Supporting Information

Enhanced Peroxidase-like Activity of Bimetal (Fe/Co) MIL-101 for Determination of Tetracycline and Hydrogen Peroxide

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Synthetic procedure

Different molar ratios (1:0, 0.95:0.05, 0.9:0.1, 0.8:0.2, 0.7:0.3) of $FeCl_3 \cdot 6H_2O$ and $CoCl_2 \cdot 6H_2O$ with a total amount of 1 mmol were dissolved in DMF (20 mL), 1 mmol of terephthalic acid was added and sonicated for 15 min. After that, the above solution was solvothermally heated in an oven at 150 °C for 3 h. Then, the as-prepared MIL-101(Fe/Co) nanocomposites were naturally cooled to ambient temperature, washed with DMF and ethanol in turn several times. Finally, the products dried at 60 °C for 12 h.

Detection of tetracycline in real serums

The detection process of the actual water sample is the same as the previous tetracycline detection process. The actual sample were added into the mixture of 200 μL of 0.3 mg/mL MIL-101(Fe/Co) and 1200 μL NaAc-HAc buffer (pH = 4.0). After incubation for another 1 min, 200 μL H_2O_2 solution and 200 μL TMB were added in turn. The total volume of mixed solution was controlled as 2.0 mL. After reacted for 3 min, the absorbance of mixed solution was monitored.
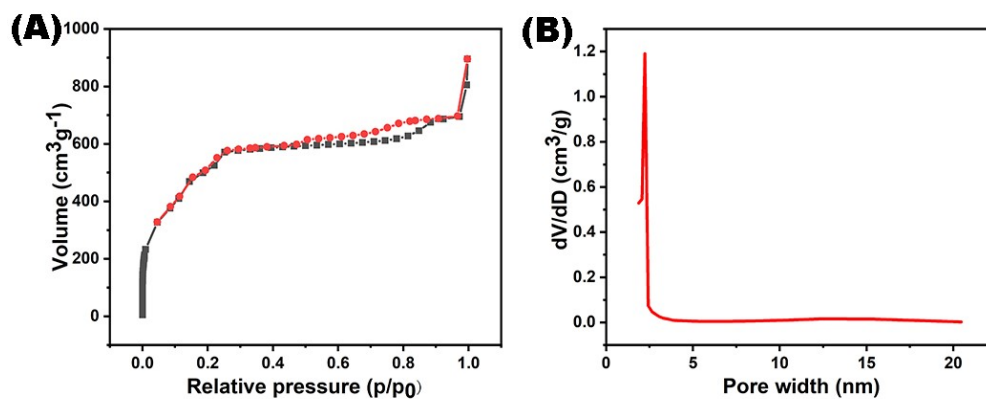
Figure S1 N_2 adsorption−desorption isotherms (A) and pore size distribution curves (B) of MIL-101 (Fe/Co), respectively.
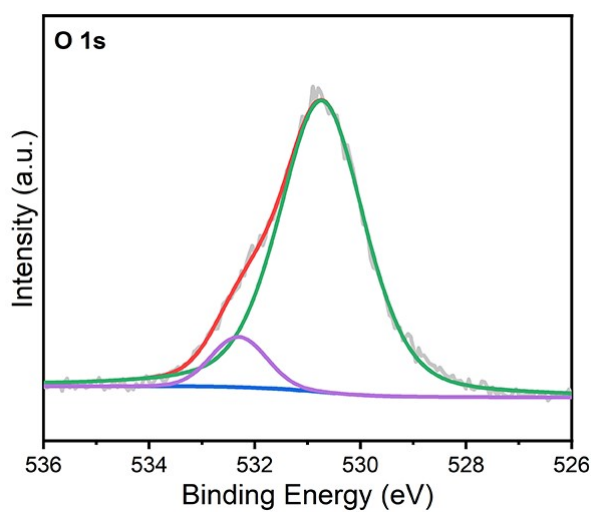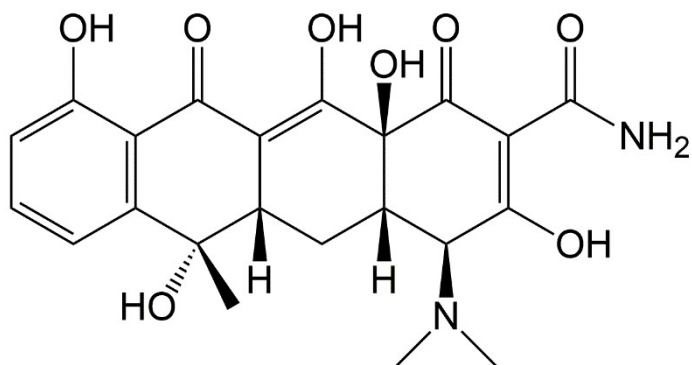

