Supporting Information:

Recognition of trace organic pollutant and toxic metal ion using a tailored fluorescentmetal-organic coordination polymer in water environment

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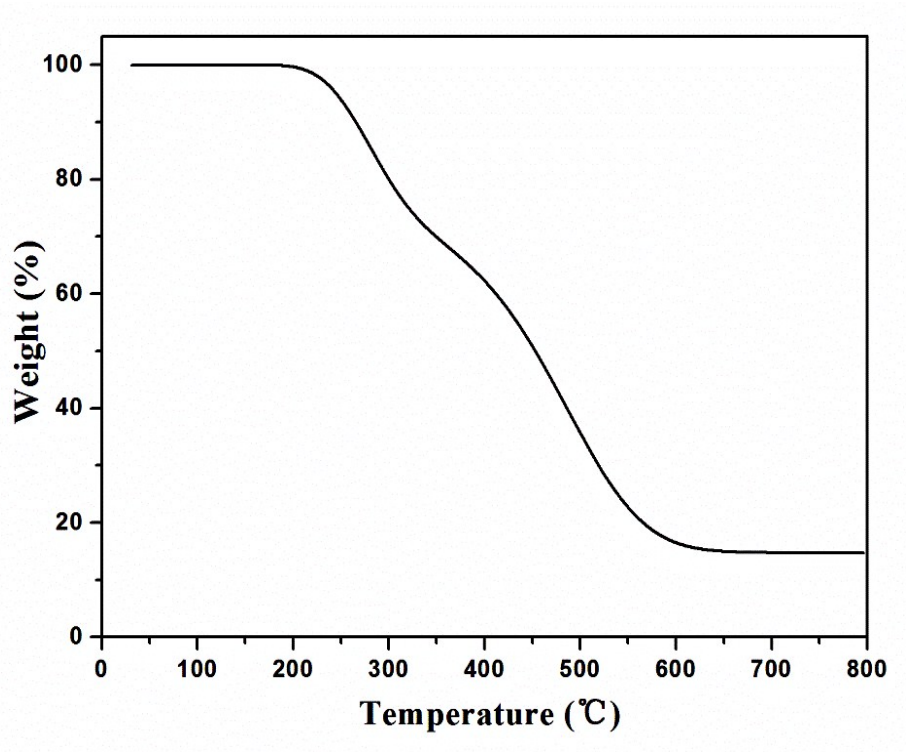


Fig. S1 The thermogravimetric analysis (TGA) curve of the title complex $H_2Sr_2(bqdc)_3(phen)_2$.

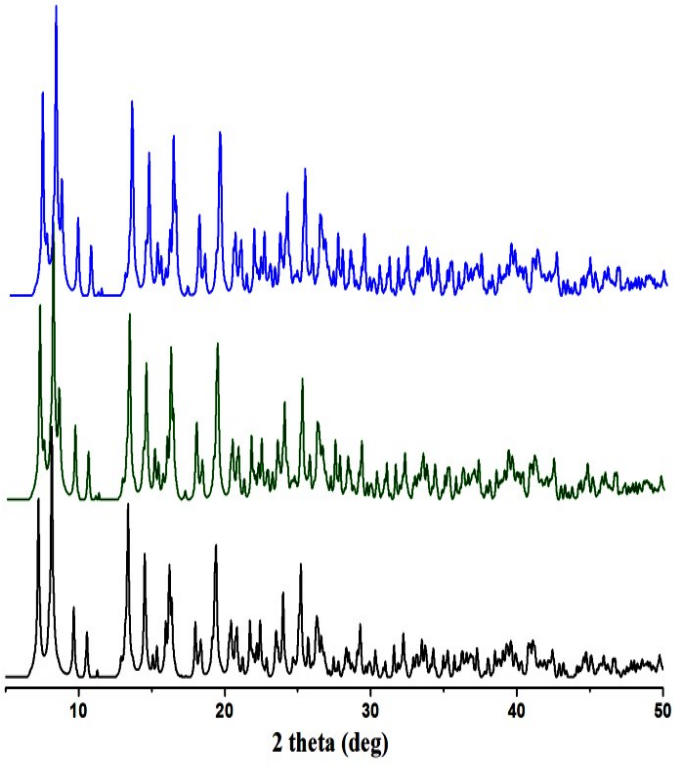


Fig. S2 The simulated (black), as-synthesised (green) and treated to 100 ºC (blue) PXRD of the complex $H_2Sr_2(bqdc)_3(phen)_2$.

