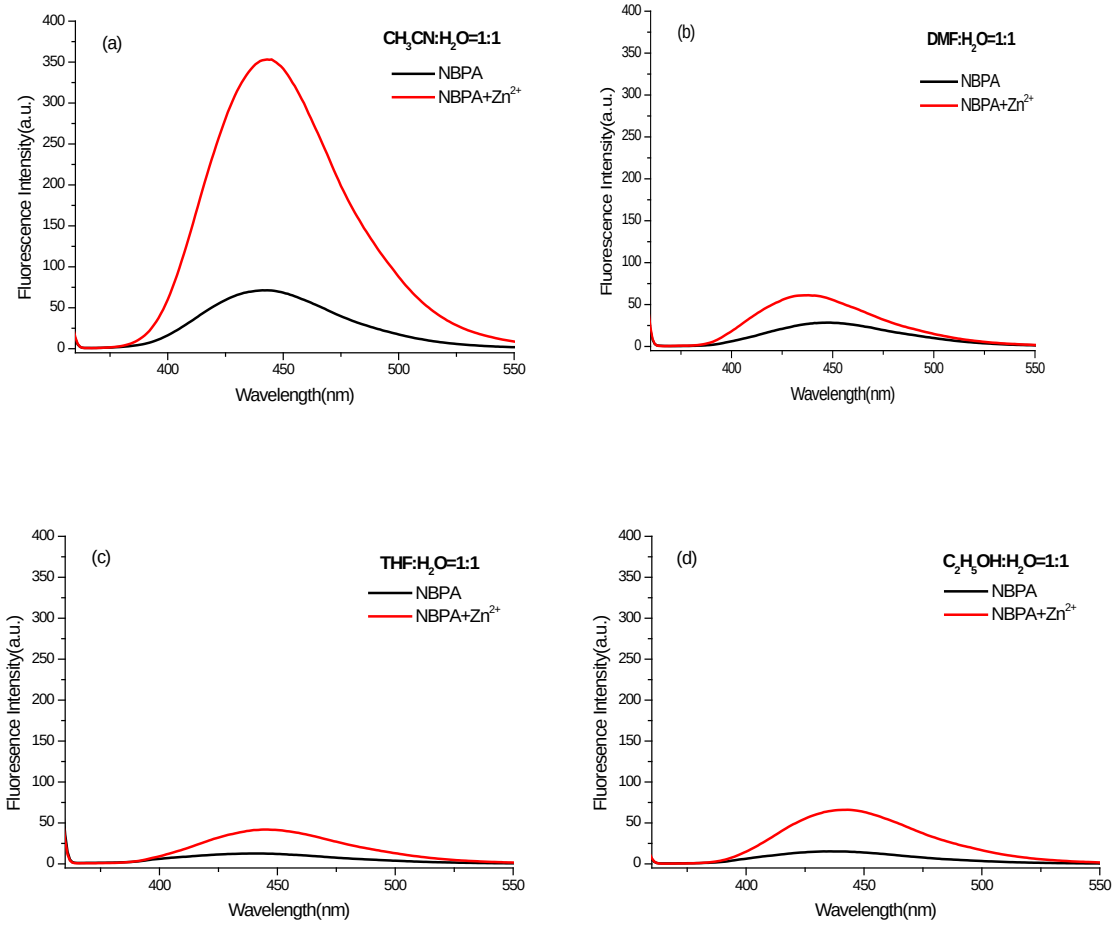
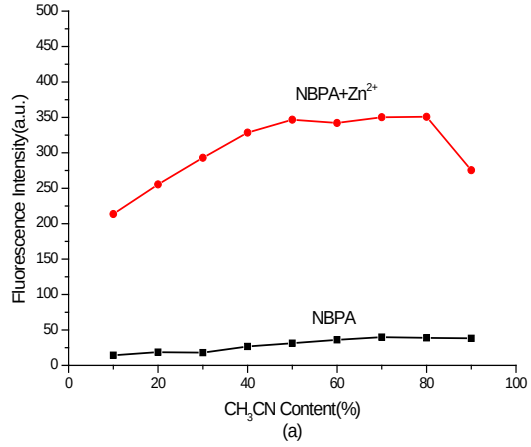
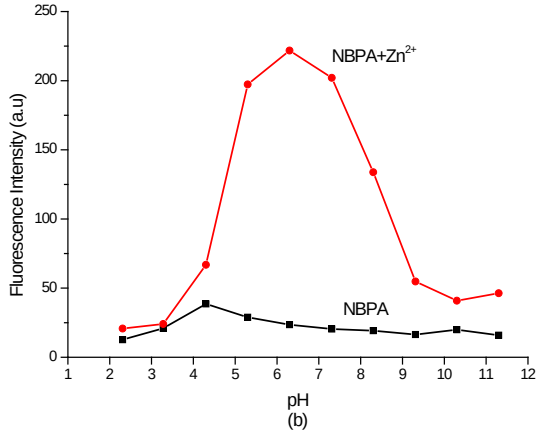


Figure S-3. The fluorescence spectra of compound NBPA (10 μM) before (black line) and after (red line) addition of 1.0 equiv of Zn^{2+} in different solvent /H_2O(1:1, v/v). a) acetonitrile, b)DMF, c) THF, d) ethanol; entrance slit, 2.5 nm; exit slit, 5 nm; t, 10 min.





