Electronic Supplementary Information

Assembly of a Zn(II) coordination polymer of tetrapyridyl tetraene ligands for selective sensing of CrO_4^{2-} and Fe^{3+} in water via luminescence quenching and enhancement

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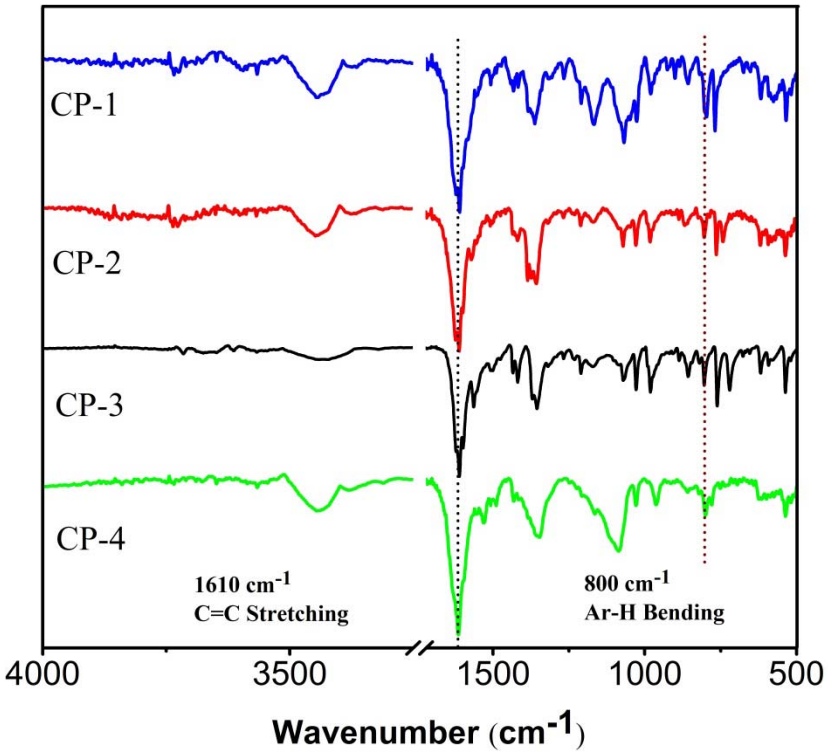