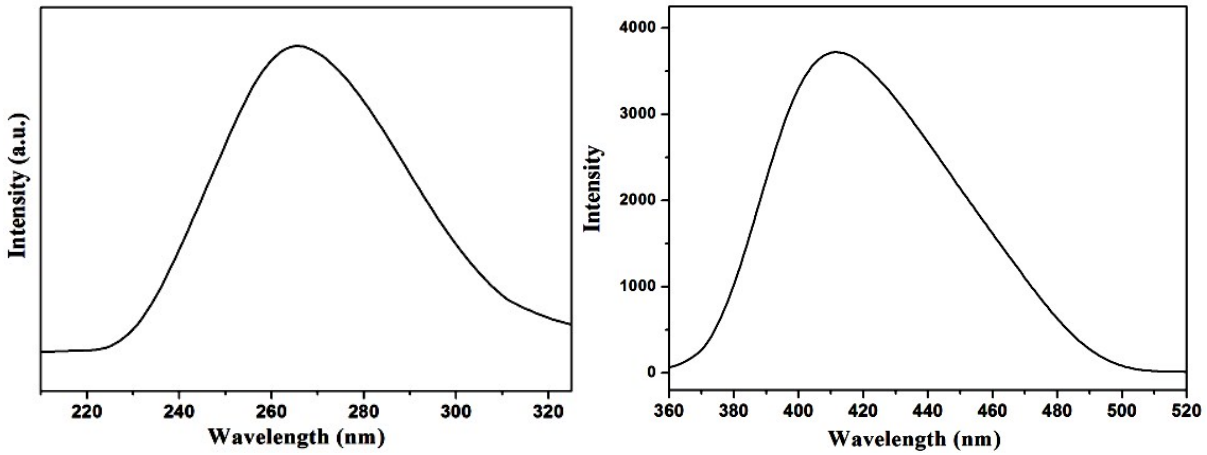


Fig. S3 Excitation spectra and emission spectra (403 nm) of H_2bqdc (excitation at 266 nm).

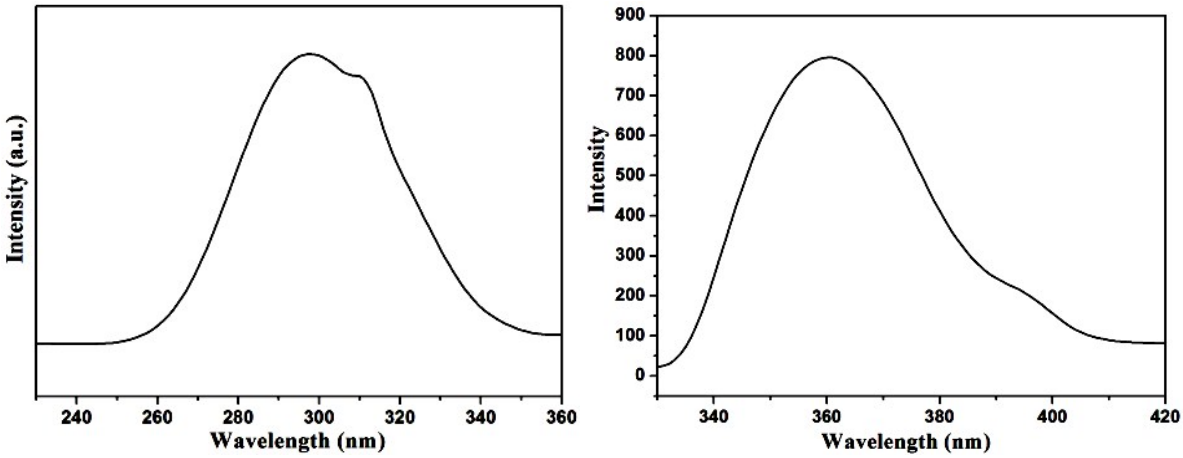


Fig. S4 Excitation spectra and emission spectra (363 nm) of phen (excitation at 297 nm).