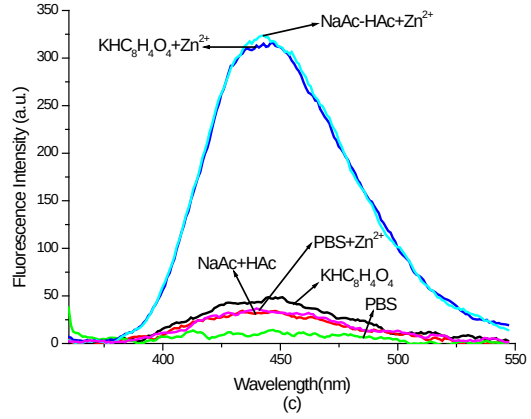


Figure S-4. a) Effect of different ratios of CH_3CN to H_2O solvents on the fluorescence intensity of NBPA (black line) and NBPA-Zn^{2+} (red line); b) Effect of pH on the fluorescence intensity of NBPA (black line) and NBPA-Zn^{2+} (red line); pH, 2.30-10.30; c) Effect of different buffer solutions on the fluorescence intensity of NBPA and NBPA-Zn^{2+}; pH value of buffer solutions, 6.30.

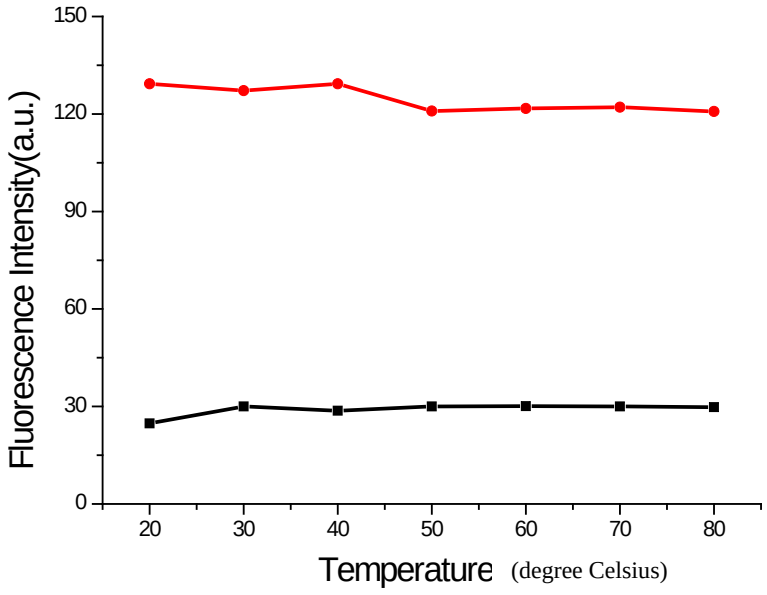


Figure S-5. The fluorescence spectra of compound NBPA (10 μM) before (black line) and after (red line) addition of 1.0 equiv of Zn^{2+} at different temperatures in CH_3CN /H_2O(1:1, v/v); entrance slit, 2.5 nm; exit slit, 2.5 nm; t, 10 min.

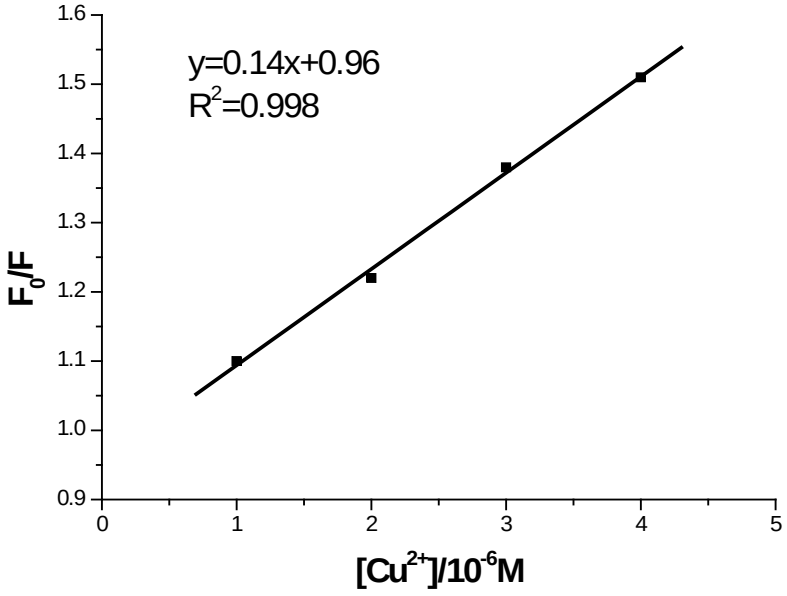


Figure S-6. Stern-Volmer plot to estimate fluorescence quenching for complex NBPA-Zn^{2+} in the presence of Cu^{2+}.

