

**Multifunctional Luminescent Coordination Polymer Based on Tricarboxylic acid for  
Detections of 2,4-Dinitrophenol and Iron(III) and Aluminum(III) Ions**

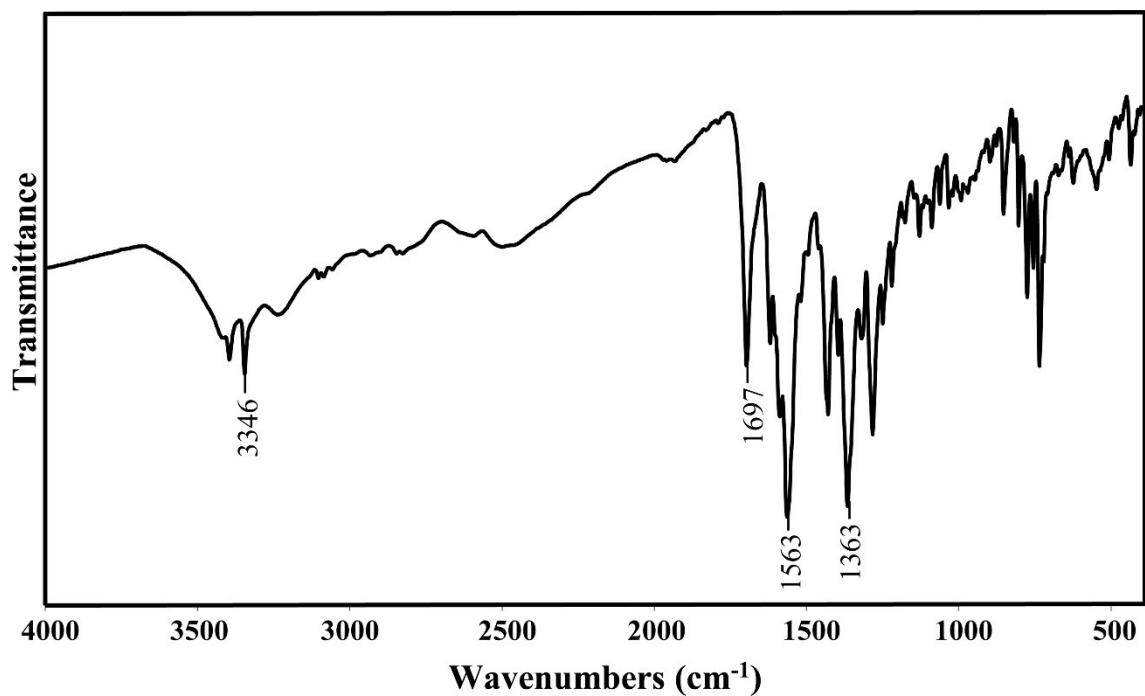
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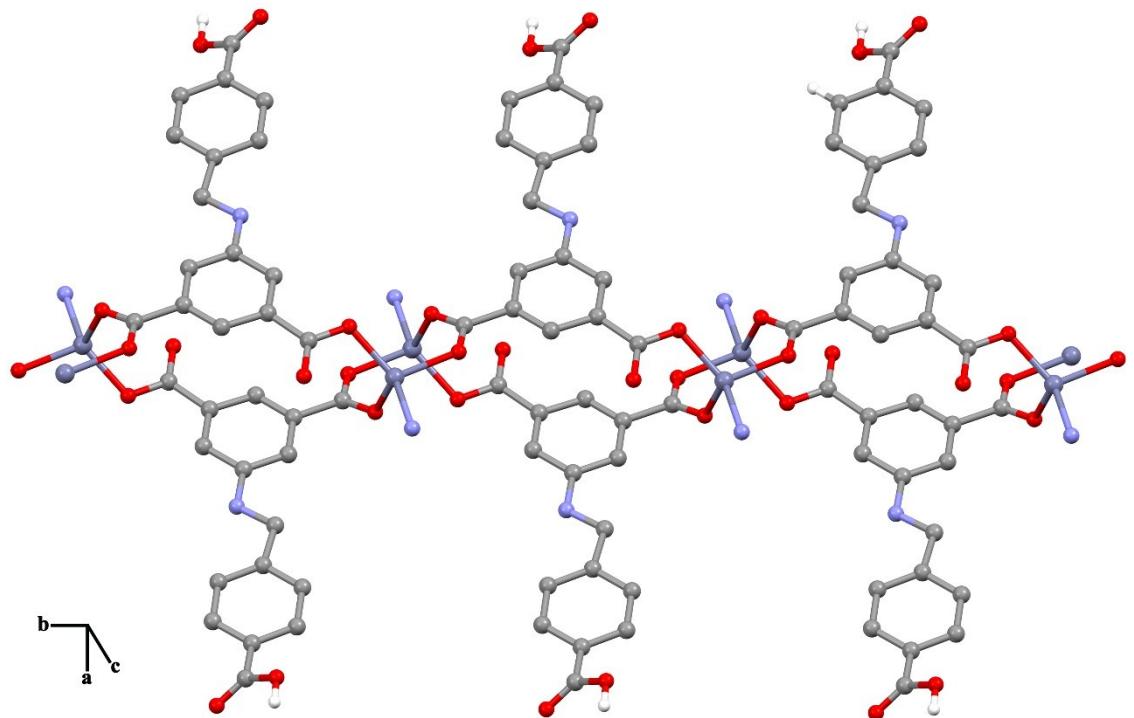
**Table S1.** Selected bond distance (Å), angle (°) and hydrogen-bond geometry data for **1**.

