Electronic Supplementary Information

A Turn-on Fluorescent Chemodosimeter Based on Detelluration for Detecting Ferrous Iron (Fe^{2+}) in Living Cells

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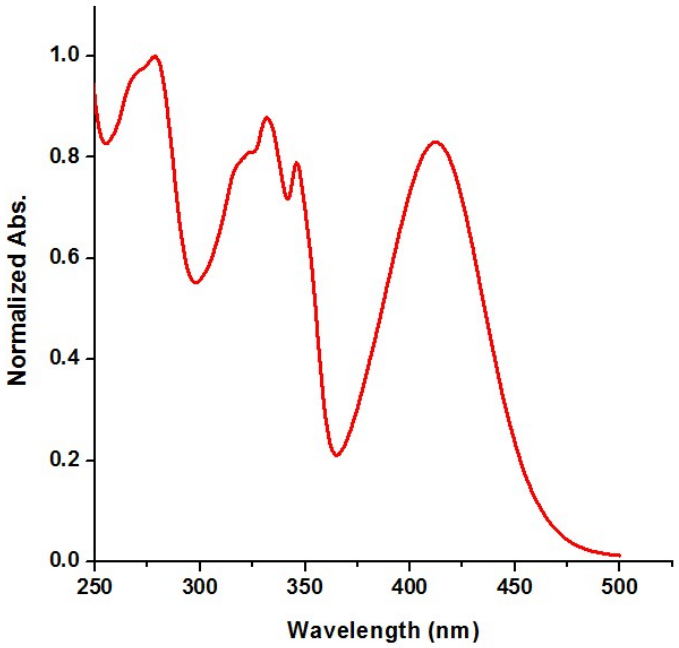

Fig. S1 Normalized UV/Vis spectrum of 30 μM **Naph-Te** in acetonitrile.

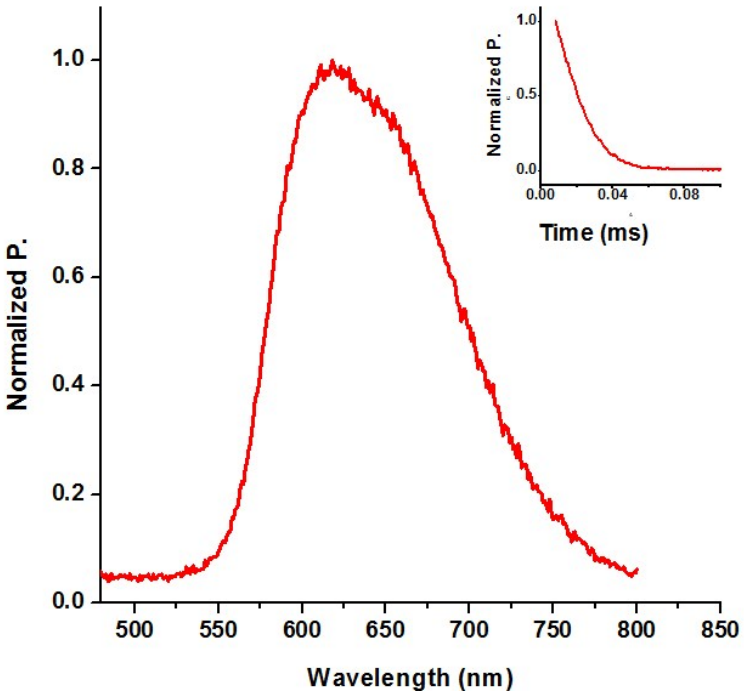

Fig. S2 Normalized phosphorescence spectrum of 30 μM **Naph-Te** in deaired acetonitrile. The solution was deoxygenated by nitrogen bubbling for 20 minutes; insert, the lifetime profile at 618 nm, τ = 16.55 μs. Data were acquired with λ_{ex} = 412 nm.