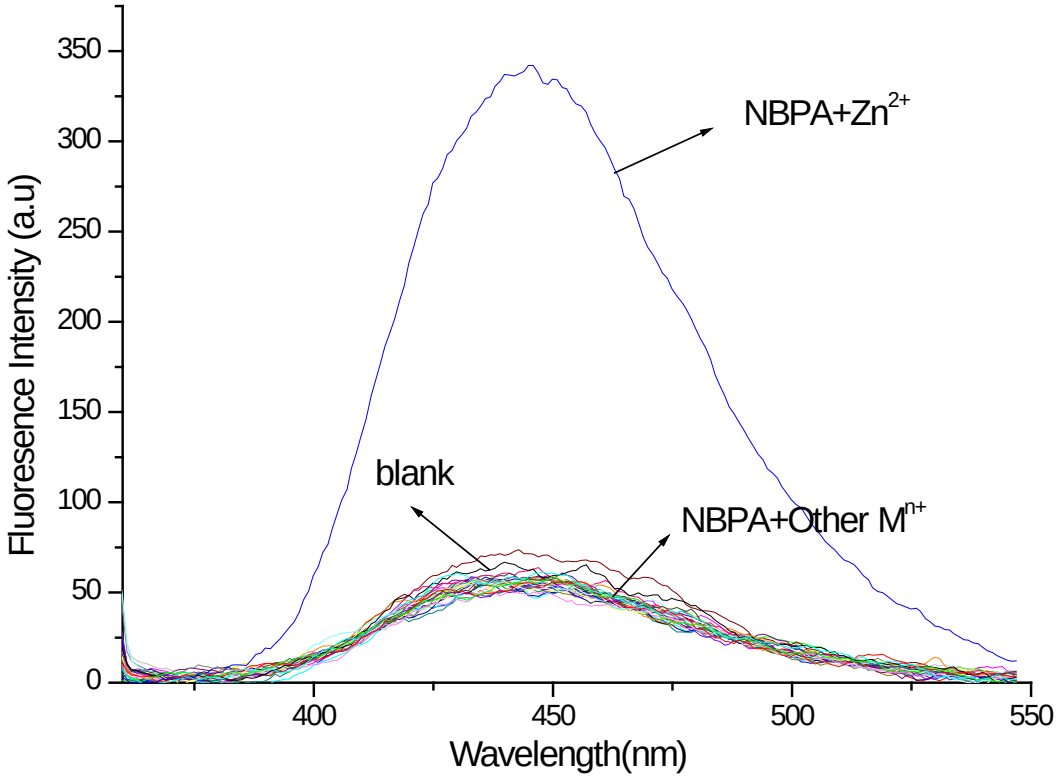


Figure S-7. Fluorescence spectra of NBPA and the addition of various ions to NBPA in CH_3CN- buffer solution (1:1, v/v); NBPA, 1.0×10^{-5} M; metal ions, 1.0×10^{-5} M; Buffer solution (HAc-NaAc), 0.10 M; entrance slit, 2.5 nm; exit slit, 5 nm; t, 10 min.

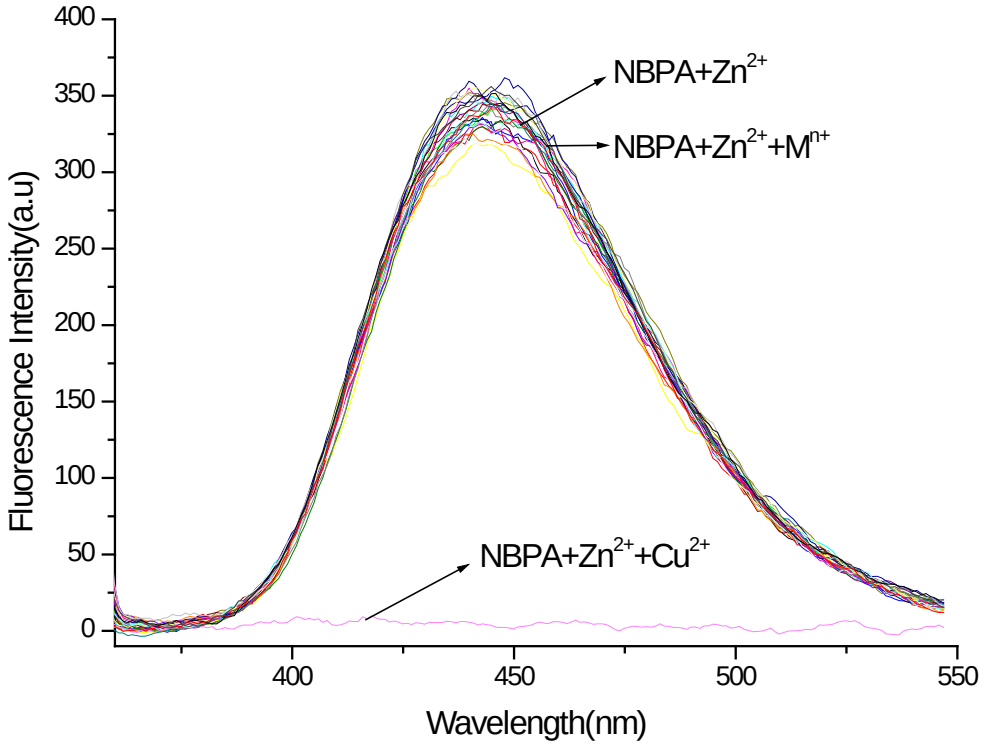


Figure S-8. Fluorescence spectra of NBPA-Zn^{2+} and the addition of various ions to NBPA-Zn^{2+} in CH_3CN-buffer solution (1:1, v/v); NBPA-Zn^{2+}, 1.0×10^{-5} M; metal ions, 1.0×10^{-5} M; Buffer solution (HAc-NaAc), 0.10 M; entrance slit, 2.5 nm; exit slit, 5 nm; t, 10 min.