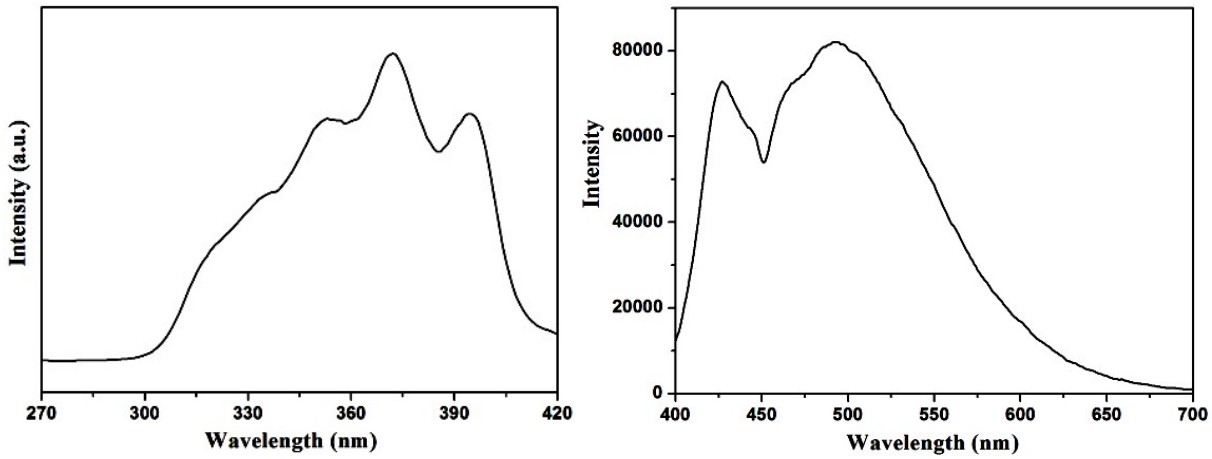


Fig.S5 Excitation spectra and emission spectra of the complex (excitation at 365 nm).

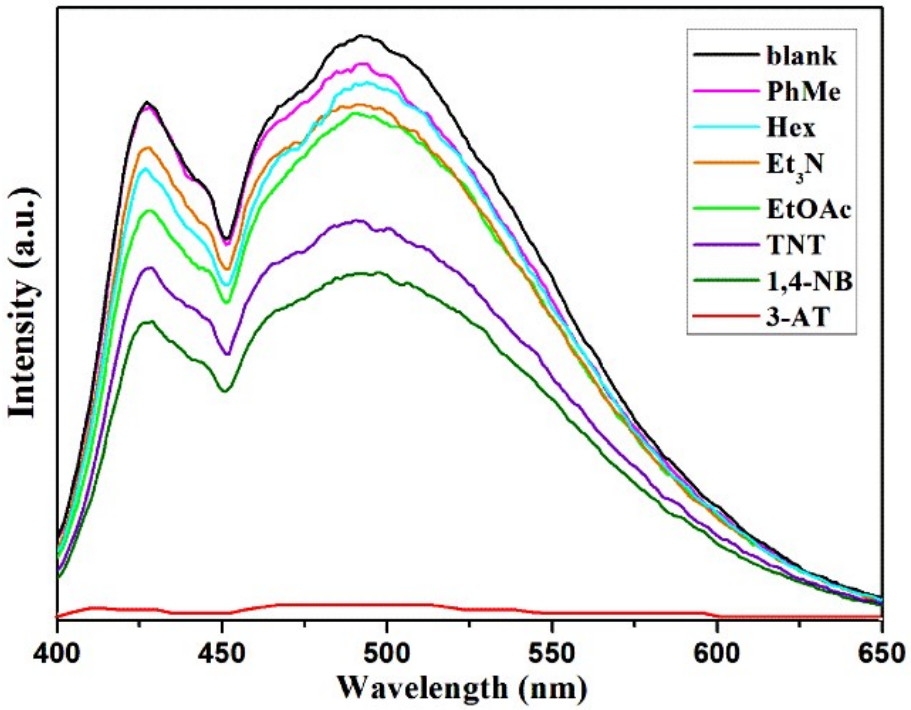


Fig. S6 Fluorescence responses of complex with different organic molecules (1×10^{-3} mol L^{-1}, excited at 365 nm).