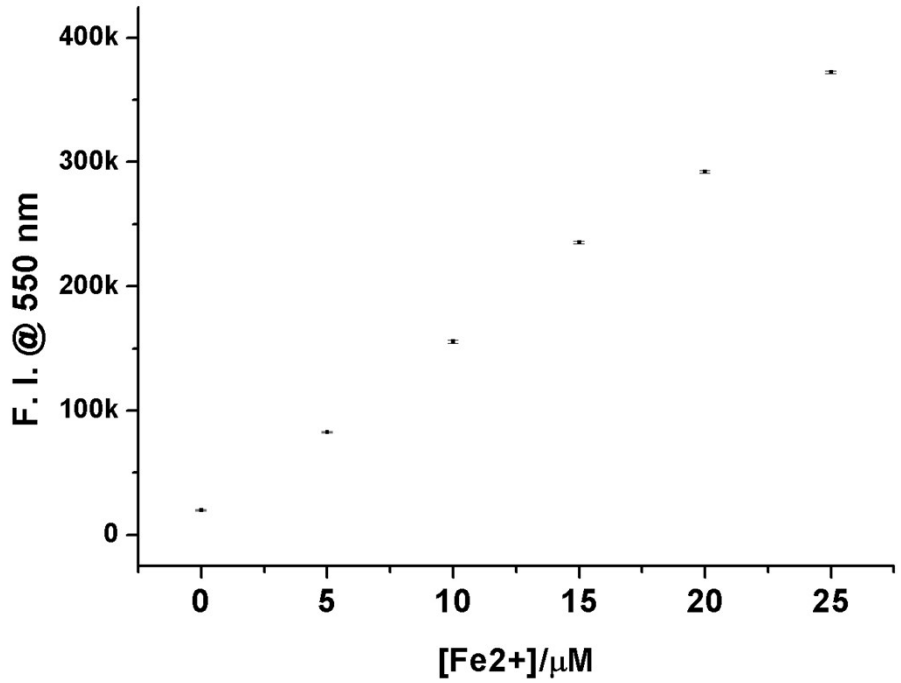

Fig. S3 The relationship between the concentration of Fe^{2+} and the fluorescence intensity (F. I.) at 550 nm. Data were collected after incubating the solutions (5 μM Naph-Te) with various amounts of Fe^{2+} for 60 min in acetonitrile/PBS (1/5), pH 7.0.