Fig. S1 The FTIR spectra of **CP1-CP4.**

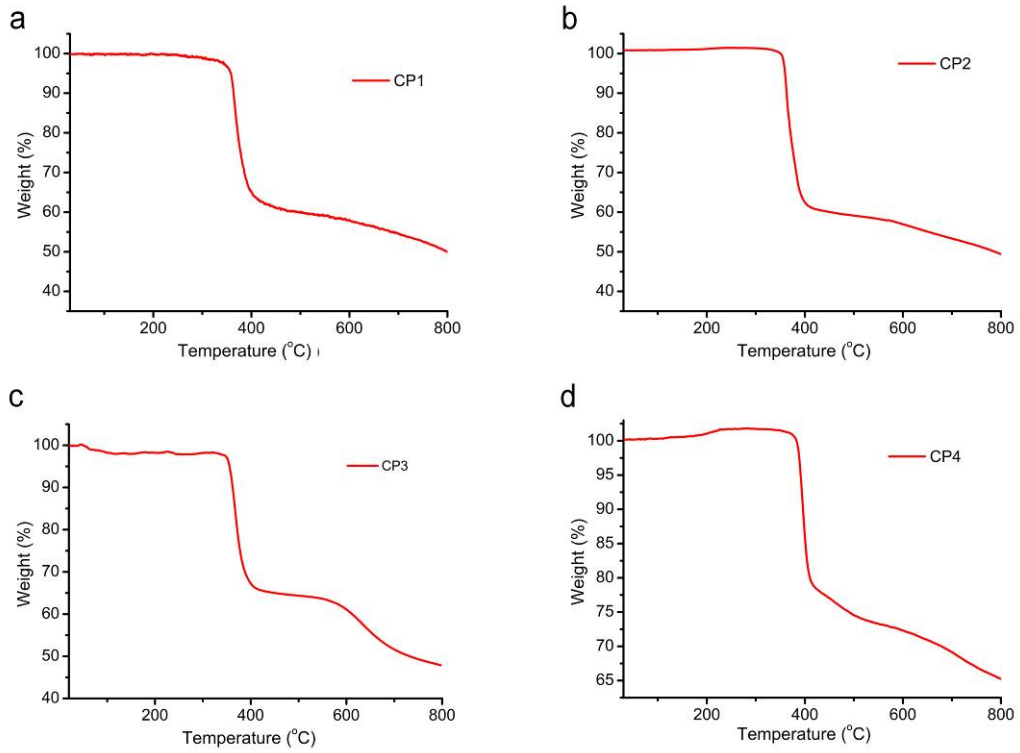

Fig. S2 The TGA curves of **CP1-CP4.**

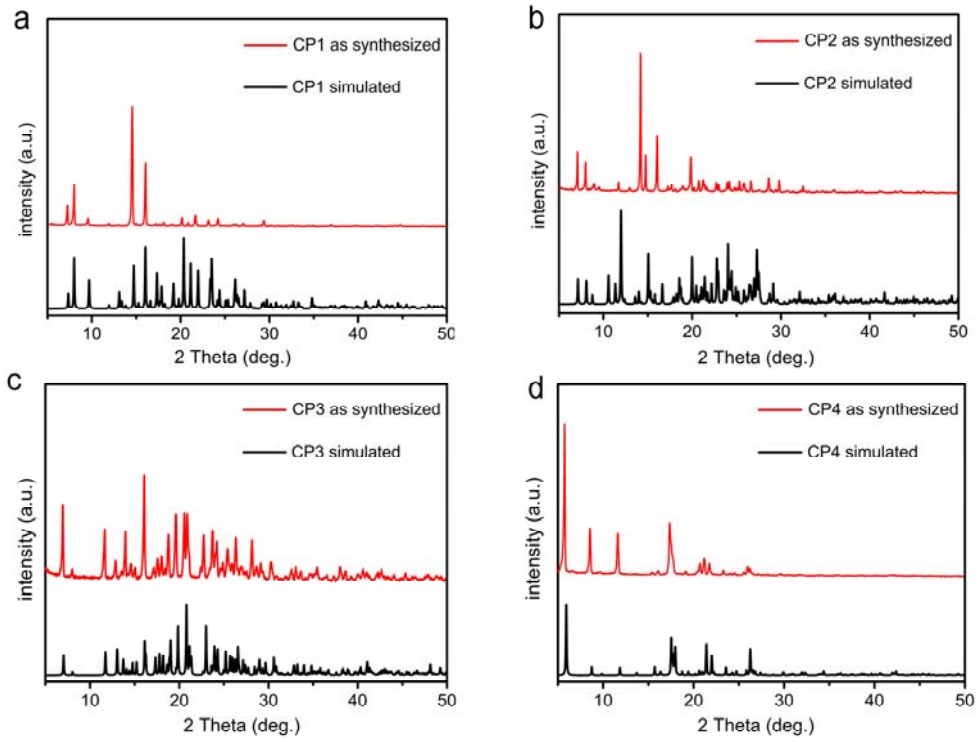

Fig. S3 Experimental (red) and simulated (black) PXRD patterns for **CP1-CP4**.

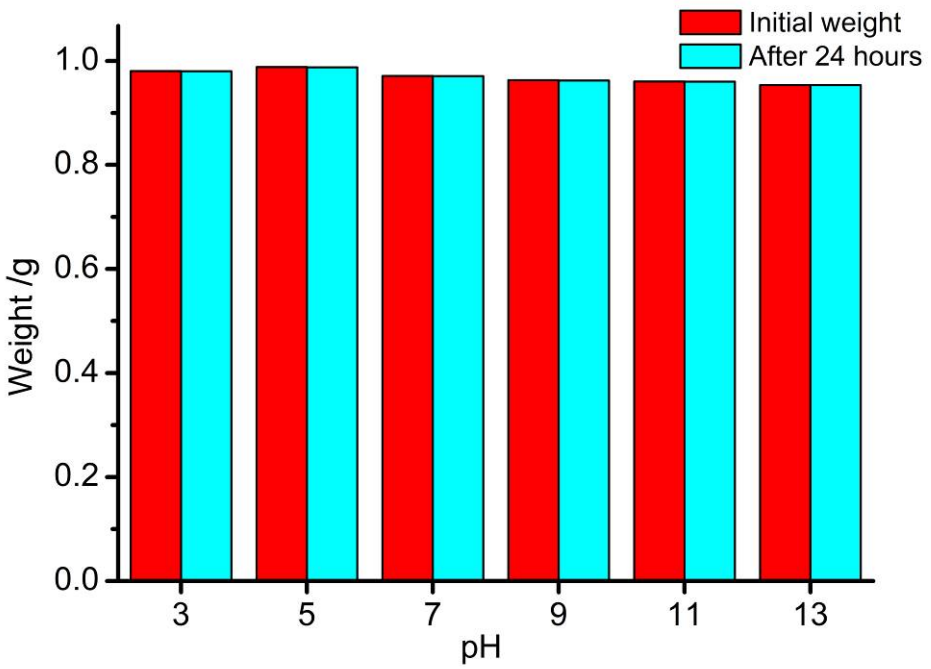

Fig. S4 Plot showing the changes on the weight of **CP3** after its suspension in water in a pH range of 3 to 13 for 24 hours.

