Metal–organic framework derived Co_3S_4 nanosheets grown on Ti mesh: an efficient electrocatalyst for electrochemical sensing of hydrazine

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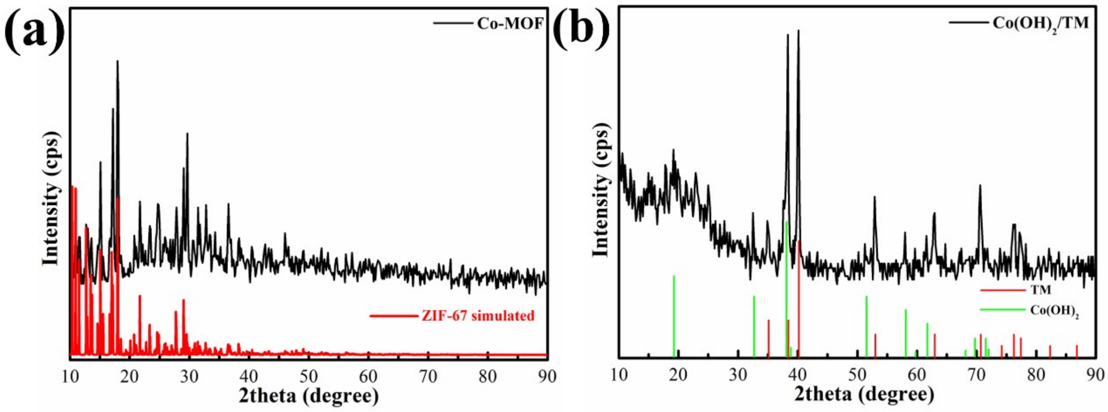

Fig. S1 XRD patterns of Co-MOF (a) and $Co(OH)_2$/TM (b)

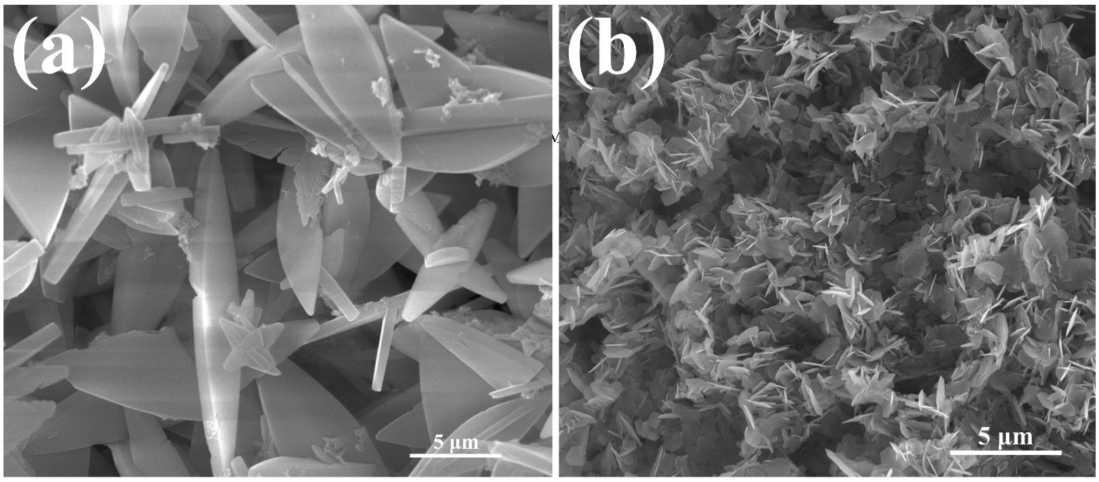

Fig. S2 SEM images of Co-MOF/TM (a) and $Co(OH)_2$/TM (b)