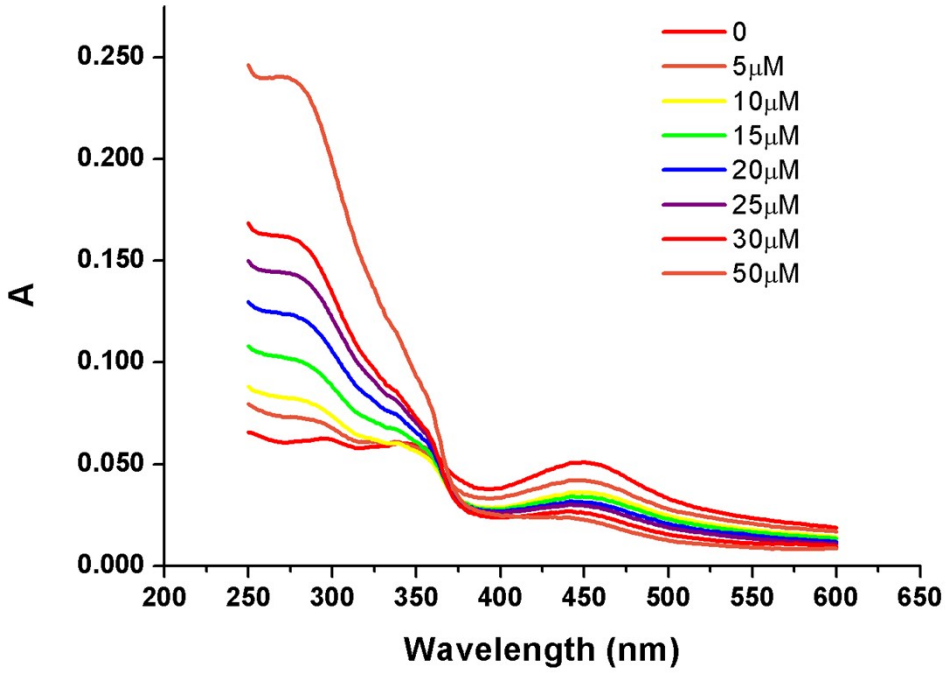

Fig. S4 The change of the UV/Vis spectrum with titration of Fe^{2+} to Naph-Te (5 μM) in acetonitrile/PBS (1/5), pH 7.

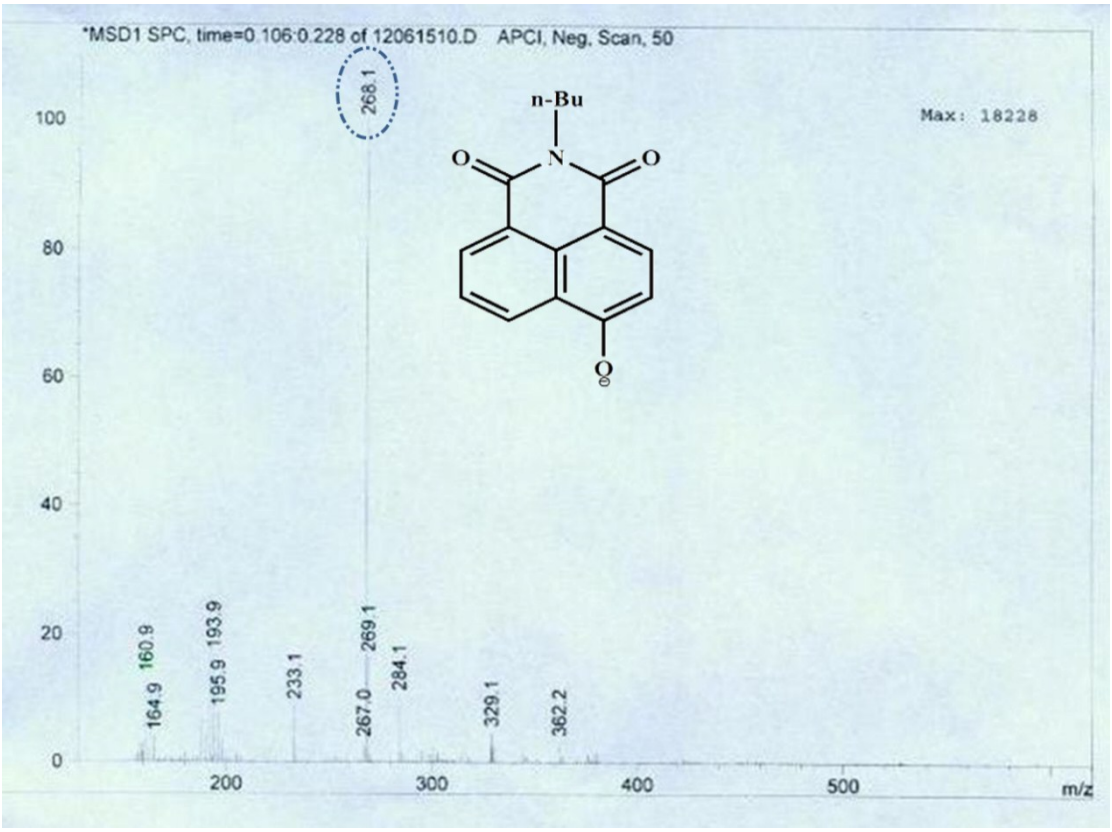

Fig. S5 Mass spectrum of the reaction mixture.