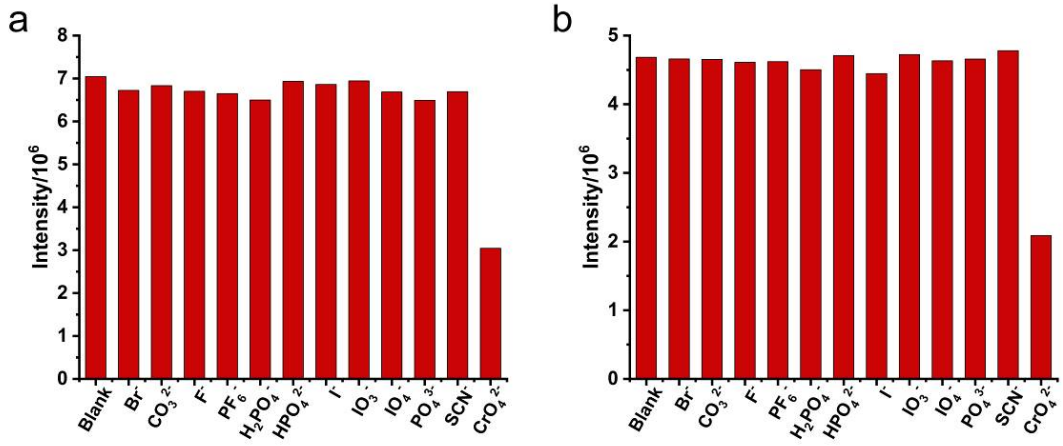

Fig. S5 Luminescence intensities of **CP1** (a) and **CP2** (b) treated with different inorganic anions at 513 nm (excited at 413 nm).

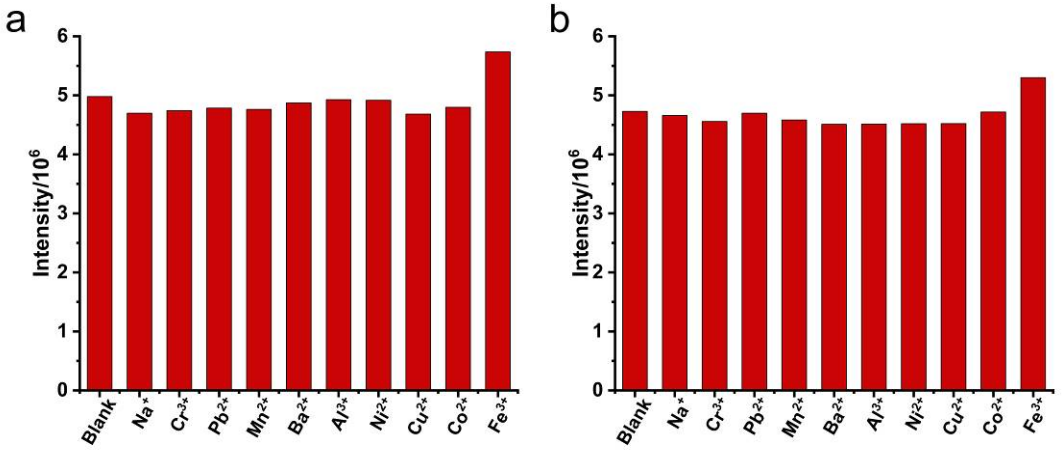

Fig. S6 Luminescence intensities of **CP1** (a) and **CP2** (b) treated with different metal ions at 513 nm (excited at 413 nm).