<b>Bond Lengths (Å)</b>				
Zn1—O4 <sup>i</sup>	1.992 (8)	Zn1—O3 <sup>ii</sup>		1.975 (8)
Zn1—O1	1.934 (8)	Zn1—N1		2.015 (8)
<b>Angles (°)</b>				
O4 <sup>i</sup> —Zn1—N1	104.0 (4)	O1—Zn1—N1		134.4 (4)
O1—Zn1—O4 <sup>i</sup>	100.8 (3)	O3 <sup>ii</sup> —Zn1—O4 <sup>i</sup>		108.6 (3)
O1—Zn1—O3 <sup>ii</sup>	110.2 (3)	O3 <sup>ii</sup> —Zn1—N1		97.3 (3)
<b>Hydrogen-bond geometry (Å, °)</b>				
<b>D—H···A</b>	<b>D—H</b>	<b>H···A</b>	<b>D···A</b>	<b>D—H···A</b>
O7—H7A···O2 <sup>v</sup>	0.85	1.91	2.744 (13)	165
O7—H7B···O1 <sup>vi</sup>	0.85	2.01	2.848 (13)	169
O5—H5A···O7	0.82	1.75	2.53 (2)	159

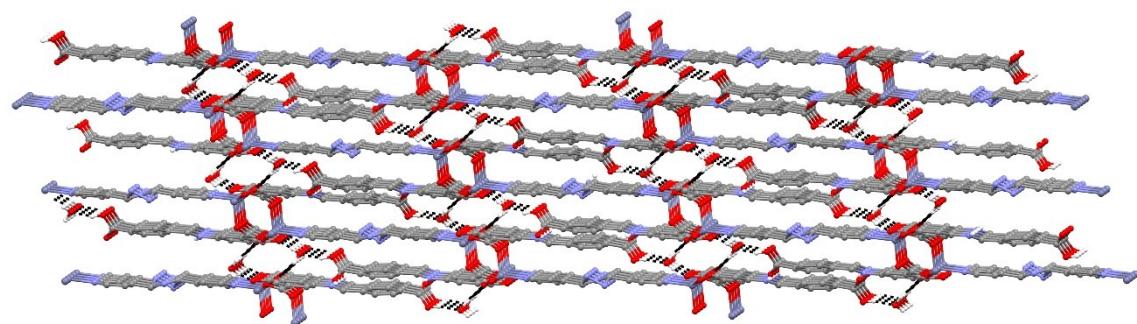
Symmetry codes: (i)  $-x+3/2, -y+1/2, -z+1$ ; (ii)  $x, y+1, z$ ; (v)  $x-1/2, -y+1/2, z+1/2$ ; (vi)  $-x+1, -y+1, -z+1$ .