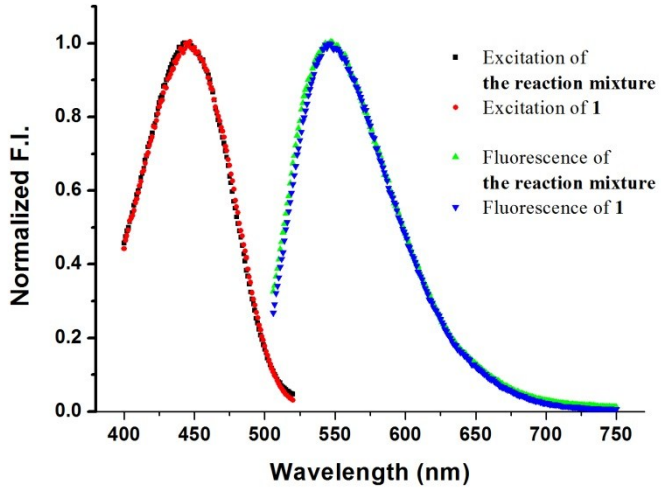

Fig. S6 Comparison of the emission and excitation spectra between the reaction mixture and authentic **1** in acetonitrile/PBS (1/5) at pH 7.0, $\lambda_{ex/em}$ = 445 nm/550 nm.

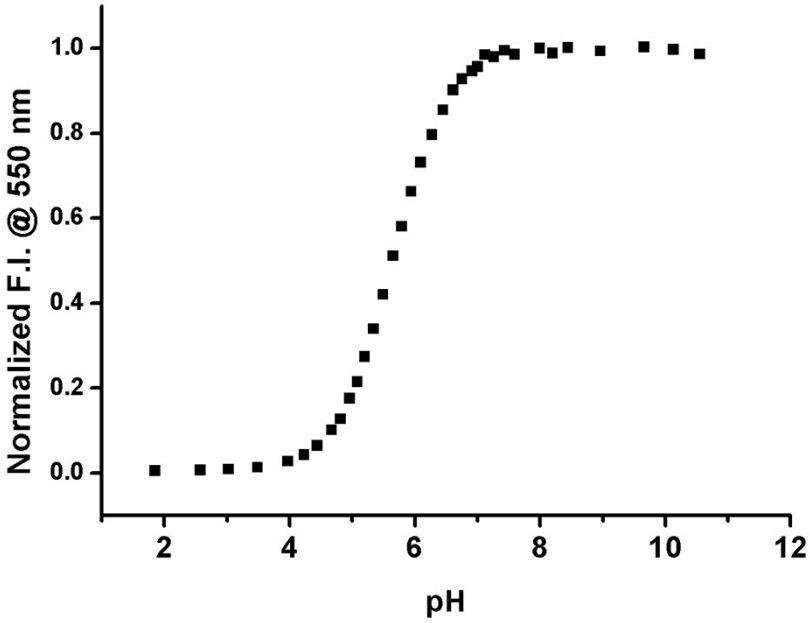

Fig. S7 The pH titration curve of the fluorescent molecule **1** (13 μM) in phosphate buffer (50 mM) with 1% DMSO as a co-solvent, λ_{ex} = 445 nm. The pK_a of **1** is estimated to be 5.6 where I/I_{max} is 0.5. [1]

Cytotoxicity assay. Under standard culture conditions (atmosphere of 5% CO_2 and 95% air at 37 °C) in RPMI1640 medium supplemented with 10% fetal calf serum, HL-7702 cells (200 μL, at a concentration of 5×10^4/mL) was seeded into each well of a 96-well plate and incubated for 24 hours. Then the HL-7702 cells were incubated with Naph-Te at different concentrations (5μM, 10 μM, 15 μM, 20 μM) for 24 hours. Subsequently, the cells were washed once with 37 °C PBS and then 100 μL of medium (serum-free) containing 0.05% MTT was added to each well. After an incubation time of 4 hours, the medium was removed and 150 μL of DMSO was added to each well to solubilize the formazan formed. The plate was shaken gently for 10 min and the absorbance at 490 nm was measured using a Microplate Reader. The absorbance of treated cells was compared with the absorbance of the controls, where cells were exposed only to the vehicle and were considered as 100% viability value.