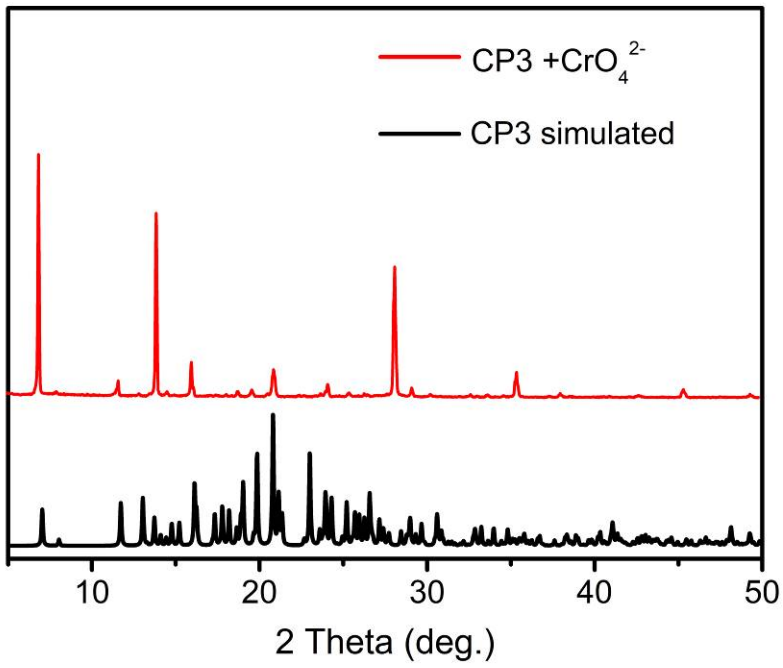

Fig. S7 PXRD patterns for the sample obtained after the detection of CrO_4^{2-} using **CP3**.

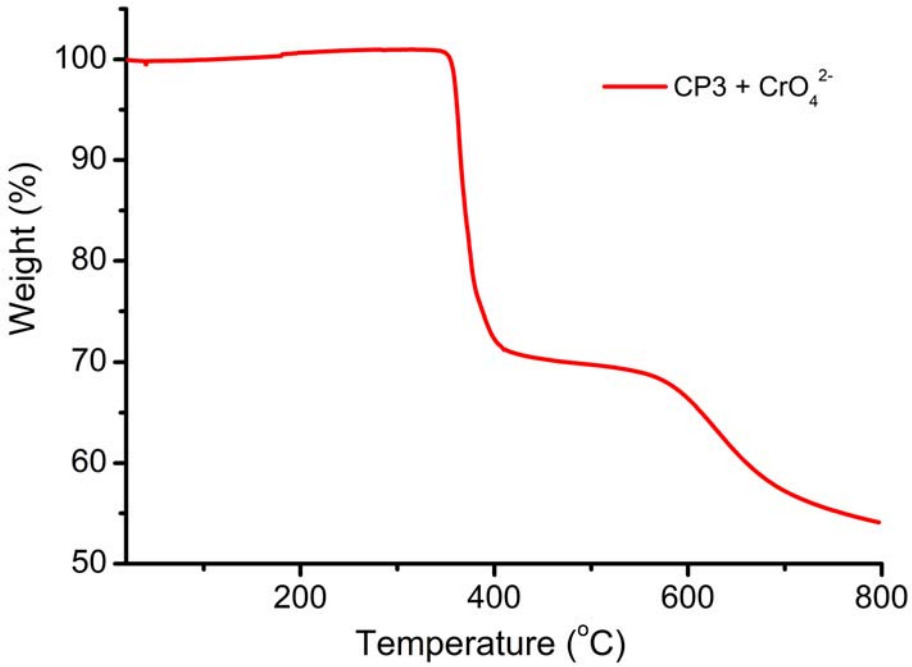

Fig. S8 The TGA curve of the sample obtained after the detection of CrO_4^{2-} using **CP3**.

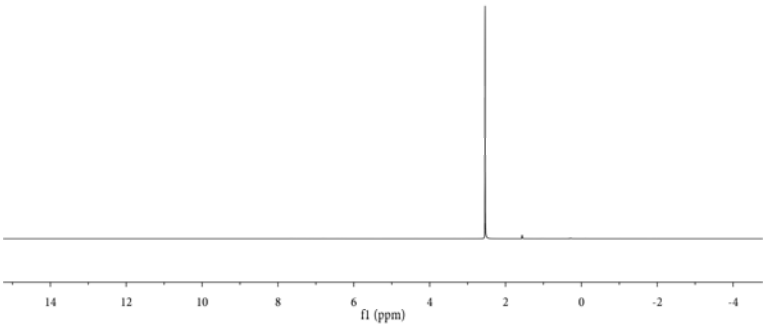

Fig. S9 The ^{1}H NMR spectrum of the solution after the detection of CrO_4^{2-} using **CP3**.