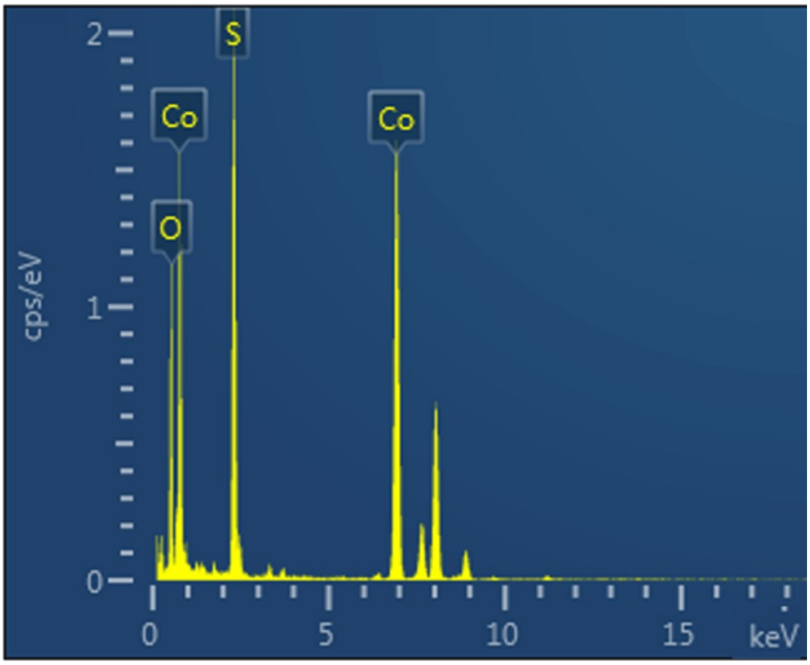

Fig. S3 TEM-EDS spectrum of f Co_3S_4/TM

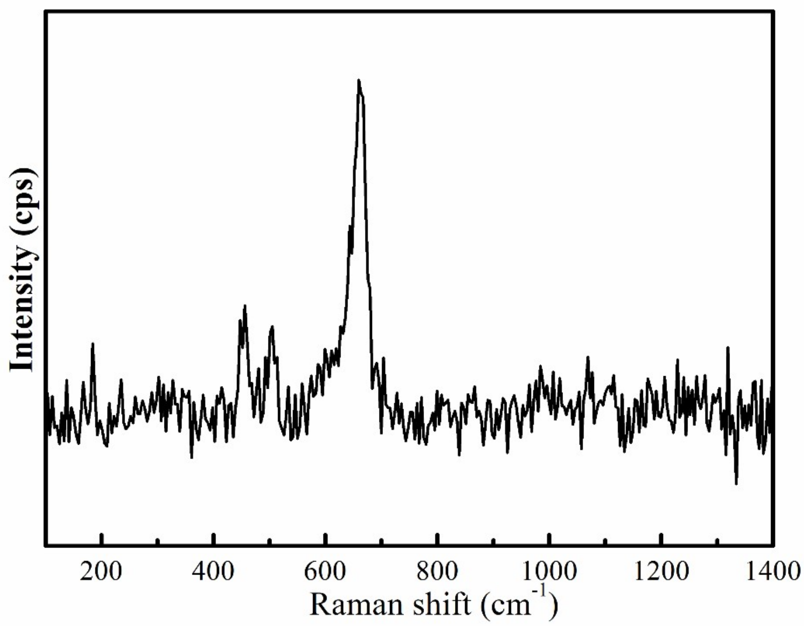

Fig. S4 Raman spectrum of Co_3S_4/TM

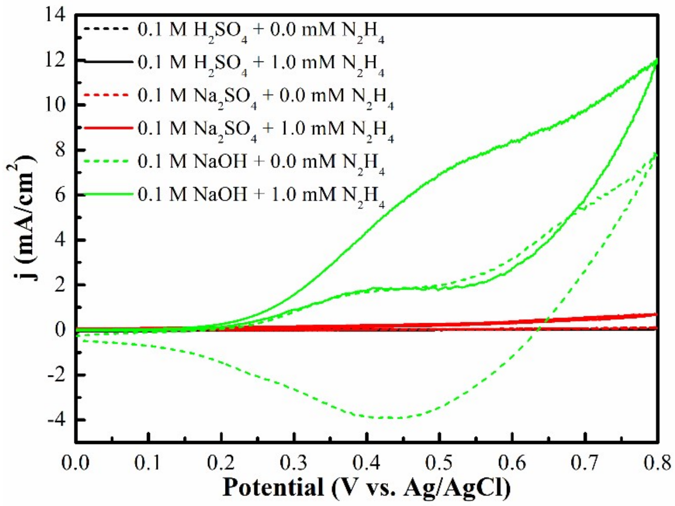

Fig. S5 CV curves of Co_3S_4/TM in different electrolytes with and without 1.0 mM hydrazine

Table S1. Hydrazine sensing performance comparison of Co_3S_4/TM with other sensors.

Electrode	Linear range (mM)	Sensitivity (μA mM^{-1} cm^{-2})	LOD (μM)	Refs.
Co_3S_4/TM	0.005–2.0	2956	0.70	This work
Au@porous P-MWCNT/rGO/GCE	3–55	98	0.31	1
CoOOH nanosheet /GCE	0–1.2	155	20	2
Co_3O_4 NWs	0.02–0.7	408.6	0.5	3
CeO_2@organic dye	0.001–3.22	484.86	0.057	4
Cobalt hydroxide	0.02–5.0	1.8	1.6	5
CoS2-ionic liquid-functionalized graphene	0.005–0.4	106.9	0.4	6
Pt-Pd/ERGO/GCE	0.007–5.5	254.8	1.7	7
CuS/rGO	0.001–1.0	113.7	0.3	8
Fe_2O_3/graphite	0.01–1.0	157.5	1.2	9
TiO_2@PANI@Au	0.0009–1.2	341.2	0.15	10

References

1. X. Zhang and J. Zheng, *Microchimica Acta*, 2020, **187**, 89.

2. K. K. Lee, P. Y. Loh, C. H. Sow and W. S. Chin, *Biosensors and Bioelectronics*, 2013, **39**, 255-260.

3. J. Zhang, W. Gao, M. Dou, F. Wang, J. Liu, Z. Li and J. Ji, *Analyst*, 2015, **140**,

1686-1692.

4. N. S. K. Gowthaman, H. Ngee Lim, V. Balakumar and S. Shankar, *Ultrasonics Sonochemistry*, 2020, **61**, 104828.

5. M. Hasanzadeh, G. Karim-Nezhad, N. Shadjou, B. Khalilzadeh, L. Saghatforoush, S. Ershad and I. Kazeman, *Chinese Journal of Chemistry* 2009, **27**, 638-644.

6. F. Luan, S. Zhang, D. Chen, K. Zheng and X. Zhuang, *Talanta*, 2018, **182**, 529-535.

7. S. Ghasemi, S. R. Hosseini, F. Hasanpoor and S. Nabipour, *Microchimica Acta*, 2019, **186**, 601.

8. Y. J. Yang, W. Li and X. Wu, *Electrochimica Acta*, 2014, **123**, 260-267.

9. B. Šljukić, C. E. Banks, A. Crossley and R. G. Compton, *Electroanalysis*, 2006, **18**, 1757-1762.

10. E. Saeb and K. Asadpour-Zeynali, *Microchemical Journal*, 2021, **160**, 105603.