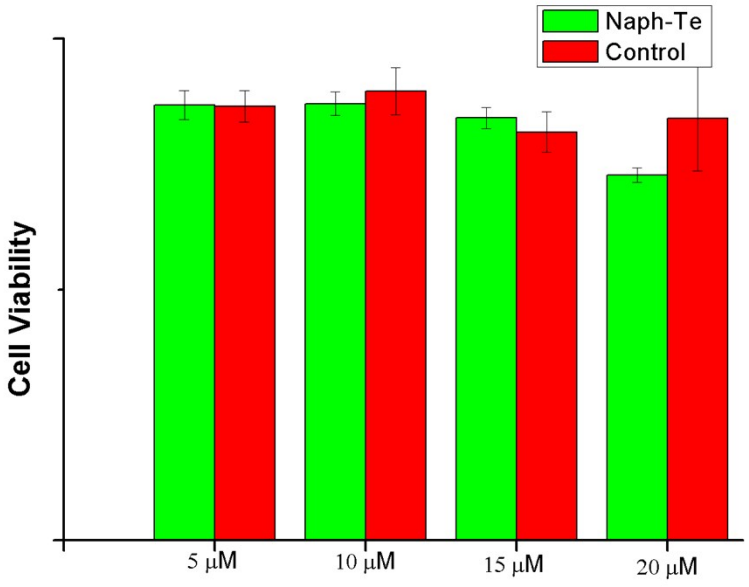

Fig. S8 The cytotoxicity of Naph-Te was assessed using the MTT assay.

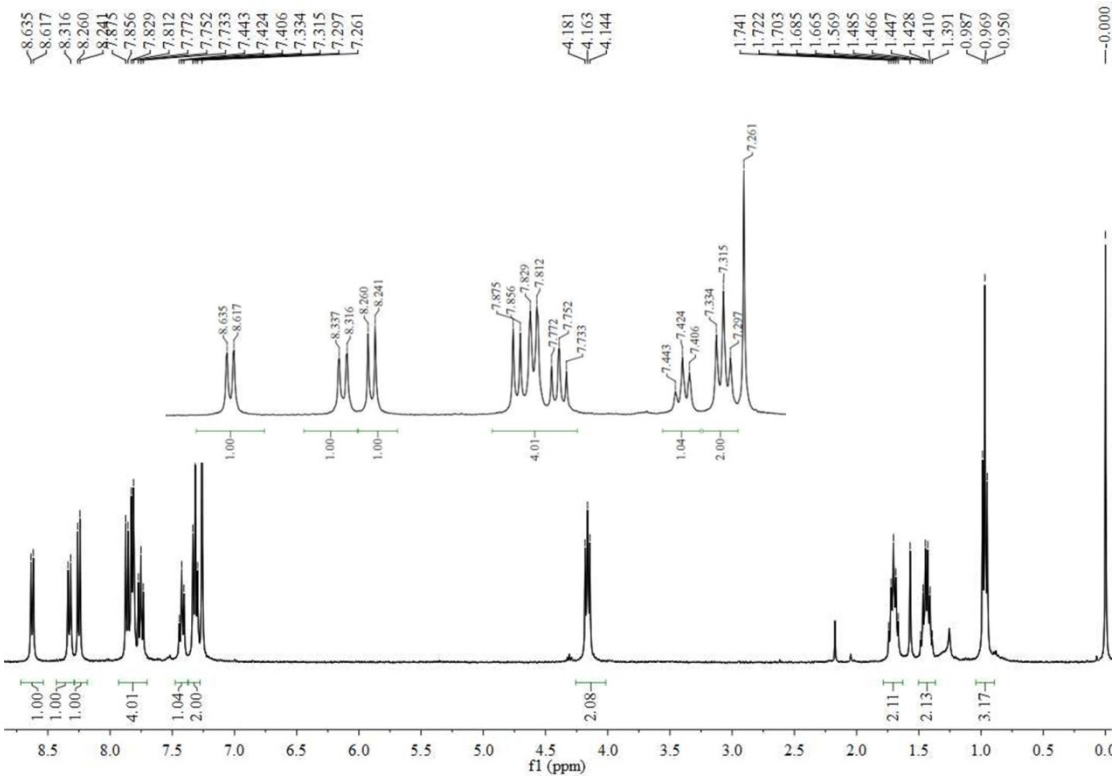

Fig. S9 ^{1}H NMR spectrum of Naph-Te in $CDCl_3$.