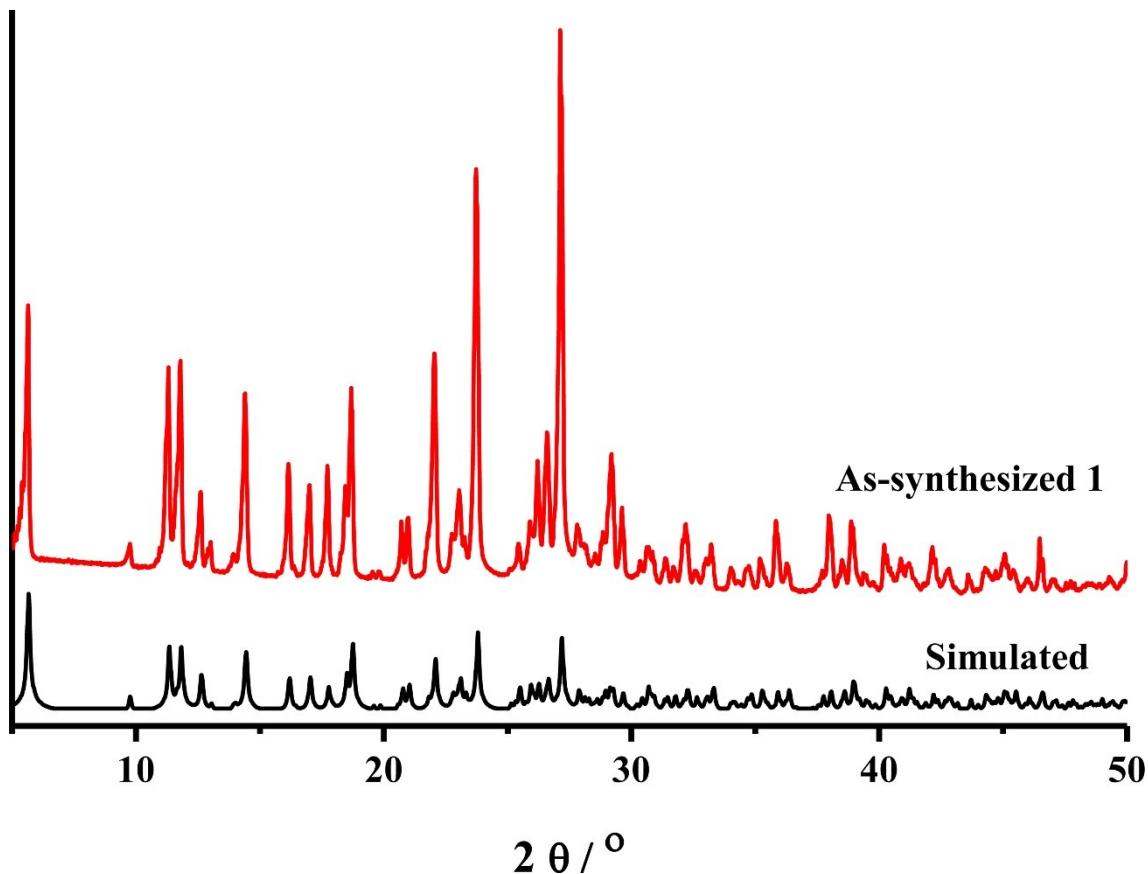
**Fig. S1.** IR spectrum of **1**



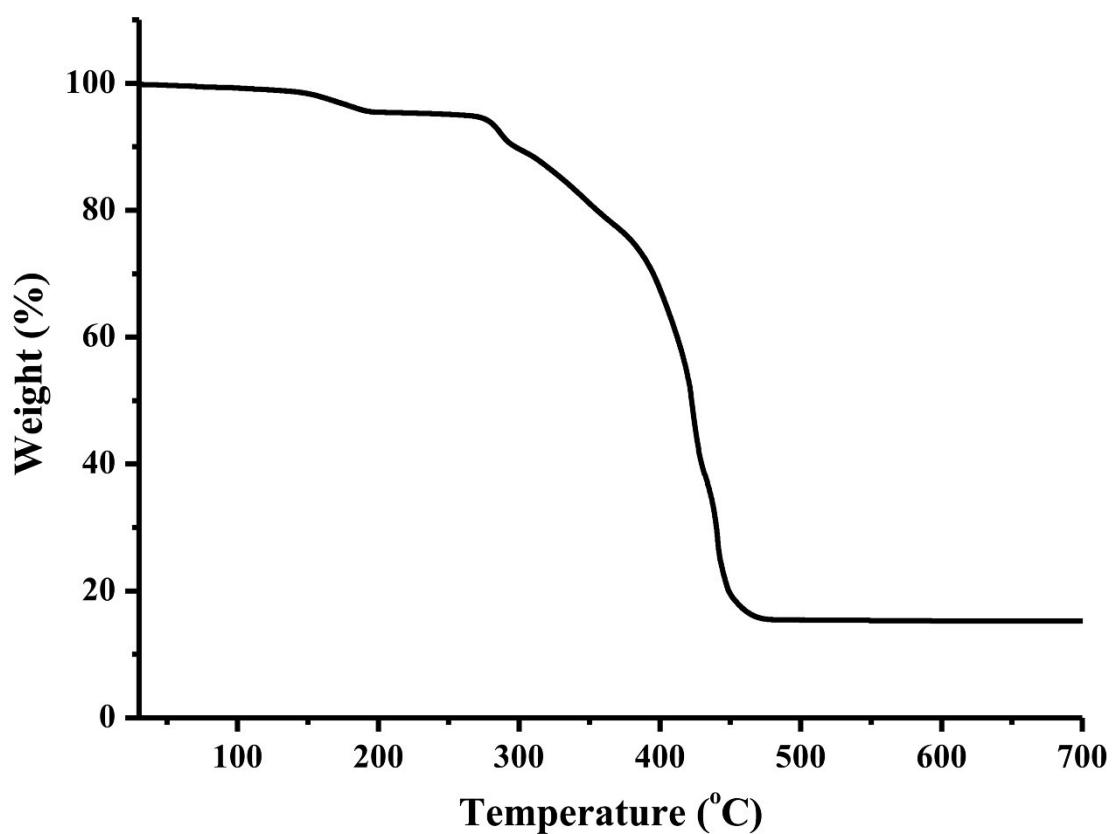
**Fig. S2.** 1D double chain of **1**



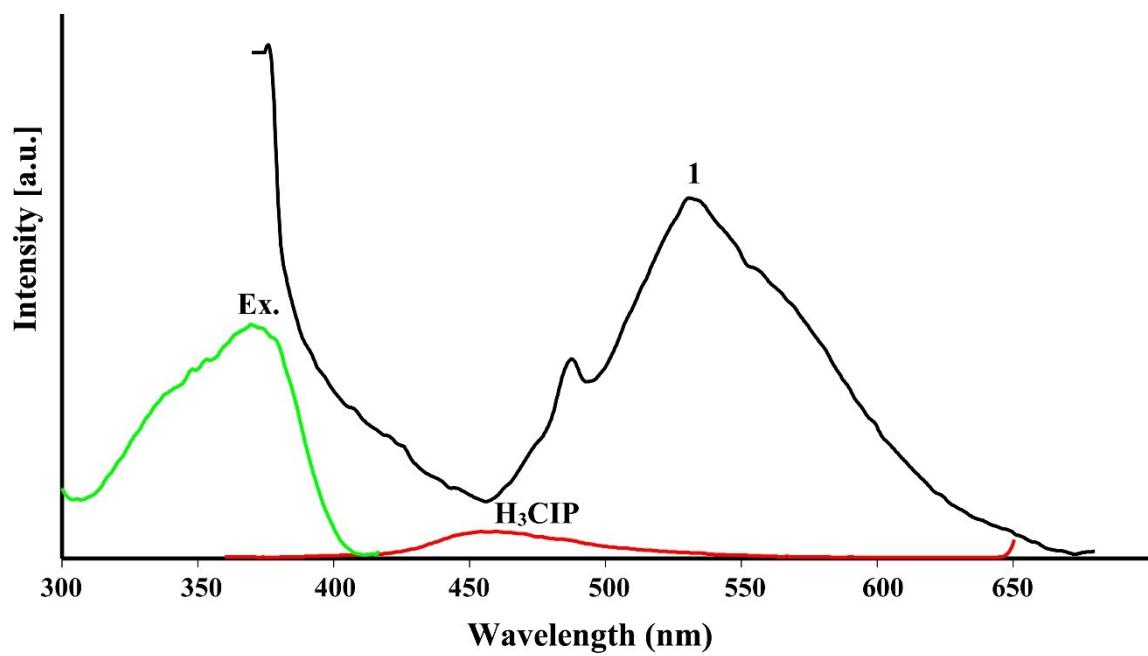
**Fig. S3.** 3D supramolecular structure of **1**



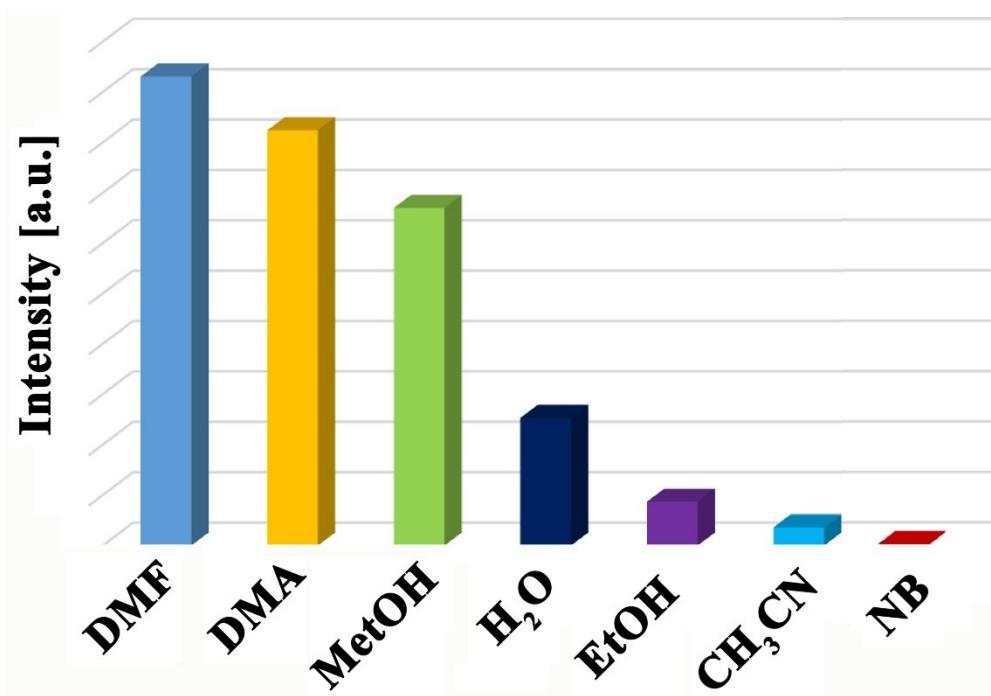
**Fig. S4.** PXRD patterns of simulated and as-synthesized **1**