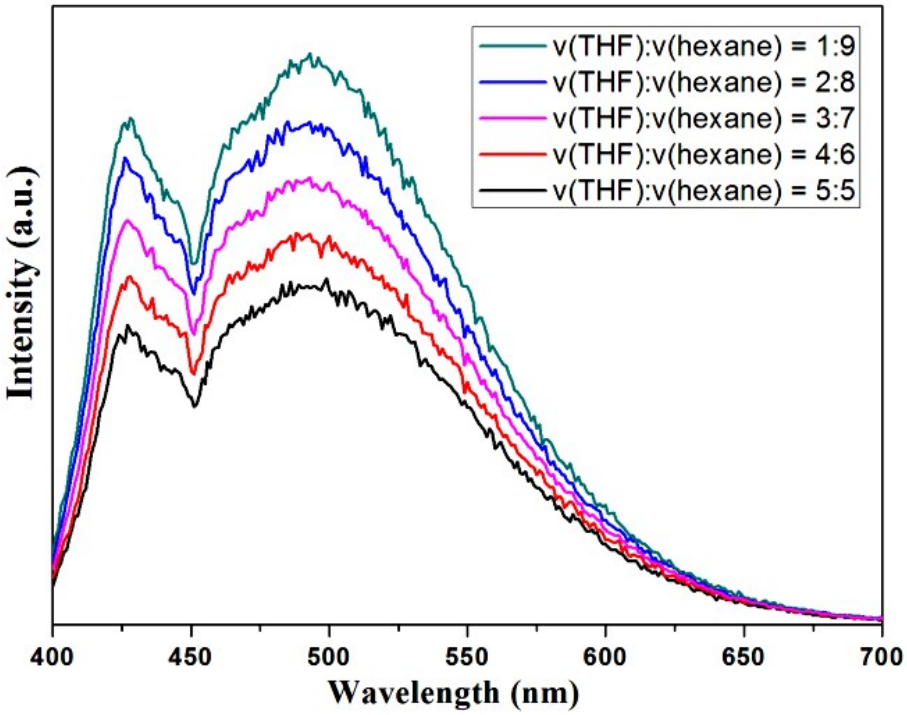


Fig. S7 The fluorescence intensities of samples in mixed solvent of THF/hexane with different proportion.