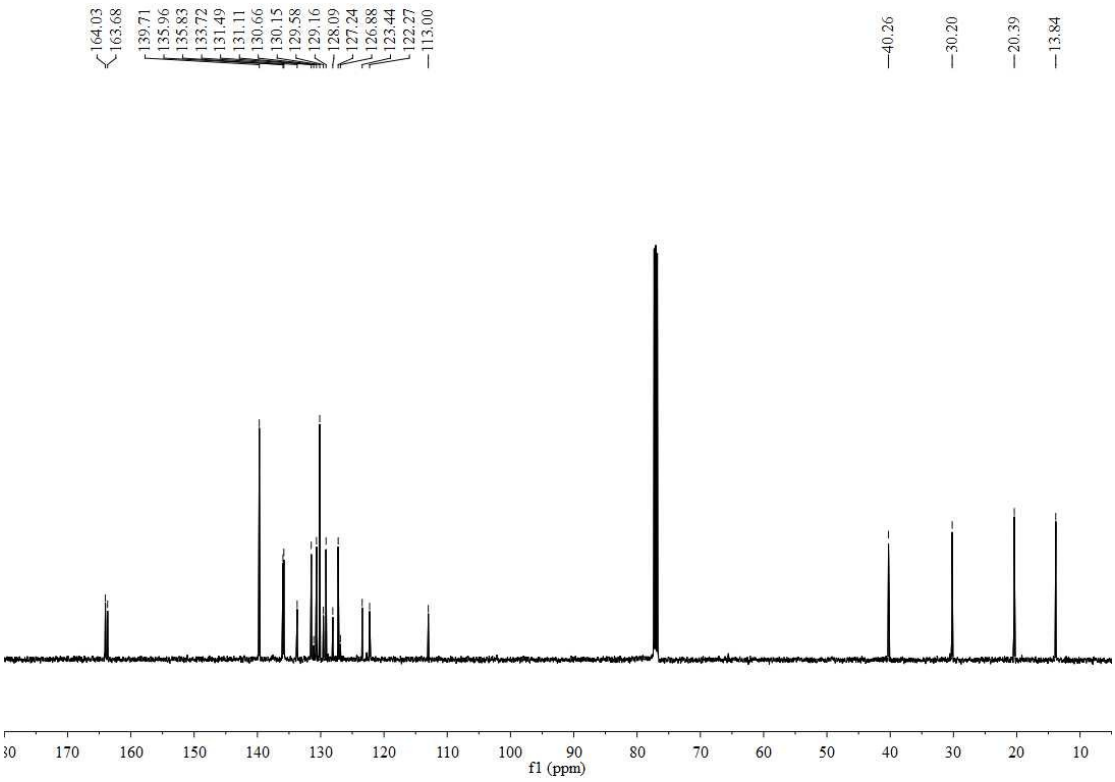

Fig. S10 ^{13}C NMR spectra of Naph-Te in $CDCl_3$.