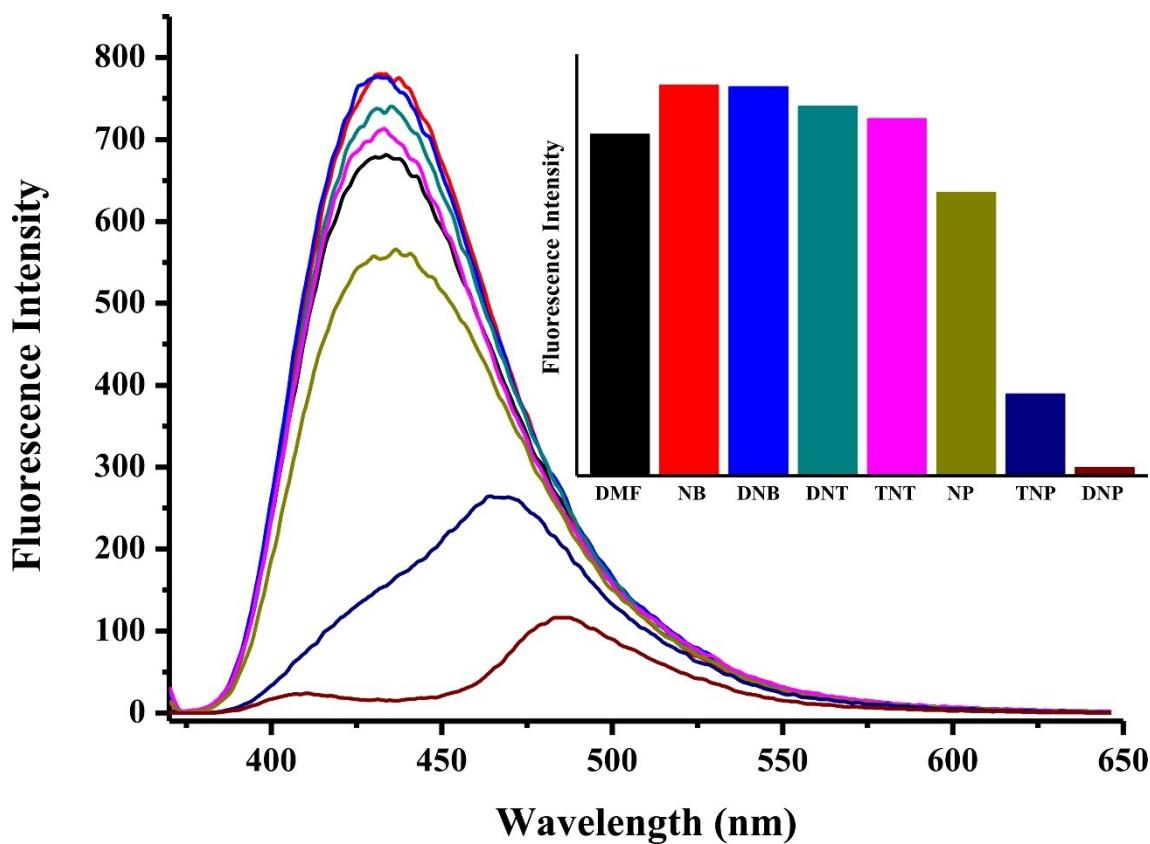
**Fig. S5.** TG curve of complex 1



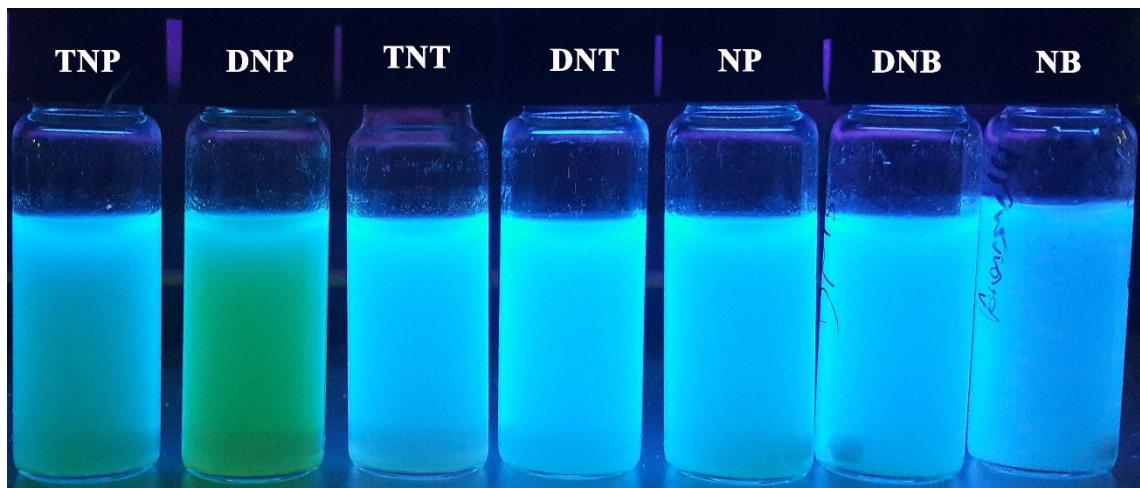
**Fig. S6.** Solid state excitation (Ex.) and emission spectra of free ligand  $\text{H}_3\text{CIP}$  and complex **1**