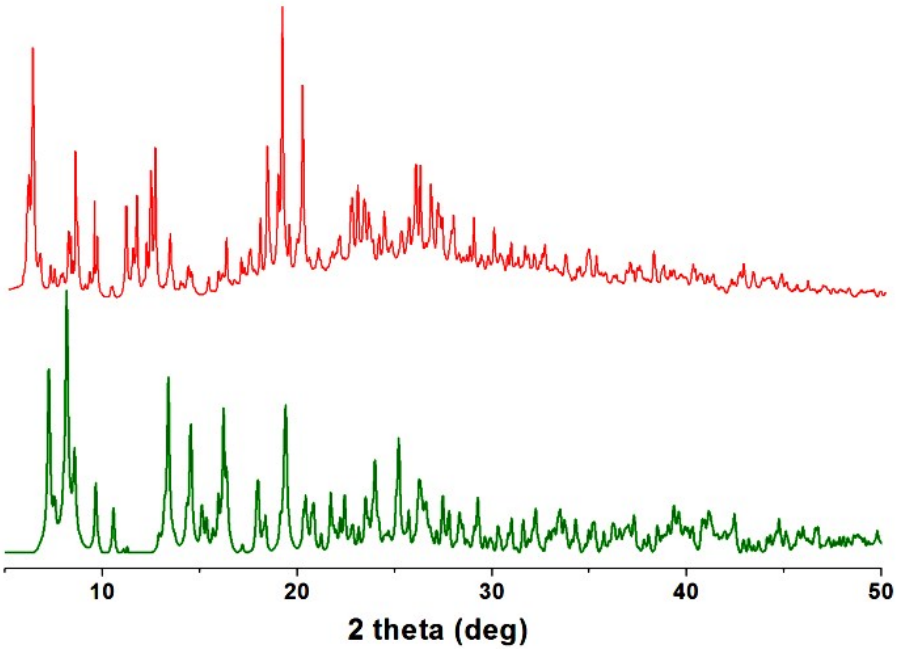


Fig.S8 The PXRD of as-synthesised (green) and interacted with 3-AT(red) $H_2Sr_2(bqdc)_3(phen)_2$.

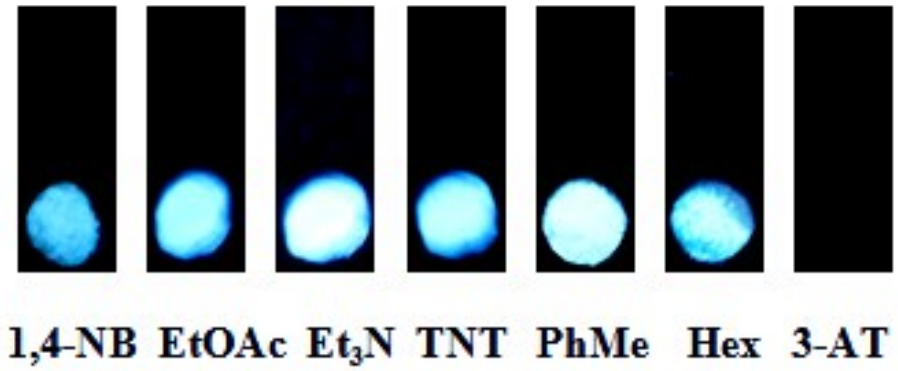


Fig. S9 The test stripsof $H_2Sr_2(bqdc)_3(phen)_2$ upon different organic molecules under UV light.

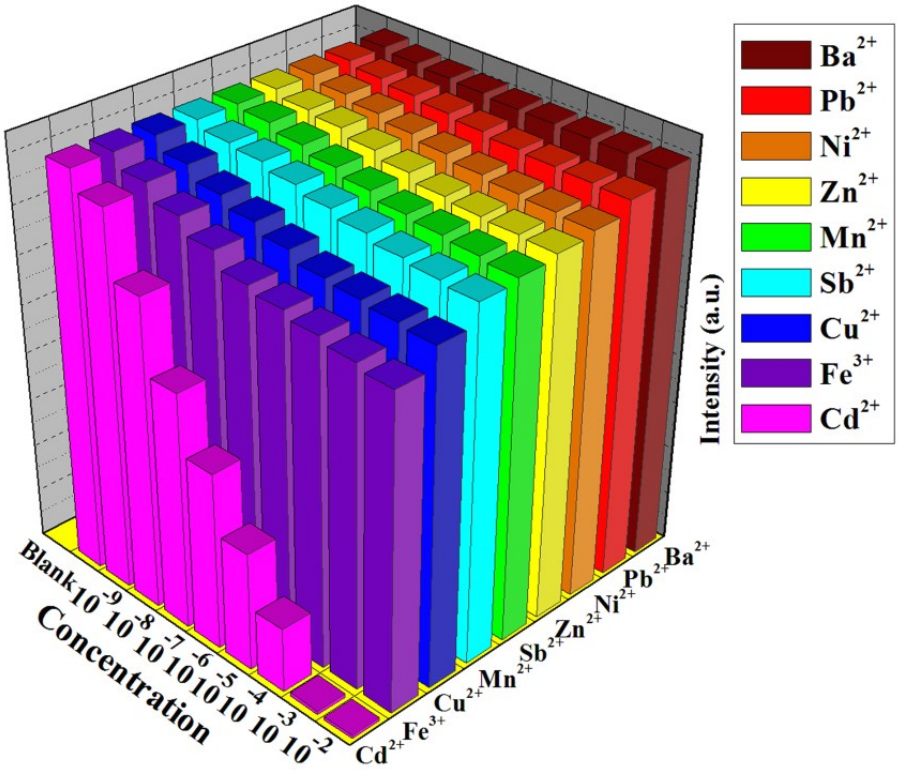


Fig. S10 Fluorescence quenching results upon different concentrations(mol L^{-1}) of the complex with different metal ions.