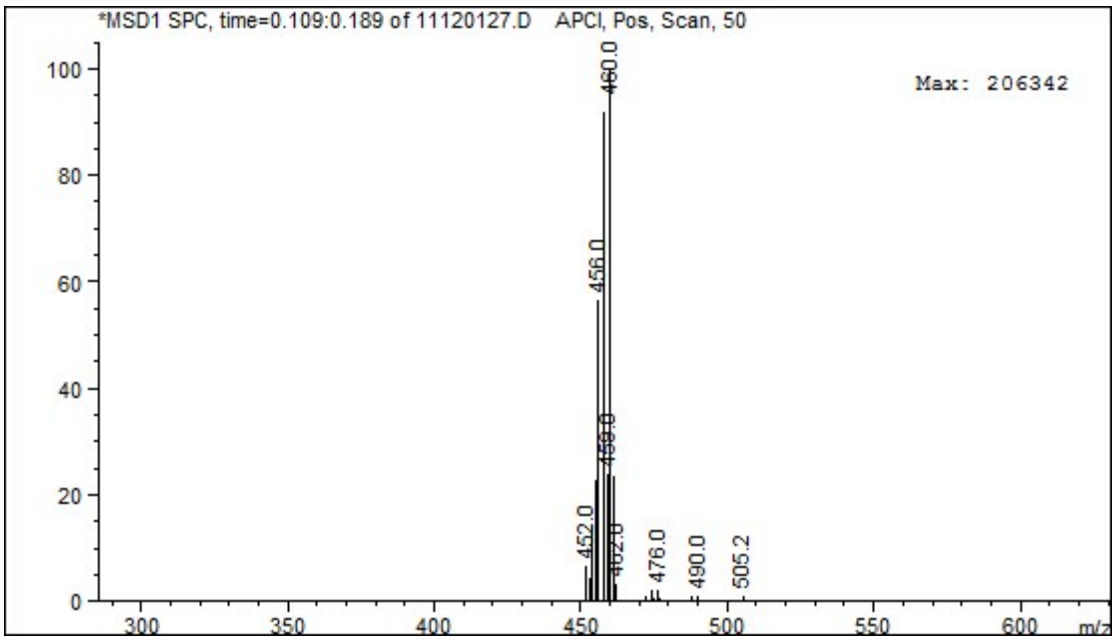

Fig. S11 Mass spectrum of Naph-Te.