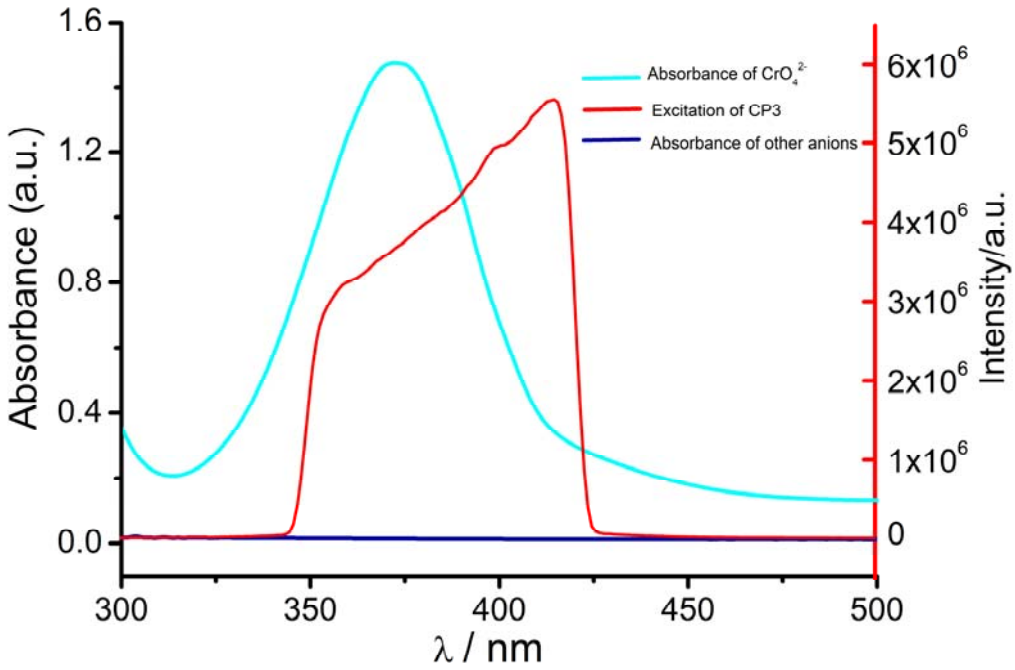

Fig. S10 The excitation spectrum of **CP3** (red) and the UV-vis spectra of CrO_4^{2-} (cyan) and other inorganic anions (blue) in aqueous solution.

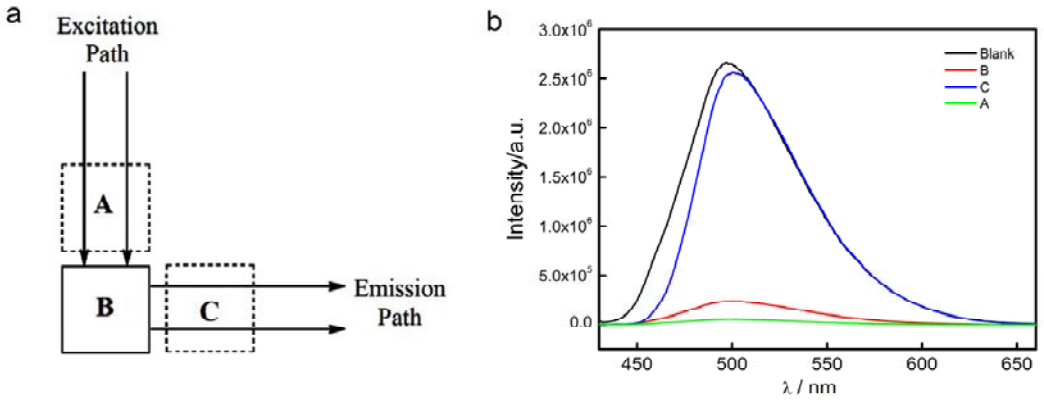

Fig. S11 (a) Schematic of the luminescent quenching mechanism experiment. (b) green curve, **CP3** in position B and CrO_4^{2-} in position A; red curve, mixture of **CP3** and CrO_4^{2-} (1×10^{-3} mol/L) in position B; blue curve, **CP3** in position B and CrO_4^{2-} in position C.