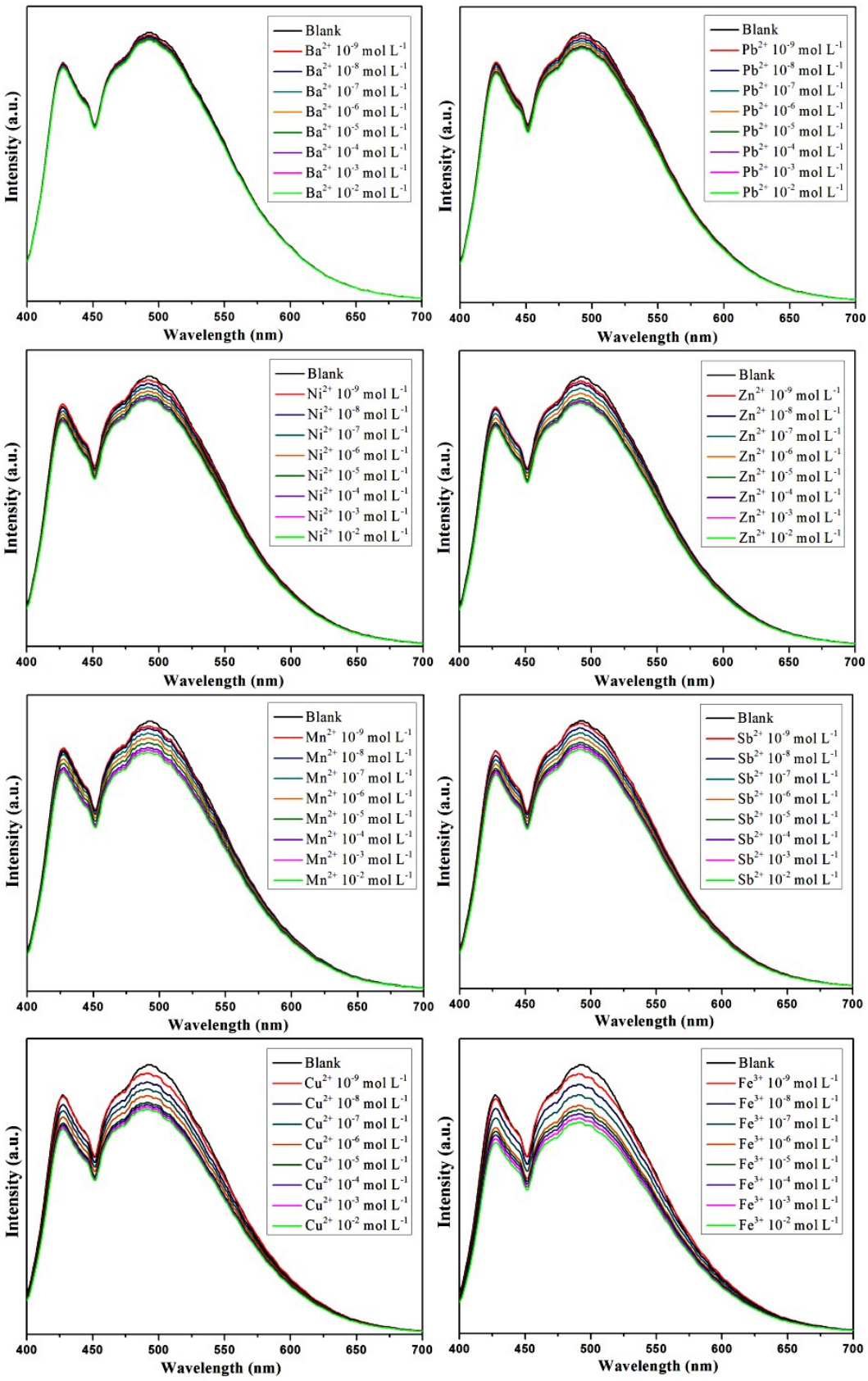


Fig.S11 Fluorescence responses of the complex of different metal ions with different concentrations (excitation at 365 nm).