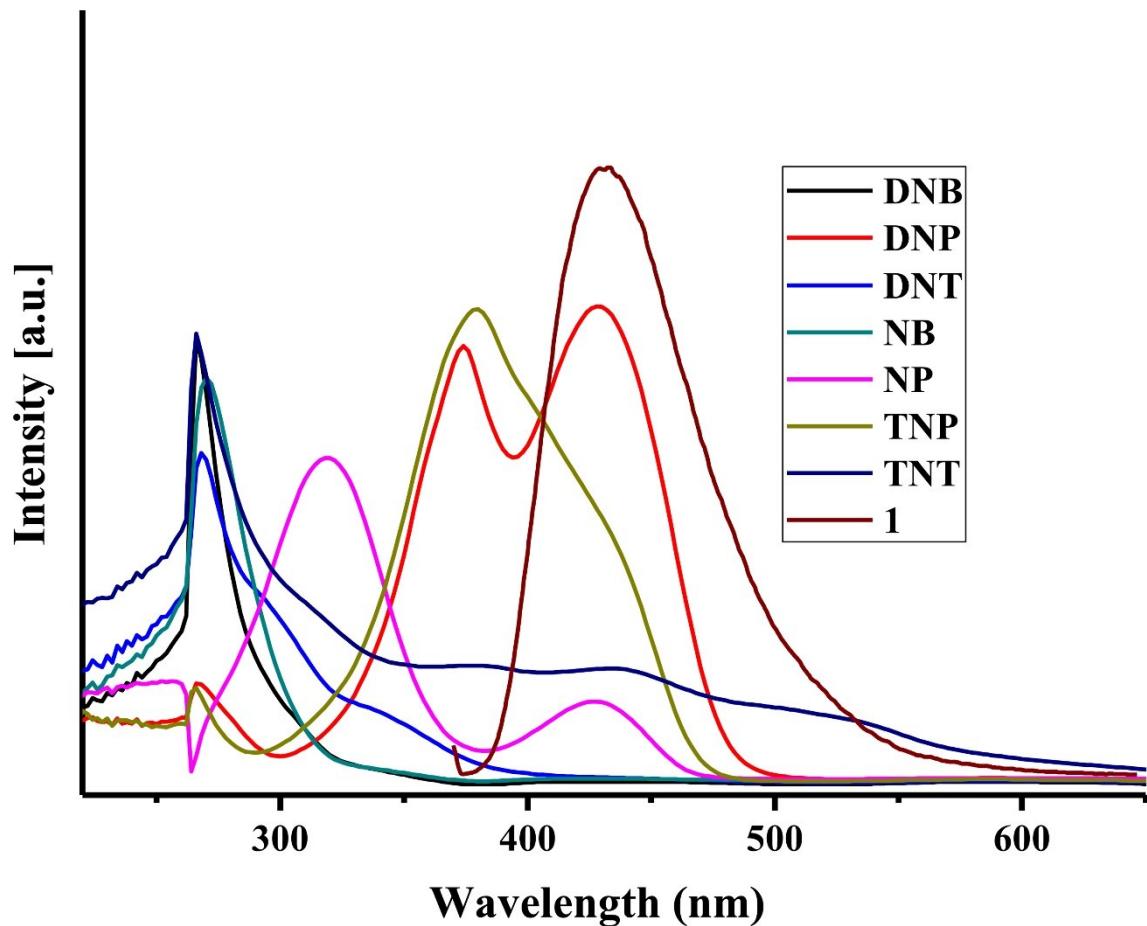
**Fig. S7.** A comparison of luminescence intensity of **1** dispersed in different organic solvents



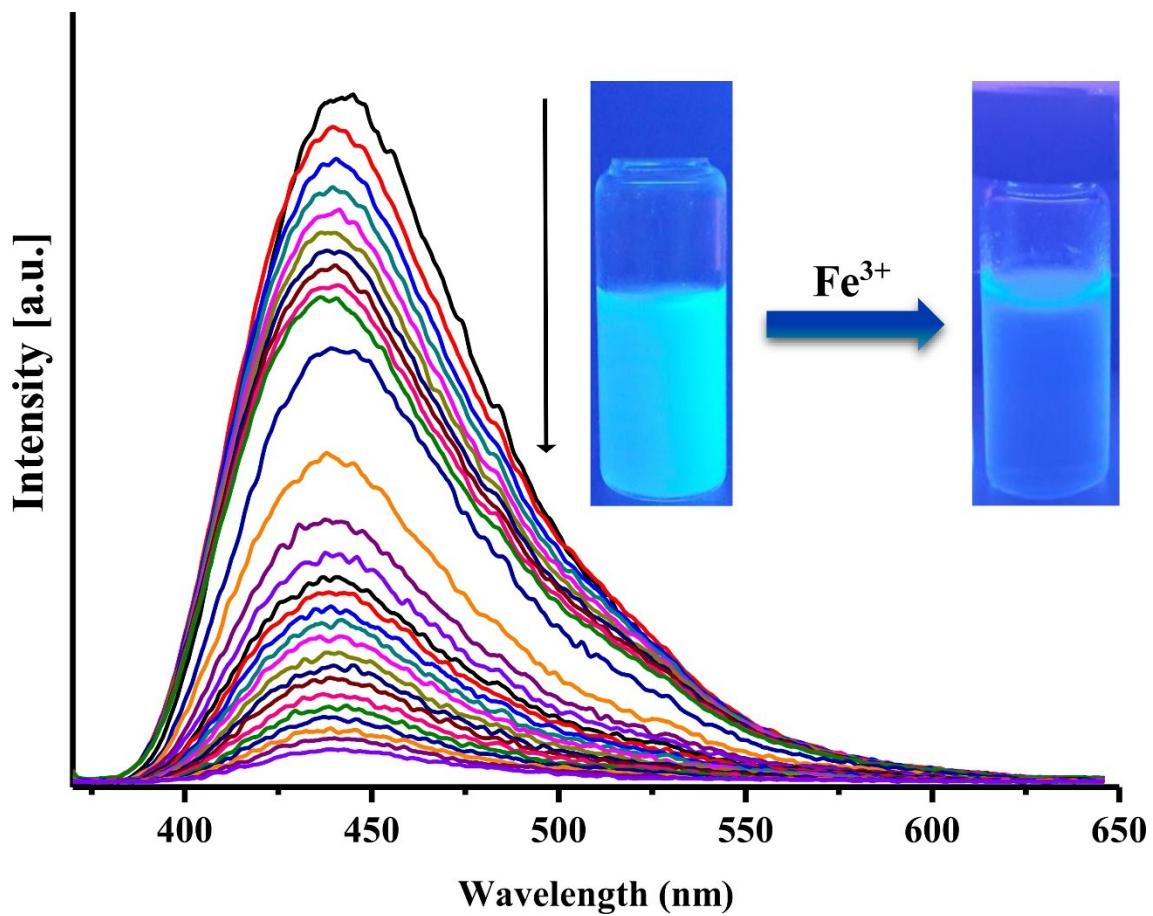
**Fig. S8.** Florescence spectra of complex **1** in the presence of various nitroaromatic compounds. Change of luminescence intensity histogram of **1** in the presence of different nitroaromatic compounds as a bar diagram (inset).