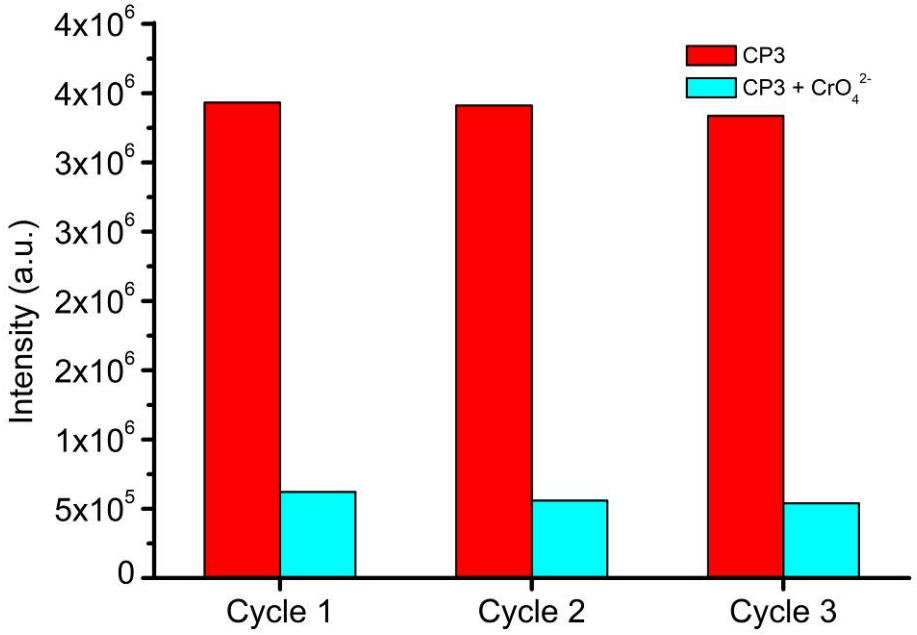

Fig. S12 Photoluminescence intensities of **CP3** after three cycles of detecting CrO_4^{2-}.

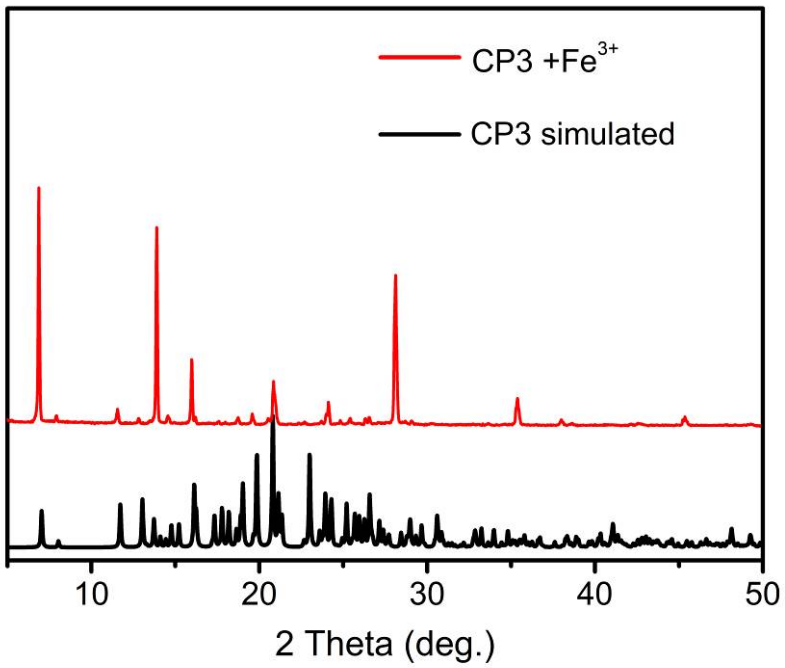

Fig. S13 PXRD patterns for the sample obtained after the detection of Fe^{3+} using **CP3**.