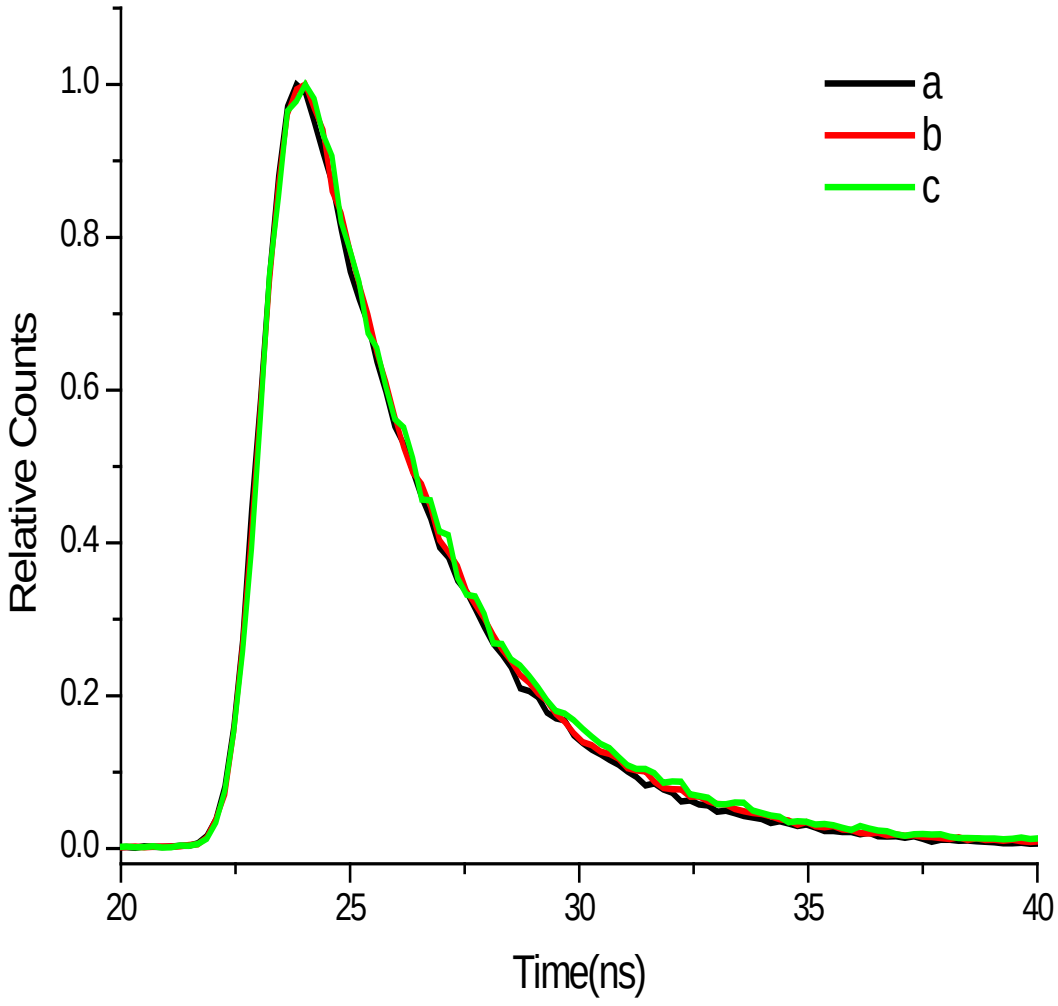


Figure S-9. Fluorescence decay curves for NBPA in presence of (a) Zn^{2+} (b) Cu^{2+} and (c) Zn^{2+}/Cu^{2+}

(excitation at 353 nm, emission at 443 nm)

