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**Supporting information for article:**

**A three-dimensional manganese(II) coordination polymer with two functional properties: magnetism and photochemical detection**

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Table S1. Comparison of various complexes for the detection of dicromate ion.

NO.	Complexes	Analyte	Solution	$K_{sv} (\text{M}^{-1})$	LOD ( $\mu\text{M}$ )	References
1	[Cd(L)(SDBA)(H <sub>2</sub> O)]·0.5H <sub>2</sub> O	Cr <sub>2</sub> O <sub>7</sub> <sup>2-</sup>	H <sub>2</sub> O	4.97×10 <sup>3</sup>	48.6	Chen <i>et al.</i> , 2017
2	[Cd(L)(BPDC)]·2H <sub>2</sub> O	Cr <sub>2</sub> O <sub>7</sub> <sup>2-</sup>	H <sub>2</sub> O	6.4×10 <sup>3</sup>	37.6	Chen <i>et al.</i> , 2017
3	[(CH <sub>3</sub> ) <sub>2</sub> NH <sub>2</sub> ] <sub>4</sub> [Ca <sub>2</sub> Zn <sub>4</sub> (L) <sub>4</sub> ]·4DMF	Cr <sub>2</sub> O <sub>7</sub> <sup>2-</sup>	H <sub>2</sub> O	1.15×10 <sup>3</sup>	29.1	Ji <i>et al.</i> , 2020
4	[Tb(tftba) <sub>1.5</sub> (phen)(H <sub>2</sub> O)]	Cr <sub>2</sub> O <sub>7</sub> <sup>2-</sup>	H <sub>2</sub> O	2.85×10 <sup>4</sup>	18.1	Yu <i>et al.</i> , 2020
5	[Eu(Hmcd)(H <sub>2</sub> O)(DMF) <sub>2</sub> ]	Cr <sub>2</sub> O <sub>7</sub> <sup>2-</sup>	DMF	2.9×10 <sup>3</sup>	13.4	Li <i>et al.</i> , 2019
6	[Zn(IPA)(L)]	Cr <sub>2</sub> O <sub>7</sub> <sup>2-</sup>	H <sub>2</sub> O	1.37×10 <sup>3</sup>	12.02	Parmar <i>et al.</i> , 2017
7	[Cd <sub>3</sub> (cpota) <sub>2</sub> (phen) <sub>3</sub> ]·5H <sub>2</sub> O	Cr <sub>2</sub> O <sub>7</sub> <sup>2-</sup>	H <sub>2</sub> O	1.00×10 <sup>4</sup>	3.62	Li <i>et al.</i> , 2018
8	[Zn <sub>3</sub> (mtrb) <sub>3</sub> (btc) <sub>2</sub> ]·3H <sub>2</sub> O	Cr <sub>2</sub> O <sub>7</sub> <sup>2-</sup>	H <sub>2</sub> O	4.62×10 <sup>3</sup>	2.83	Zhang <i>et al.</i> , 2018
9	[Zn(OBA) <sub>2</sub> (L1)·2DMA]	Cr <sub>2</sub> O <sub>7</sub> <sup>2-</sup>	H <sub>2</sub> O	none	2.37	Qin <i>et al.</i> , 2021
10	[Ni <sub>2</sub> (μ <sub>2</sub> -OH)(azdc)(tpim)](NO <sub>3</sub> ) ·6DMA·6MeOH	Cr <sub>2</sub> O <sub>7</sub> <sup>2-</sup>	H <sub>2</sub> O	7.9×10 <sup>3</sup>	0.9	Goswami <i>et al.</i> , 2019
11	<b>Complex I</b>	<b>Cr<sub>2</sub>O<sub>7</sub><sup>2-</sup></b>	<b>H<sub>2</sub>O</b>	<b>1.0×10<sup>5</sup></b>	<b>0.69</b>	<b>This work</b>
12	[Cd <sub>1.5</sub> (L) <sub>2</sub> (bpy)(NO <sub>3</sub> )]·2DMF ·2H <sub>2</sub> O	Cr <sub>2</sub> O <sub>7</sub> <sup>2-</sup>	H <sub>2</sub> O	5.42×10 <sup>4</sup>	0.34	Singh <i>et al.</i> , 2020
13	[Zn(BIPA)(tfbdc)]	Cr <sub>2</sub> O <sub>7</sub> <sup>2-</sup>	DMF	1.98×10 <sup>4</sup>	0.069	Wang <i>et al.</i> , 2018

## References

- Chen, S., Shi, Z.-Z., Qin, L., Jia, H.-L. & Zheng, H.-G. (2017). Cryst. Growth Des. 17, 67–72.
- Ji, W.-J., Liu, G.-F., Wang, B.-Q., Lu, W.-B. & Zhai, Q.-G. (2020). CrystEngComm, 22, 4710–4715.
- Yu, H.-H., Chi, J.-Q., Su, Z.-M., Li, X., Sun, J., Zhou, C., Hu, X.-L. & Liu, Q. (2020). CrystEngComm, 22, 3638–3643.
- Li, X., Tang, J.-X., Liu, H., Gao, K., Meng, X.-R., Wu, J. & Hou, H.-W. (2019). Chem. Asian J. 14, 3721–3727.
- Parmar, B., Rachuri, Y., Bisht, K.-K., Laiya, R. & Suresh, E. (2017). Inorg. Chem. 56, 2627–2638.
- Zhang, Y.-Q., Blatov, V.-A., Zheng, T.-R., Yang, C.-H., Qian, L.-L., Li, K., Li, B.-L. & Wu, B. (2018). Dalton Trans. 47, 6189–6198.
- Qin, B.-W., Zhang, X.-Y., Qiu, J.-J., Gahungu, G., Yuan, H.-Y. & Zhang, J.-P. (2021). Inorg. Chem. 60, 1716–1725.