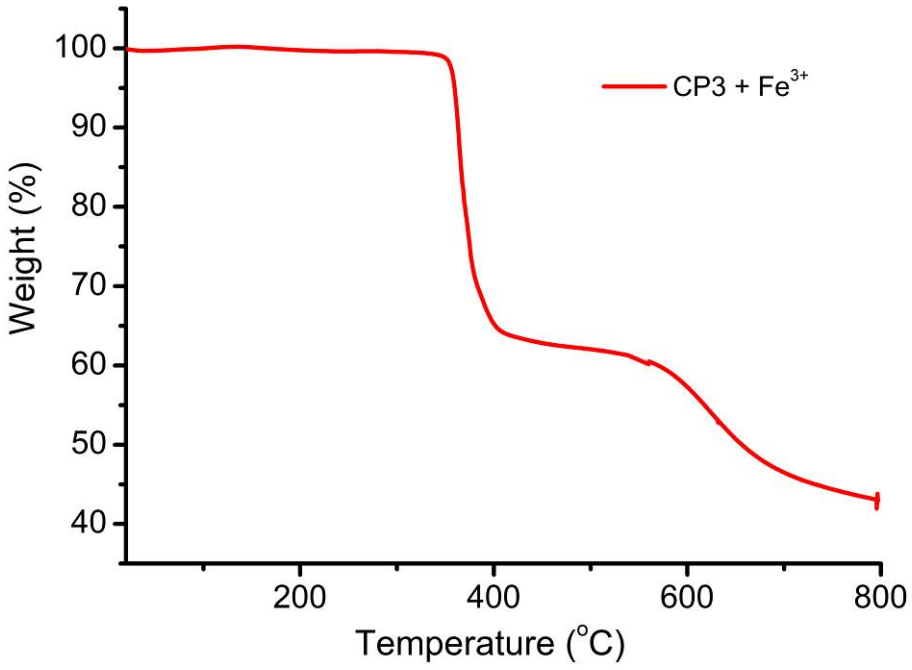

Fig. S14 The TGA curves of the sample obtained after the detection of Fe^{3+} using **CP3**.

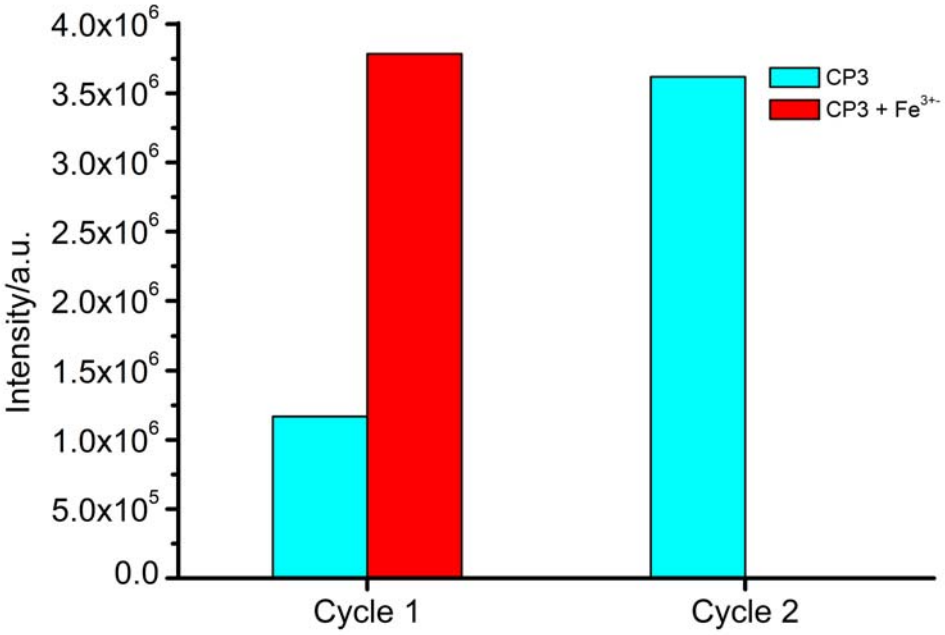

Fig. S15 Photoluminescence intensities of **CP3** after one cycle of detecting Fe^{3+} in water.

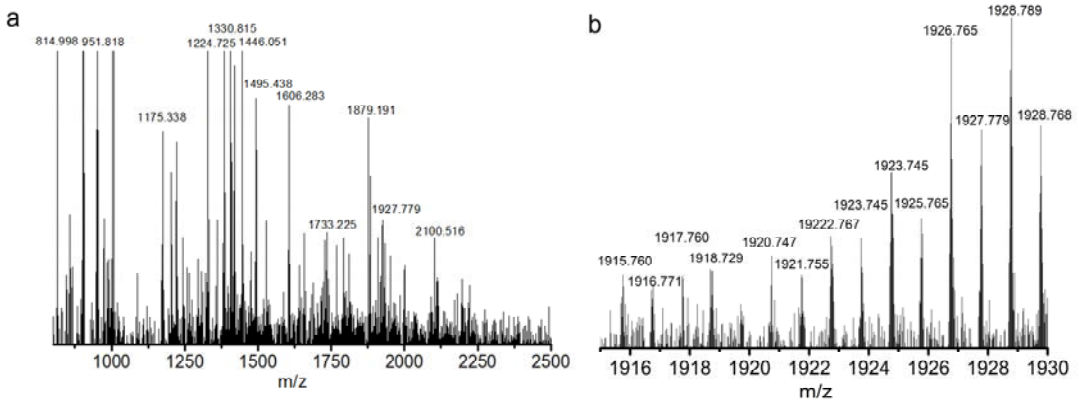

Fig. S16 (a) MALDI-TOF spectrum of **CP3** after the detection of Fe^{3+} in the *m*/*z* range of 0-2500. (b) MALDI-TOF spectrum of **CP3** after the detection of Fe^{3+} in the *m*/*z* range of 1915-1930.