2. The characterization data of compound 1，2，NBPA

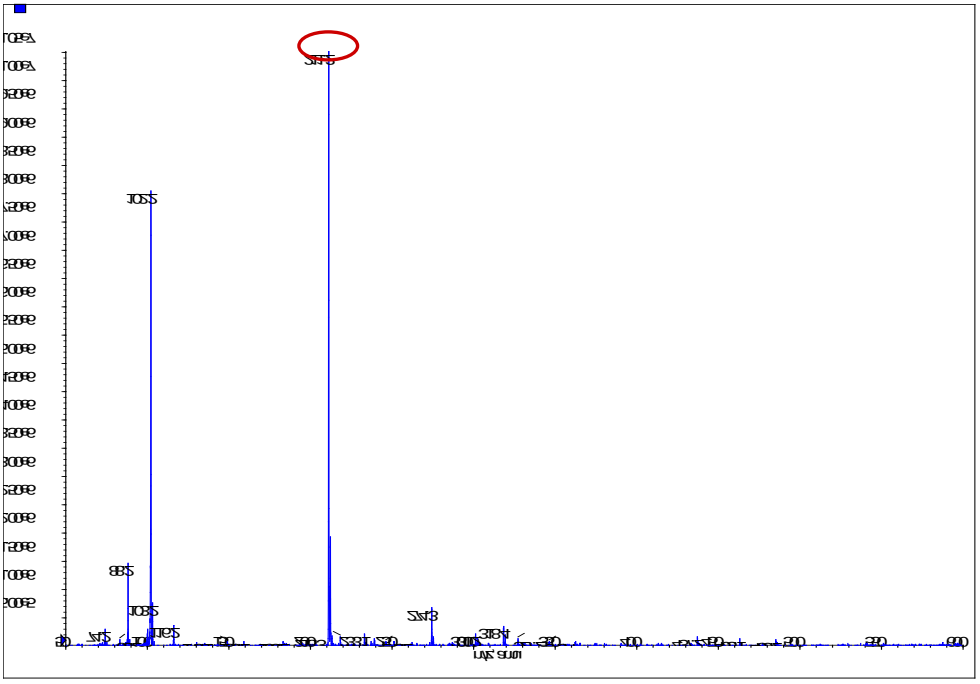


Figure S-10. ESI-MS of 1 in CH_3OH

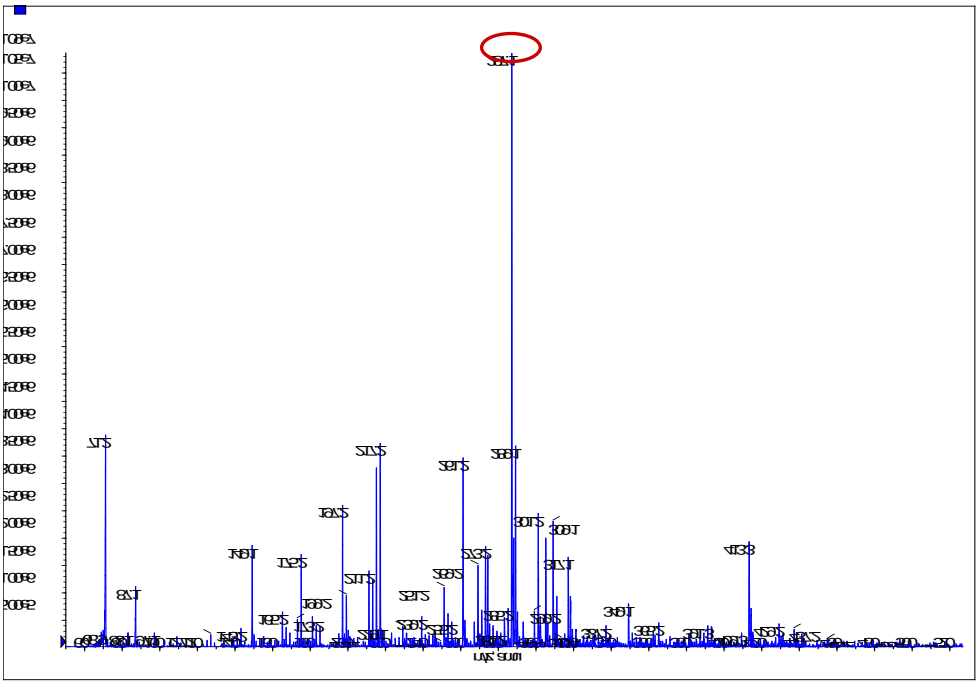