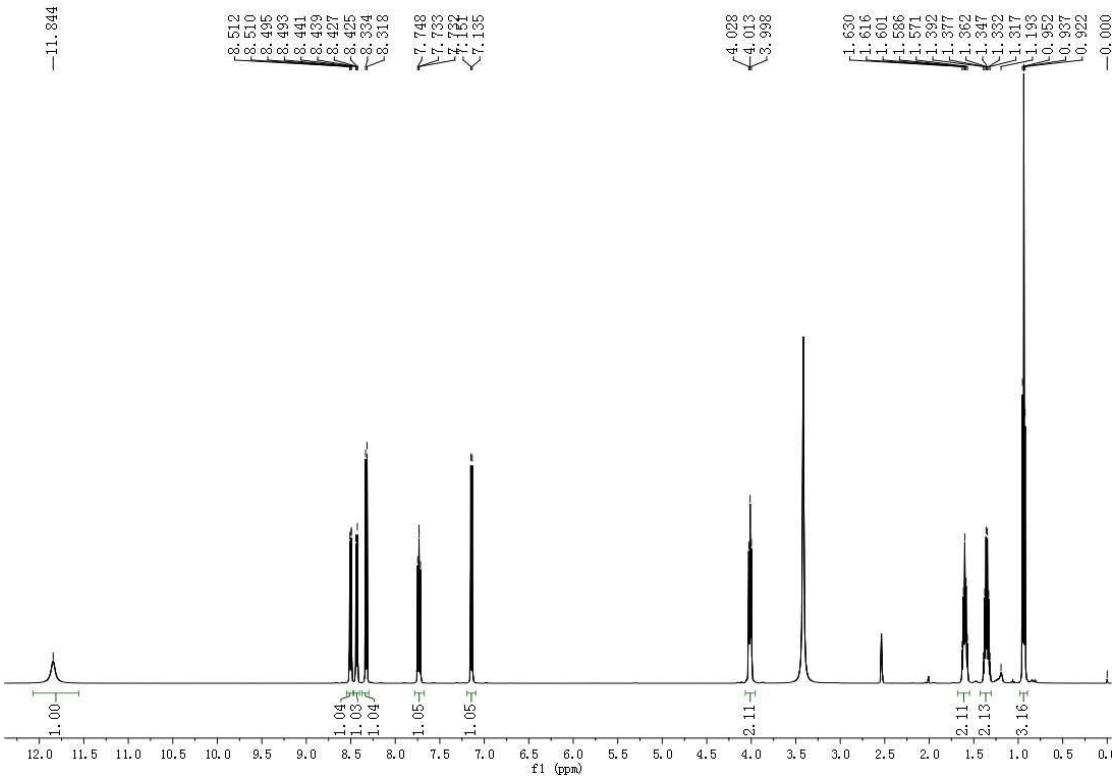

Fig. S12 ^{1}H NMR spectrum of 4-hydroxy-N-butyl-1, 8-naphthalimide in d^{6}-DMSO.

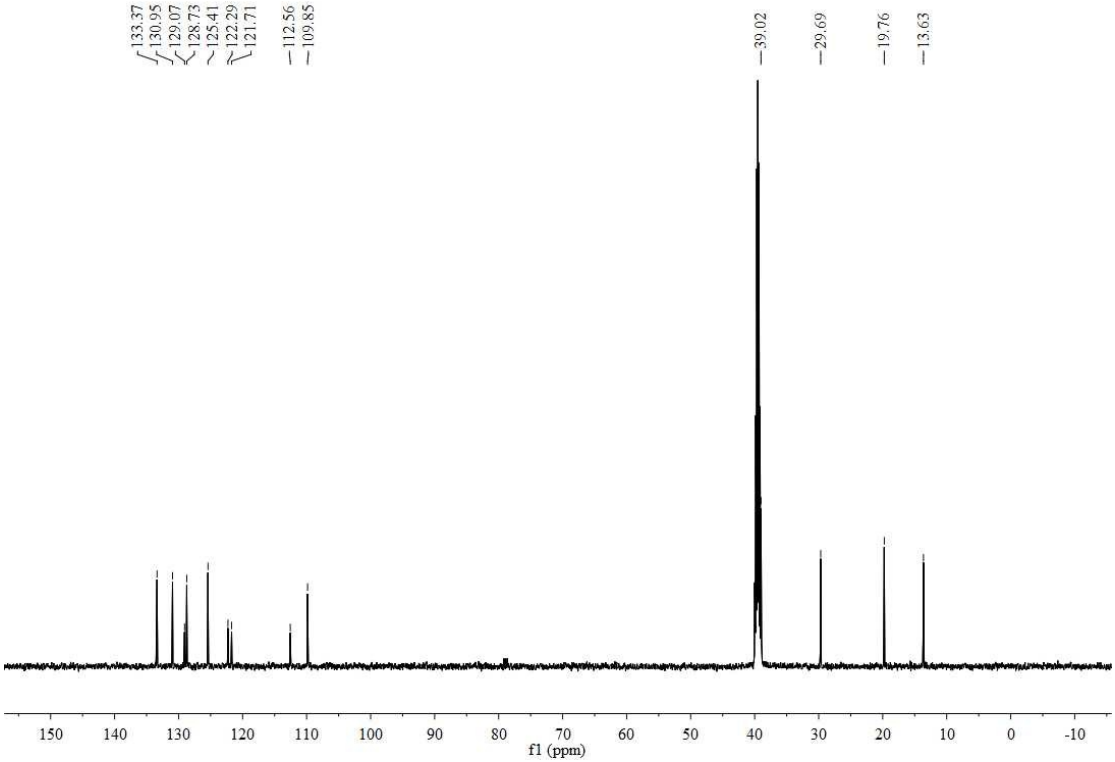

Fig. S13 ^{13}C NMR spectrum of 4-hydroxy-N-butyl-1, 8-naphthalimide in d^6-DMSO.

References

(1) D. Cui, X. Qian, F. Liu and R. Zhang, *Org. Lett.,* 2004, **6**, 2757.