Figure S2 XPS spectrum of O1s of MIL-101(Fe/Co).

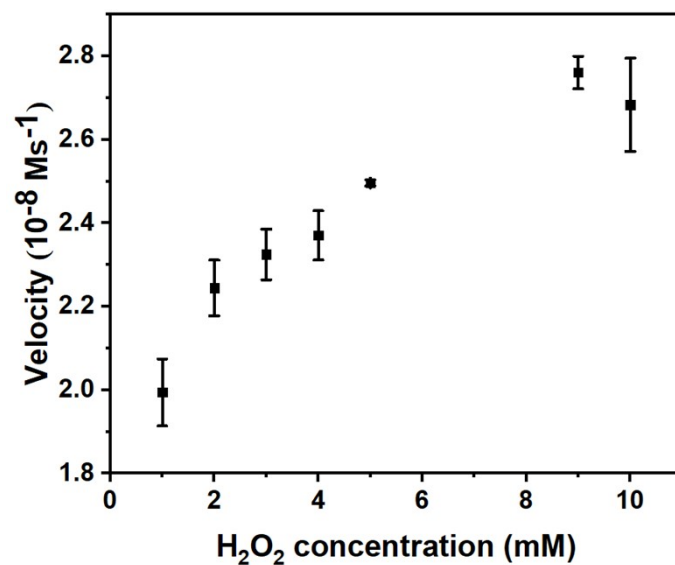**Figure S3** The molecular structure of tetracycline (TC).

Fig. S4 The reaction rate varied with hydrogen peroxide concentration (1-10 mM).
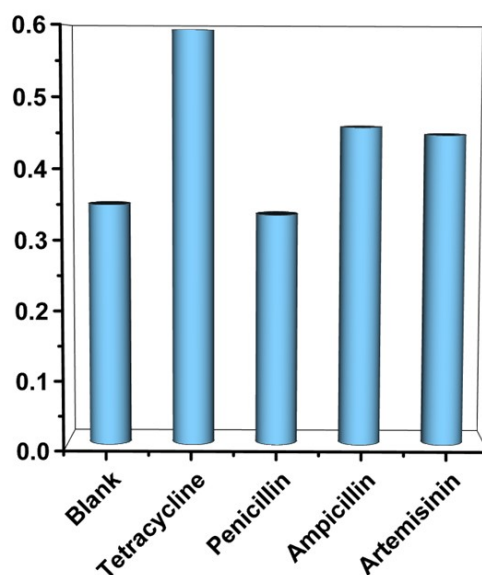

Fig. S5 Selectivity of the MIL-101(Fe/Co)-based colorimetric method for tetracycline detection (8 μM) toward interferents (40 μM). Blank: MIL-101(Fe/Co)+H_2O_2+TMB.

Table S1 Experimental results of TC determination.

Sample (Tap water)	Added (μM)	Found (μM)	Recovery (%)	RSD (% , n=3)
1	3	3.10	103.33	0.40
2	6	6.22	103.67	0.88