Figure S-11. ESI-MS of 2 in CH_3OH

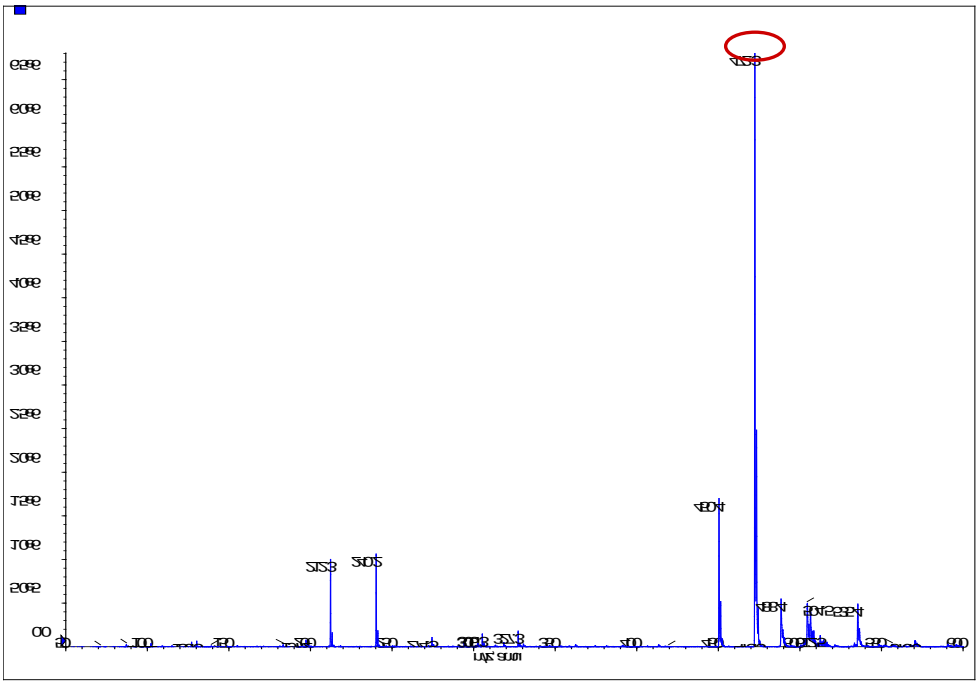


Figure S-12. ESI-MS of NBPA in CH_3OH

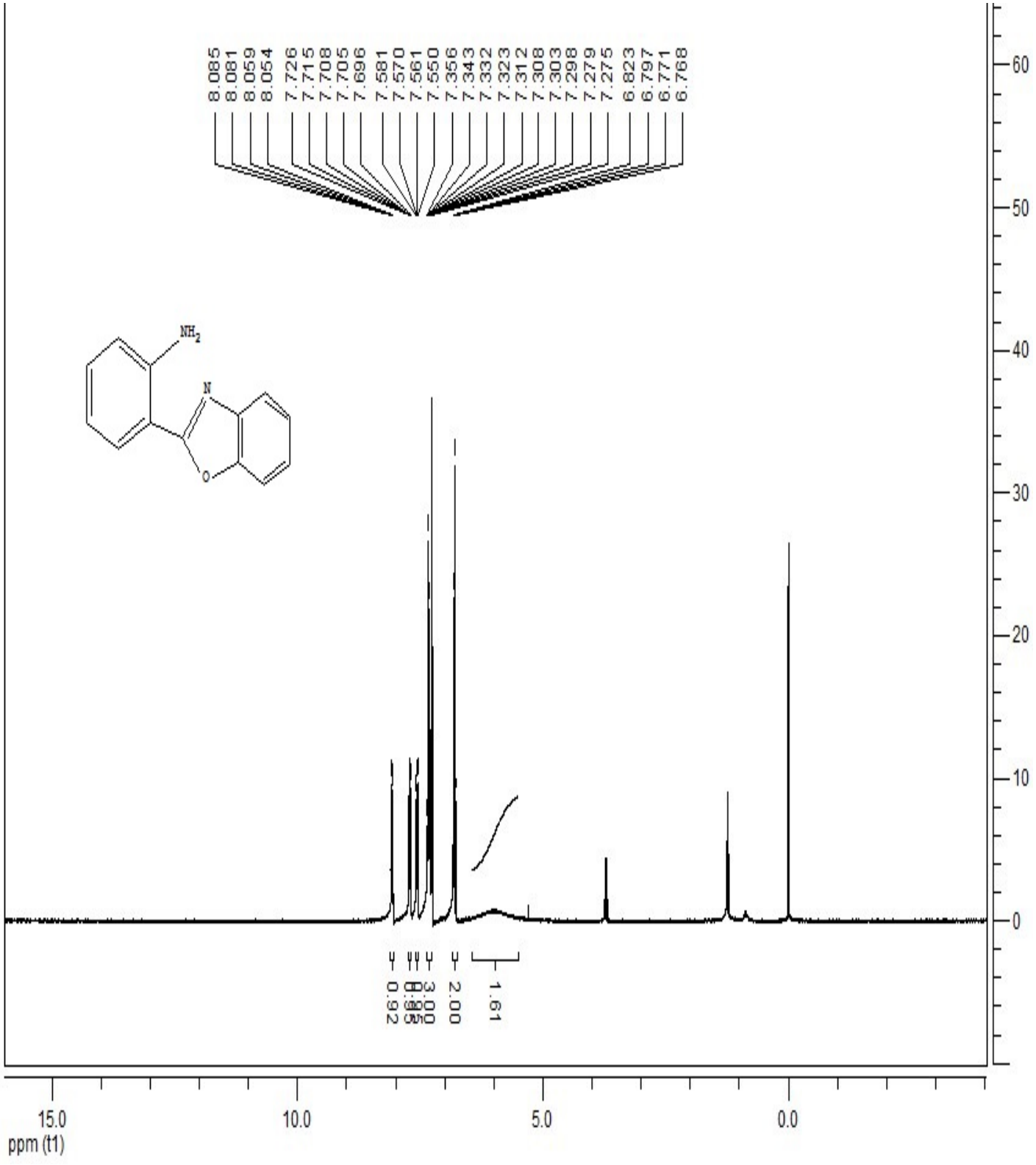