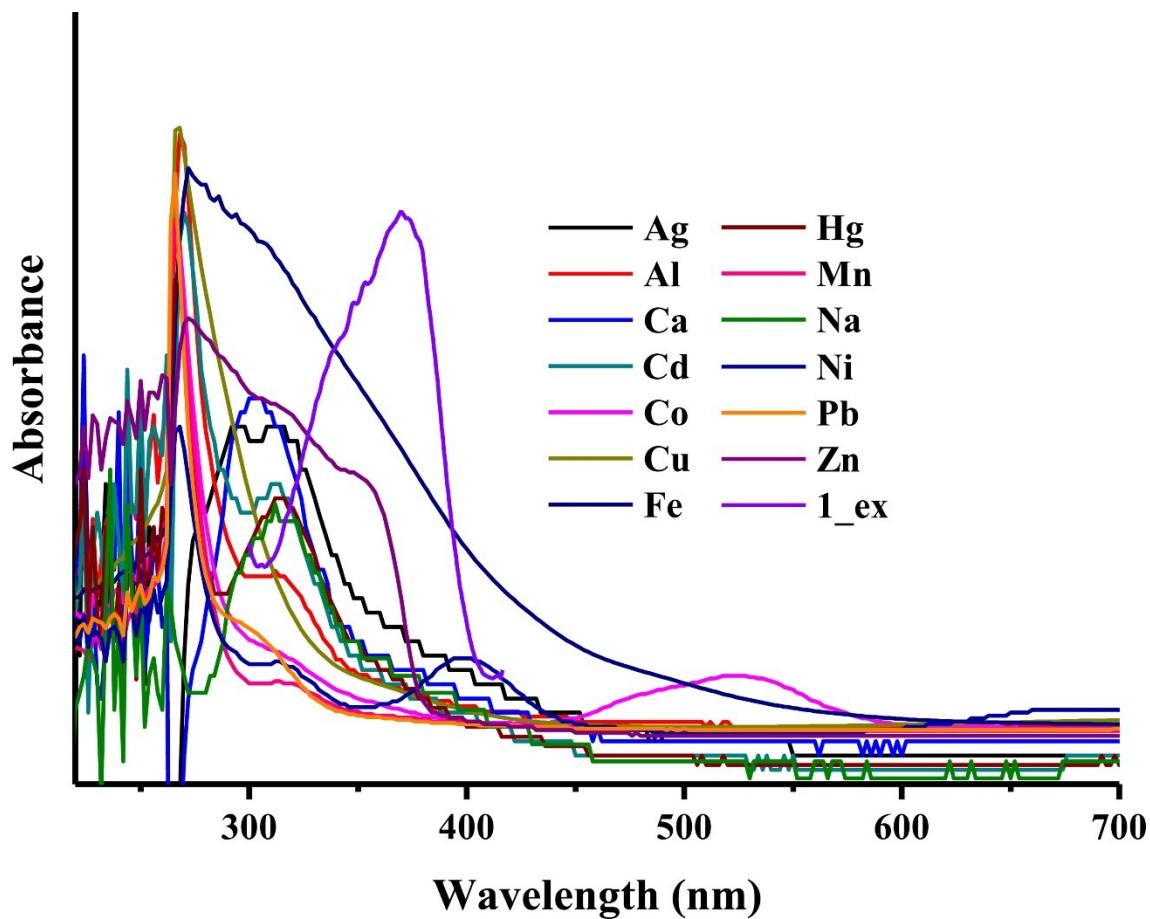
**Fig. S9.** The visual color changes of complex **1** dispersed in DMF after the addition of nitroaromatic compounds under UV-light



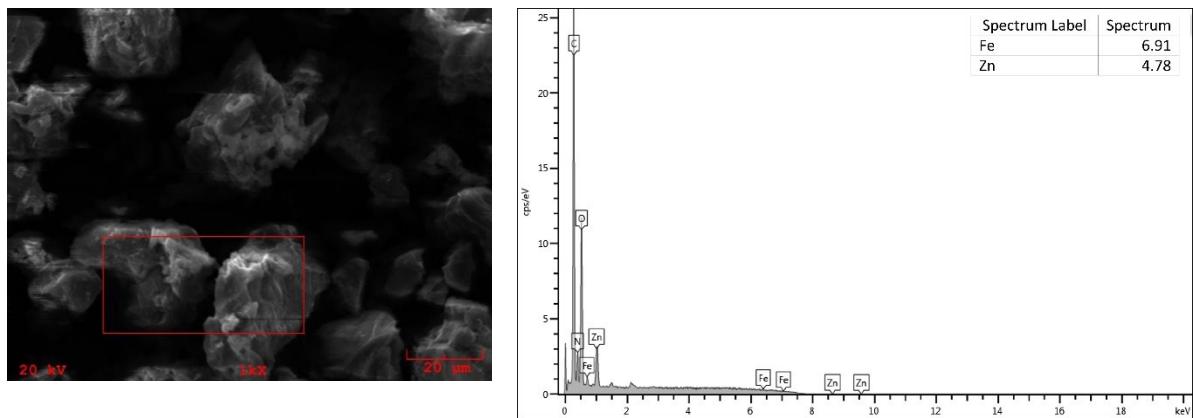
**Fig. S10.** Spectral overlap between the absorption spectra of nitroaromatic compounds and the emission spectrum of complex **1** in DMF