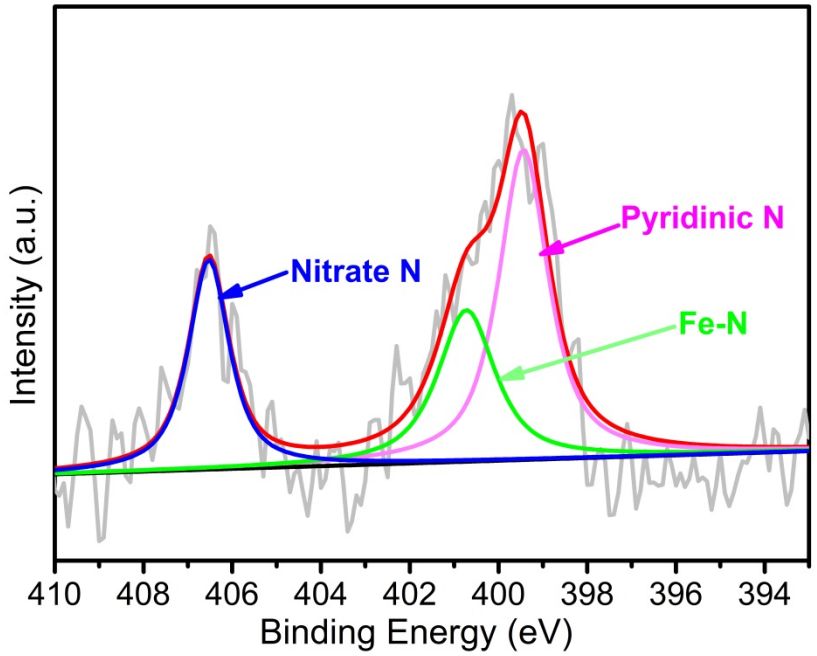

Fig. S17 The high-resolution XPS spectrum of N 1s after immersing **CP3** in the aqueous solution of Fe^{3+}.

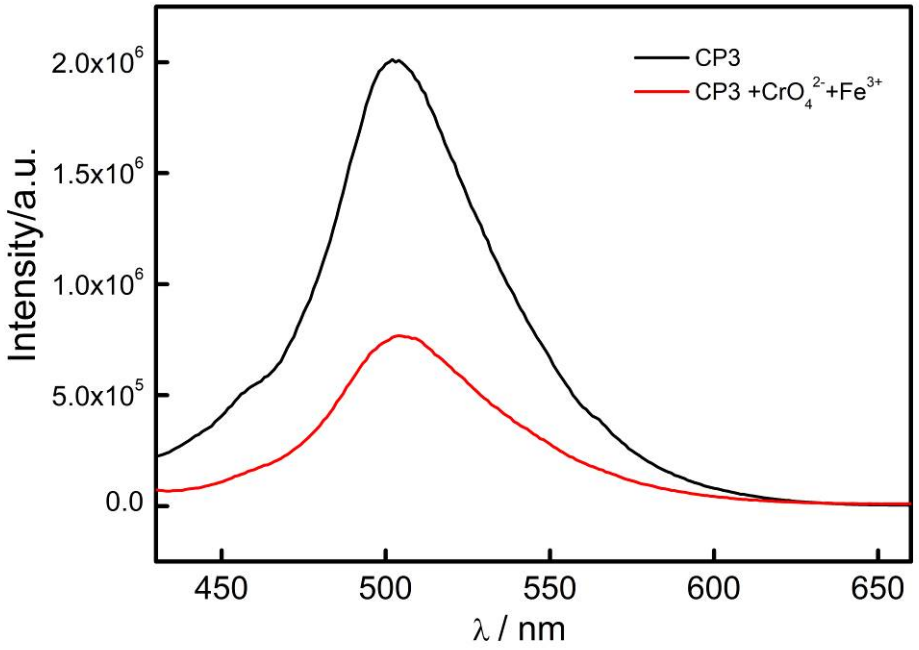

Fig. S18 Luminescence intensities of **CP3** and the mixture of **CP3**, Fe^{3+} and CrO_4^{2-} in water at 513 nm (excited at 413 nm).