Figure S-13. The ^{1}H NMR spectra of 1 in $CDCl_3$

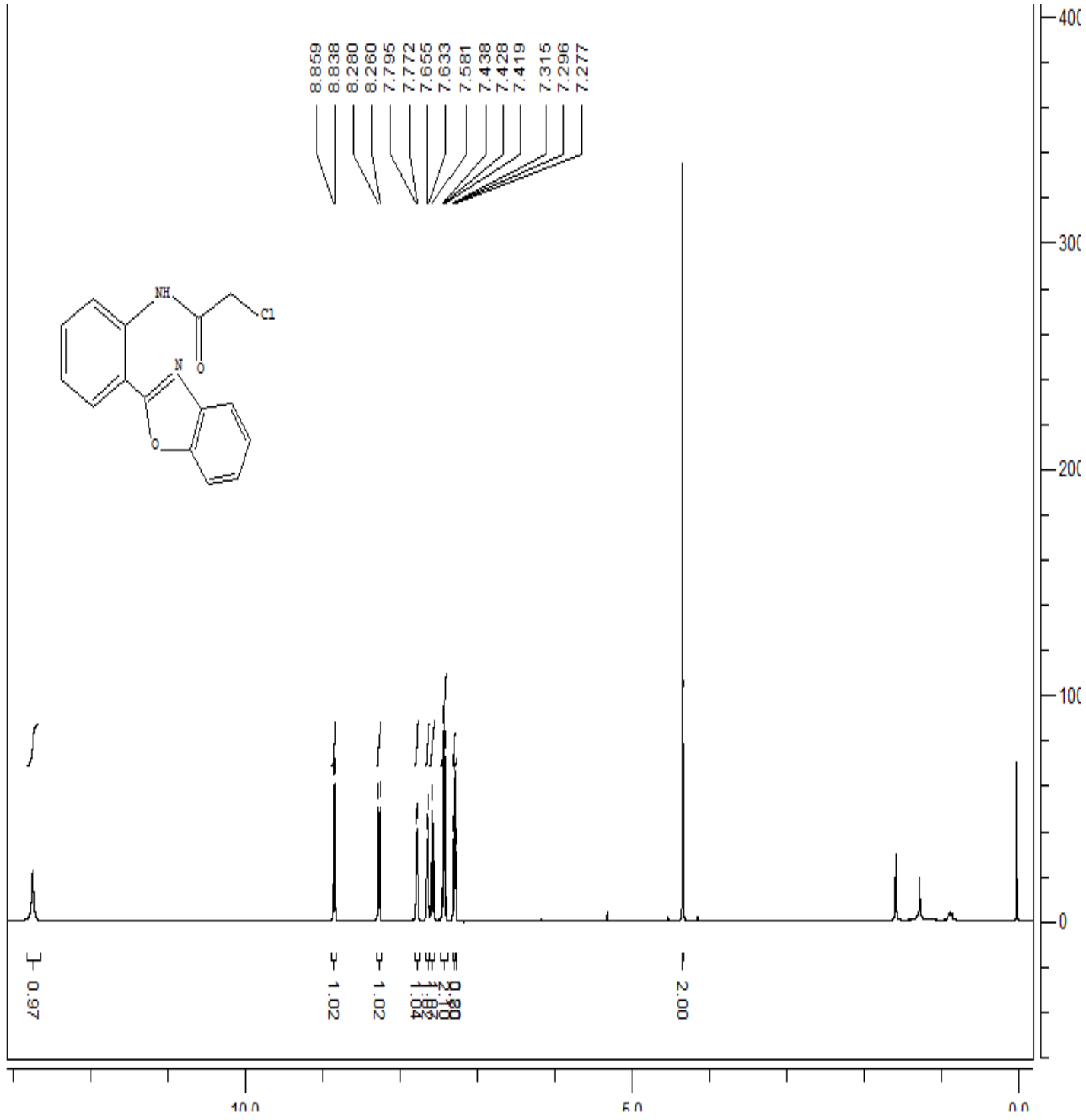


Figure S-14. The ^{1}H NMR spectra of 2 in $CDCl_3$

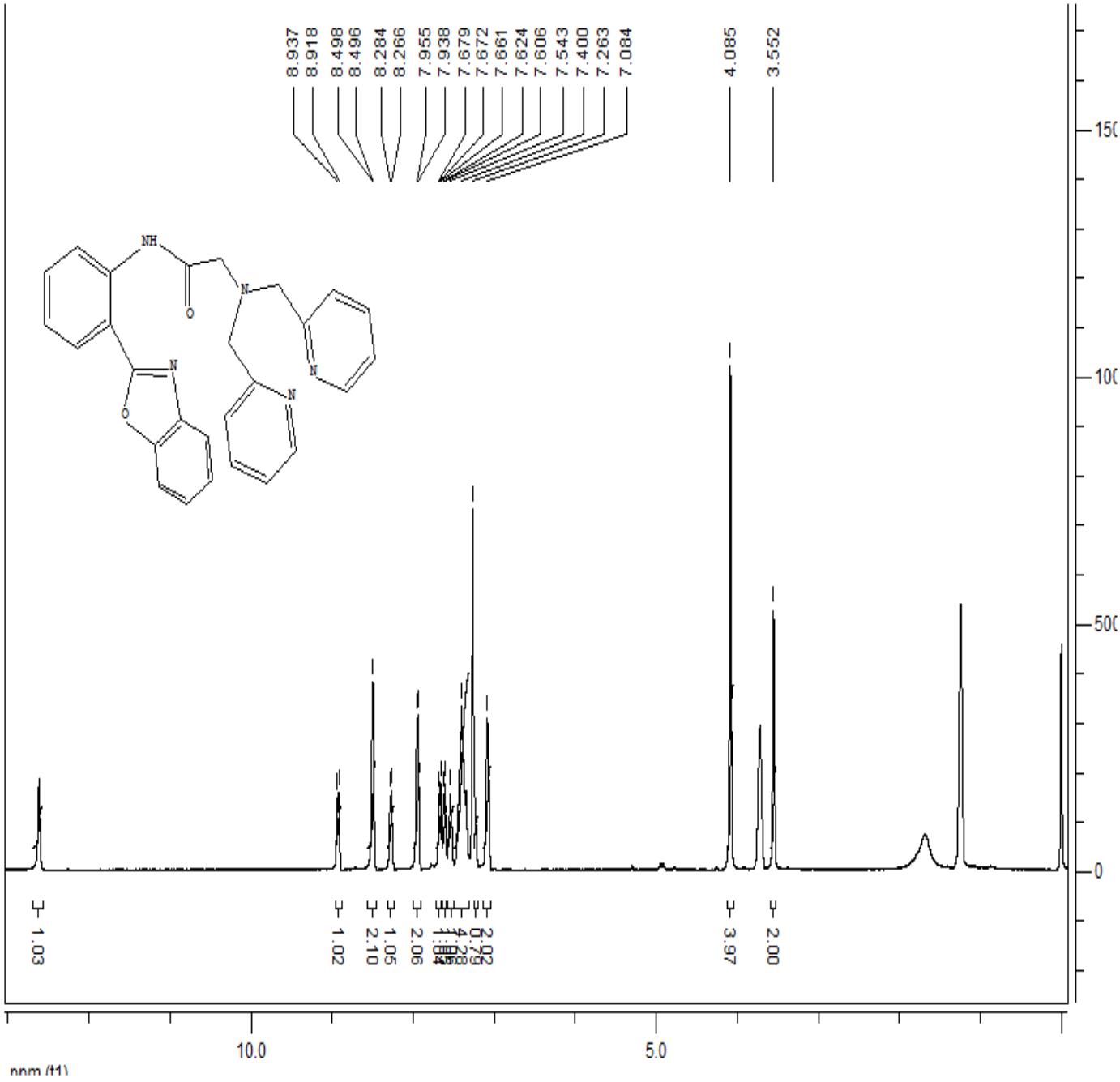