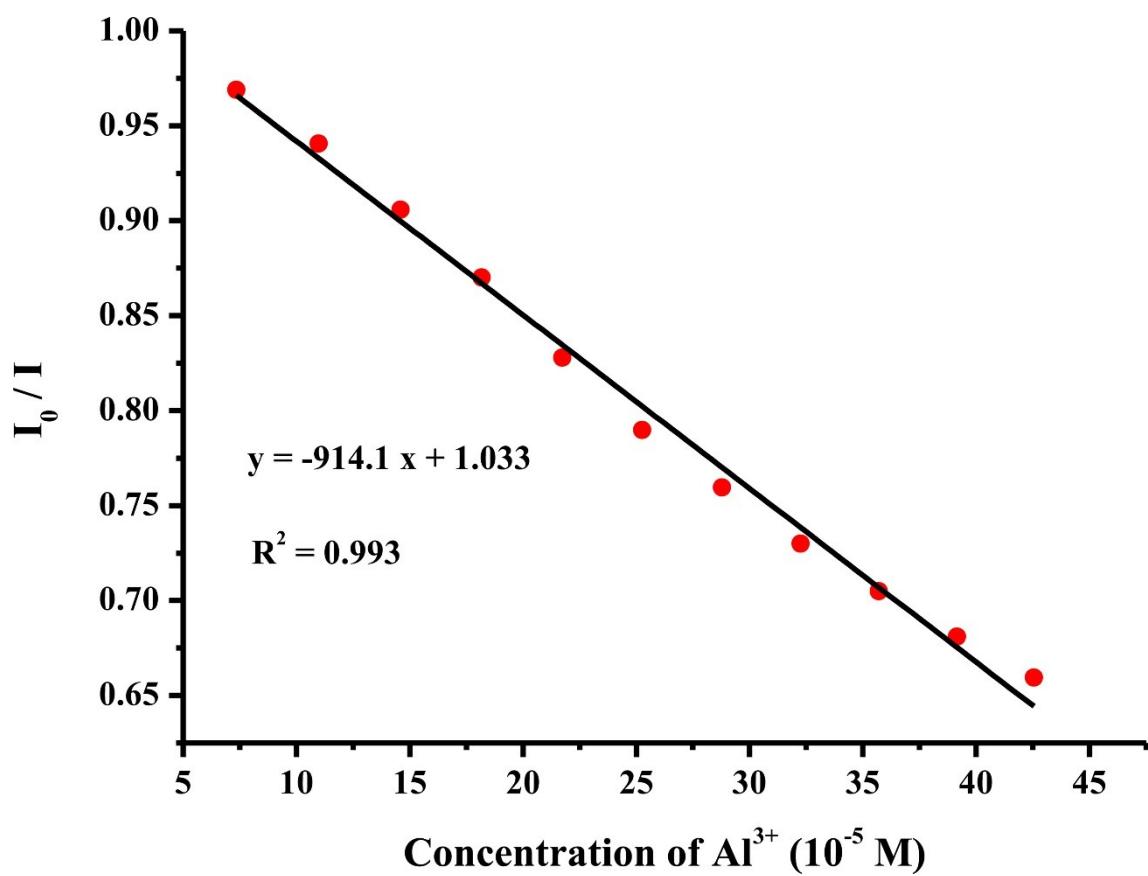
**Fig. S11.** Emission spectra of **1** dispersed in DMF upon incremental addition of  $\text{Fe}^{3+}$  in DMF



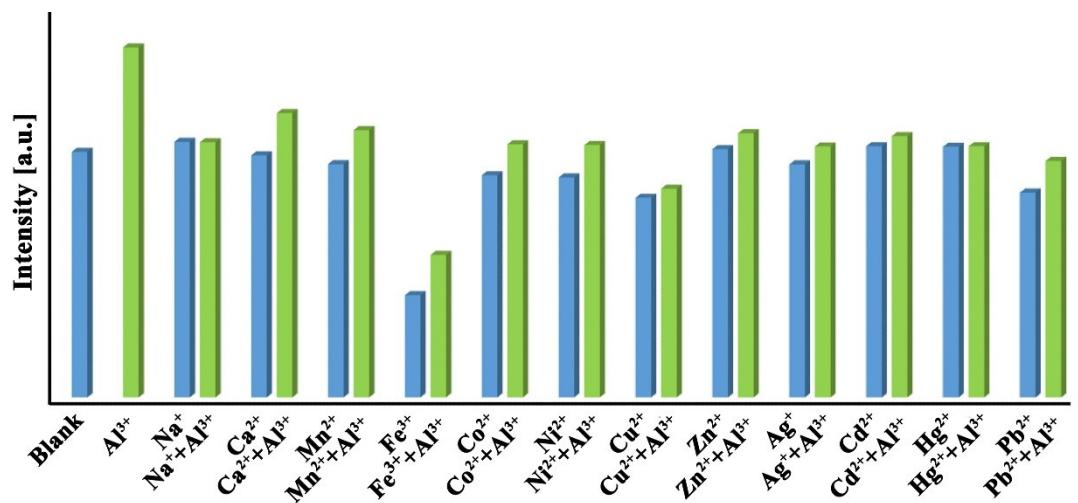
**Fig. S12.** The spectral overlap between absorption spectra of metal ion and excitation spectrum of **1** in DMF



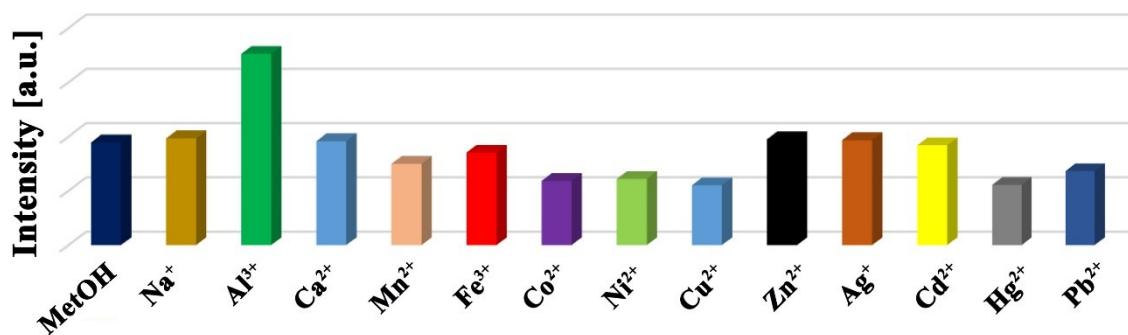
**Fig. S13.** SEM image and EDX spectrum of recovered complex **1** after immersed in  $\text{Fe}^{3+}$  solution.