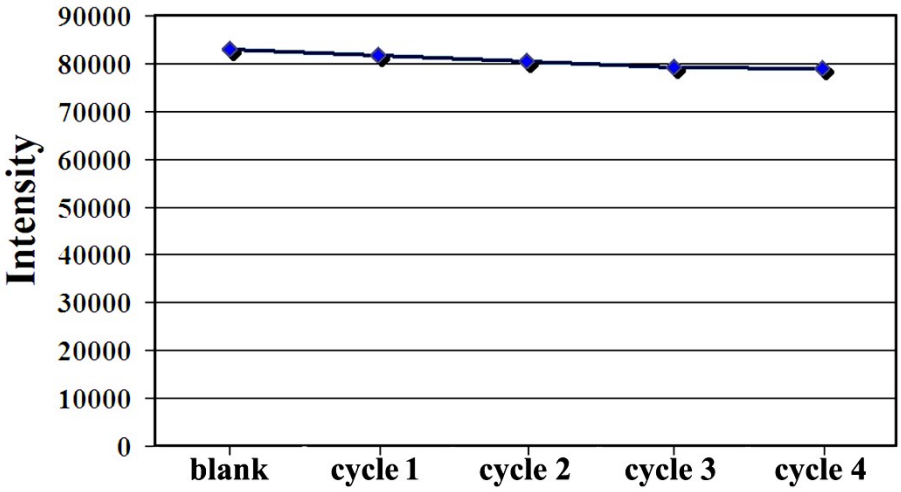


Fig. S12 Reusability of the complex $H_2Sr_2(bqdc)_3(phen)_2$ on the sensing of Cd^{2+}metal ion.

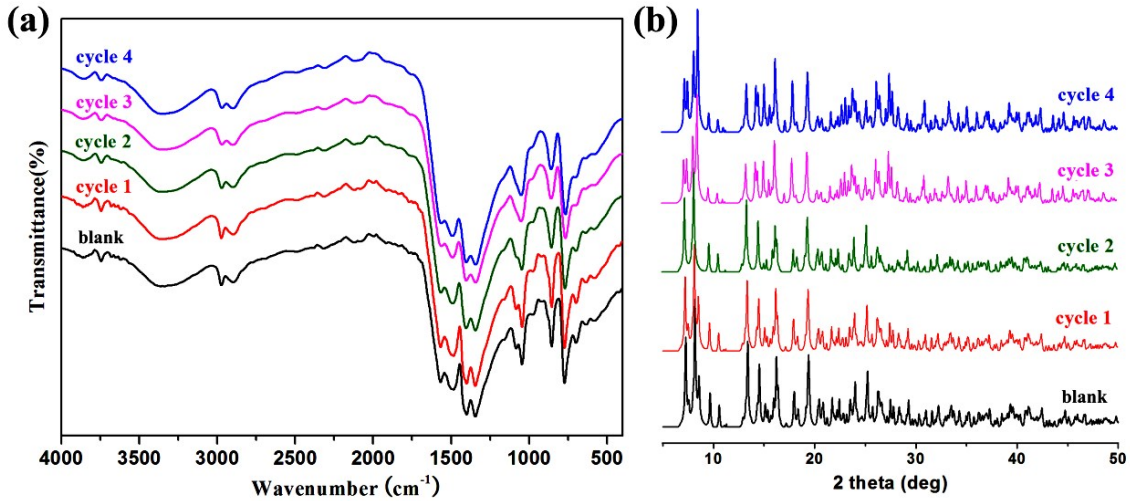


Fig. S13 (a) The IR spectra of $H_2Sr_2(bqdc)_3(phen)_2$for the four cycles. (b)The XRD patterns of $H_2Sr_2(bqdc)_3(phen)_2$for the four cycles.