Figure S-15. The ^{1}H NMR spectra of NBPA in $CDCl_3$

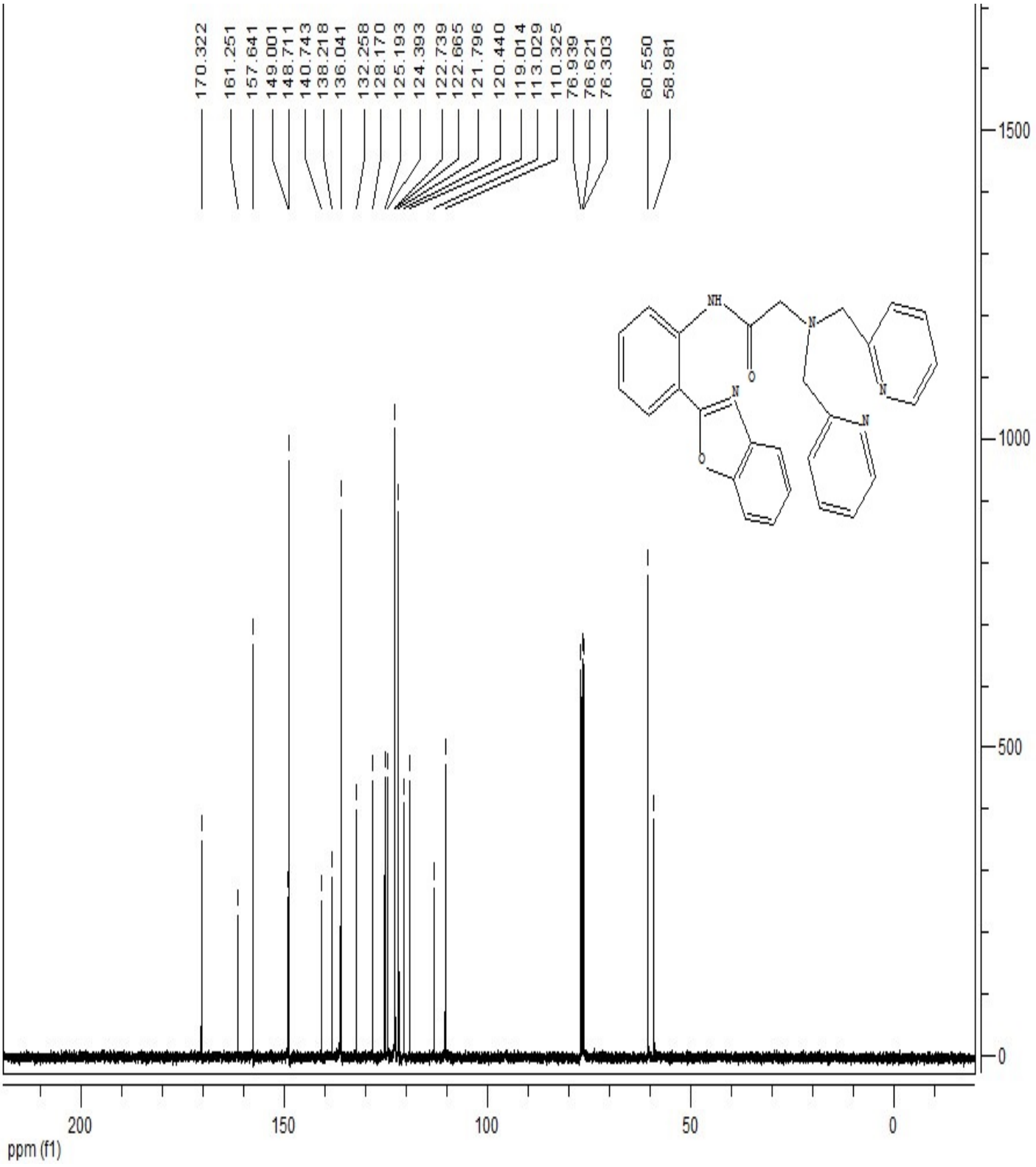


Figure S-16. The ^{13}C NMR spectra of sensor NBPA in $CDCl_3$