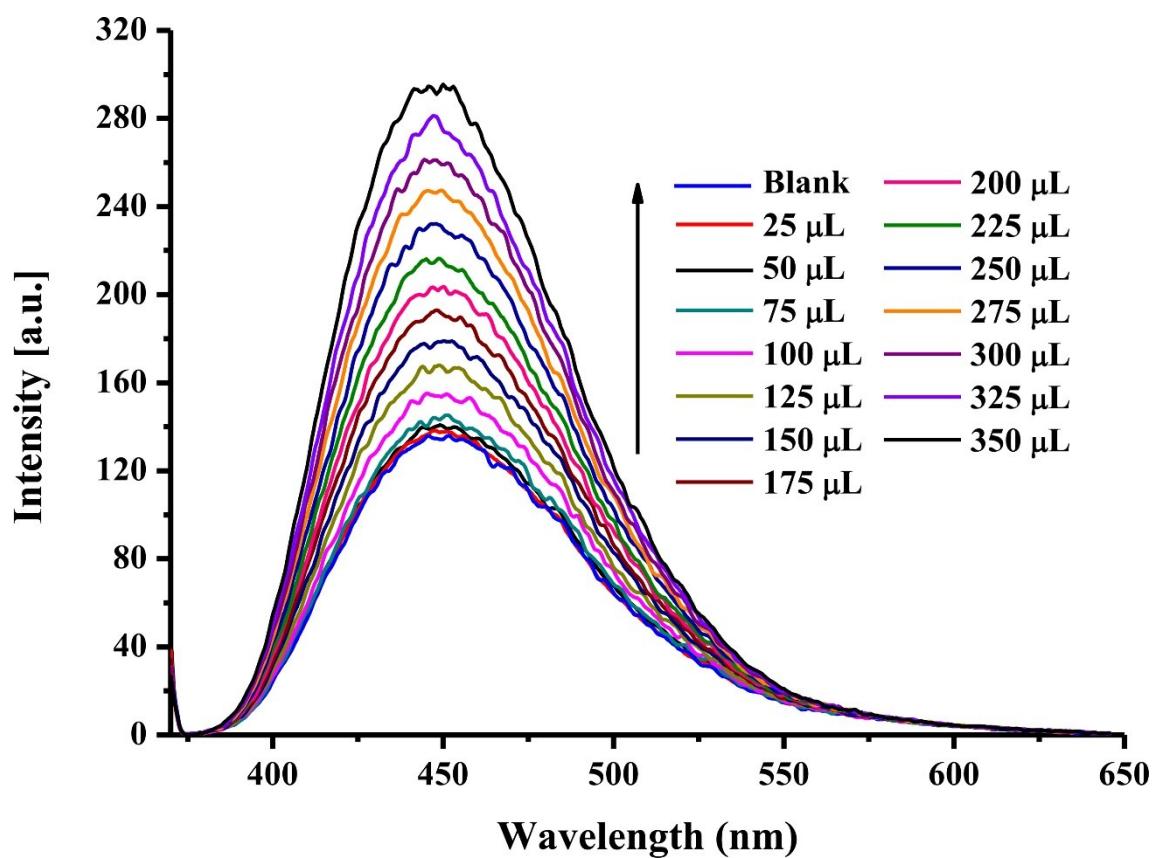
**Fig. S14.** Emission quenching linearity relationship at low concentration of  $\text{Al}^{3+}$



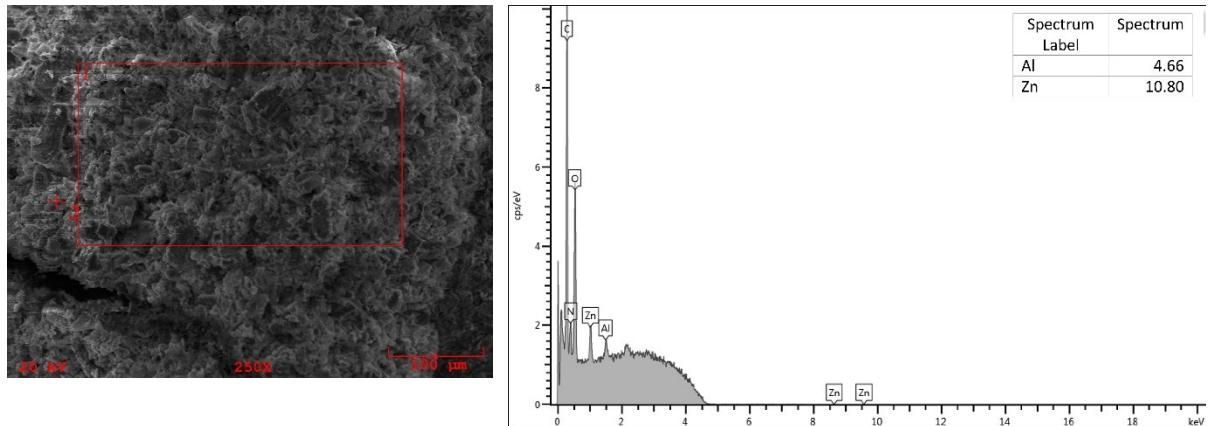
**Fig. S15.** Luminescence intensity histograms of **1** in the presence of various metal ions ( $10^{-2}$  M, 300  $\mu$ L) in DMF solution without and with  $Al^{3+}$  ions ( $10^{-2}$  M, 300  $\mu$ L).



**Fig. S16.** Luminescence intensity histograms of complex **1** (3.0 mg, 2.7 mL) dispersed in methanol in the presence of different metal ions ( $10^{-3}$  M, 0.3 mL).



**Fig. S17.** Emission spectra of **1** dispersed in methanol upon incremental addition of  $\text{Al}^{3+}$  in methanol



**Fig. S18.** SEM image and EDX spectrum of recovered complex after immersed in  $\text{Al}^{3+}$  solution.