Table S1 The structures of organicmolecules andfluorescence response values of thecomplex with different organic molecules(1×10^{-3} mol L^{-1}, excited at 365 nm).

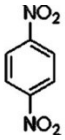
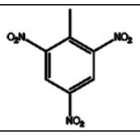
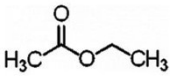
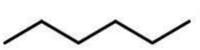
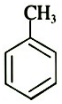
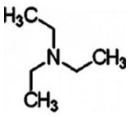
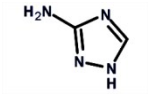
	Organic molecule	Structure	Fluorescence intensity	quenching efficiency
1	1,4-dinitro-benzen(1,4-NB)		49074.35	40.57%
2	2,4,6-trinitrotoluene(TNT)		56454.93	31.64%
3	ethyl acetate (EtOAc)		72003.75	12.81%
4	hexane (Hex),		72662.16	12.01%
5	toluene (PhMe)		76985.08	6.78%
6	triethylamine (Et_3N)		75069.89	9.10%
7	amitrole (3-AT)		1175.41	98.58%

Table S2 Fluorescence quenching results upon complex with concentrations(mol L^{-1}) of different metal ions(excitation at 365 nm).

Concentration	0	1.00×10^{-9}	1.00×10^{-8}	1.00×10^{-7}	1.00×10^{-6}	1.00×10^{-5}	1.00×10^{-4}	1.00×10^{-3}	1.00×10^{-2}
Cu^{2+}	82581.26	79398.98	76661.08	74607.66	72554.24	70500.82	69816.34	69131.88	68446.34
quenching efficiency	0.00%	3.85%	7.17%	9.66%	12.14%	14.63%	15.46%	16.29%	17.12%
Fe^{3+}	82581.26	79200.68	75981.14	72760.36	69542.06	68254.24	66966.44	65678.62	64390.82
quenching efficiency	0.00%	4.09%	7.99%	11.89%	15.79%	17.35%	18.91%	20.47%	22.03%
Mn^{2+}	82581.26	80479.44	79754.4	78304.32	76854.24	75404.16	73954.08	73229.04	72504.54
quenching efficiency	0.00%	2.55%	3.42%	5.18%	6.94%	8.69%	10.45%	11.32%	12.20%
Ni^{2+}	82581.26	80902.8	79779.16	78655.5	77531.86	76408.22	75659.1	75284.56	74910.86
quenching efficiency	0.00%	2.03%	3.39%	4.75%	6.11%	7.48%	8.38%	8.84%	9.29%
Ba^{2+}	82581.26	81316.44	80917.84	80519.22	80120.62	79961.16	79881.44	79801.72	79723.66
quenching efficiency	0.00%	1.53%	2.01%	2.50%	2.98%	3.17%	3.27%	3.37%	3.46%
Pb^{2+}	82581.26	81180.18	80408.64	79635.48	78862.32	78089.16	77702.58	77470.64	77317.52
quenching efficiency	0.00%	1.70%	2.63%	3.57%	4.50%	5.44%	5.91%	6.19%	6.37%
Sb^{2+}	82581.26	81317.94	79852.74	78387.56	76922.38	75457.18	74724.58	73993.74	73259.4
quenching efficiency	0.00%	1.53%	3.30%	5.08%	6.85%	8.63%	9.51%	10.40%	11.29%
Zn^{2+}	82581.26	80752.32	80011.48	78529.78	77048.08	75566.44	74825.54	74455.12	74084.7
quenching efficiency	0.00%	2.21%	3.11%	4.91%	6.70%	8.49%	9.39%	9.84%	10.29%
Cd^{2+}	82581.26	78020.36	64390.8	49062.52	36796.34	24530.36	13492.38	816.72	813.09
quenching efficiency	0.00%	5.52%	22.03%	40.59%	55.44%	70.30%	83.66%	99.01%	99.02%