Goswami, R., Seal, N., Dash, S.-R., Tyagi, A. & Neogi, S. (2019). Appl. Mater. Interfaces, 11, 40134–40150.

Wang, Z.-J., Ge, F.-Y., Sun, G.-H. & Zheng, H.-G. (2018). Dalton Trans. 47, 8257–8263.

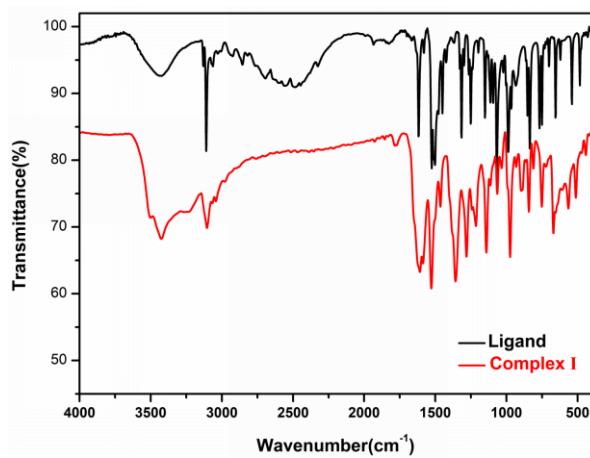


Figure S1. IR spectra of Hdtba ligand and complex **I**.

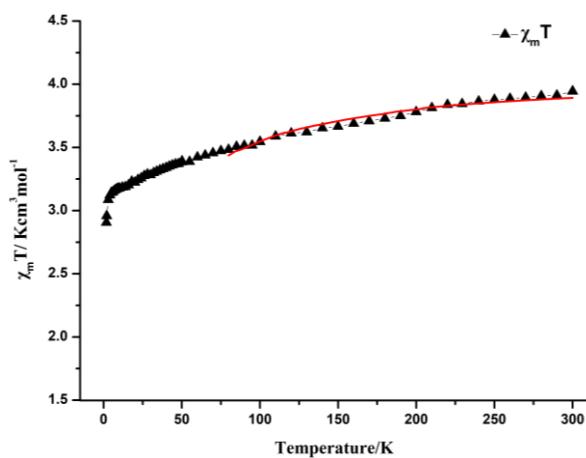


Figure S2. Temperature dependence of  $\chi_m T$  for complex **I**.

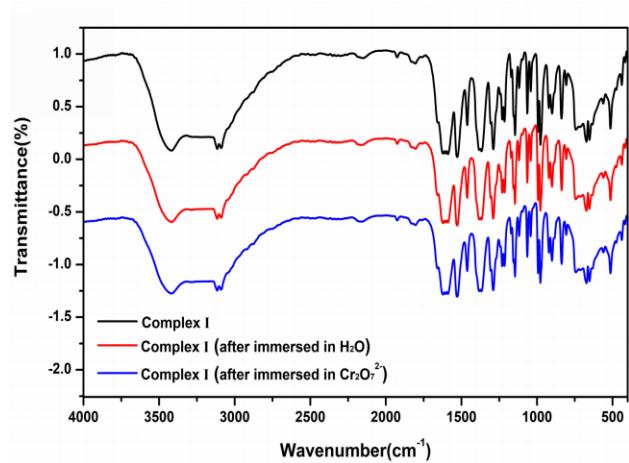


Figure S3. IR spectra of complex **I** after being immersed in  $\text{H}_2\text{O}$  and  $\text{Cr}_2\text{O}_7^{2-}$  ion.

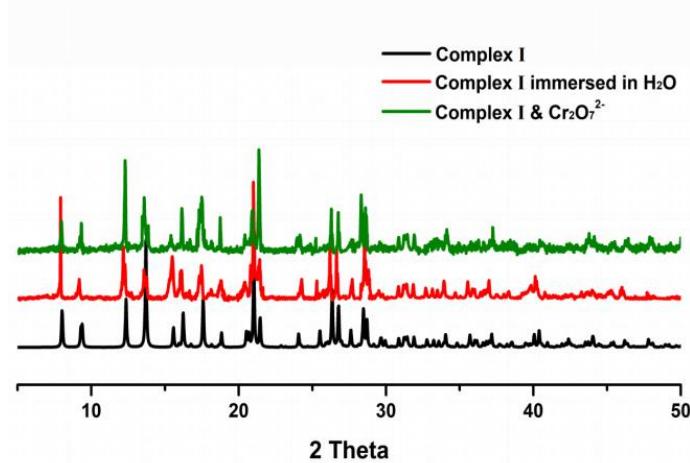


Figure S4. PXRD patterns: simulated of complex **I**, complex **I** immersed in  $\text{H}_2\text{O}$ , and **I** immersed in  $\text{Cr}_2\text{O}_7^{2-}$  aqueous solution.