Supporting Information

Facile Synthesis of UOx-doped Cu_2O@HP-HKUST-1 for sensitively colorimetric detection of uric acid

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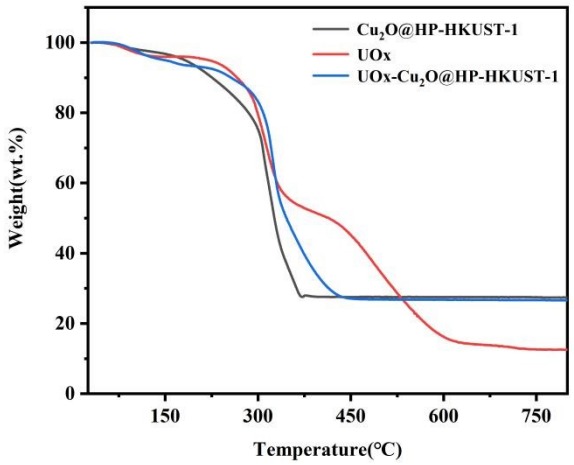

Fig. S1. TGA curves of Cu_2O@HP-HKUST-1, UOx-Cu_2O@HP-HKUST-1 and UOx in air.

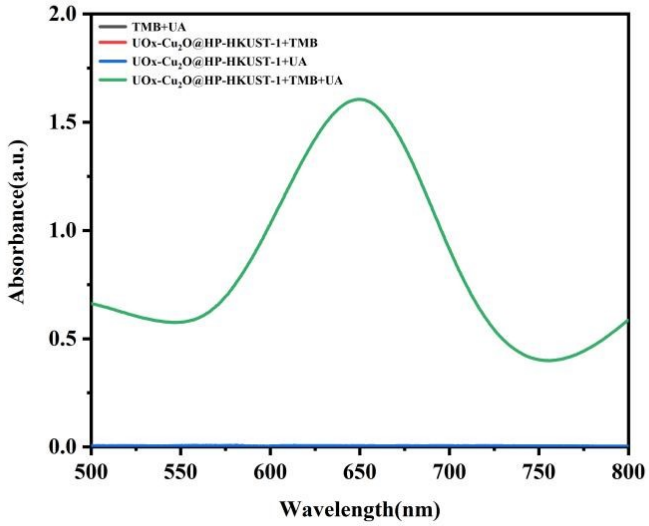

Fig. S2. UV-Vis absorption spectra of TMB solutions containing different nanocomposites were recorded at pH 4.5, temperature 25 °C, and catalyst concentration of 6.0 mg/mL.

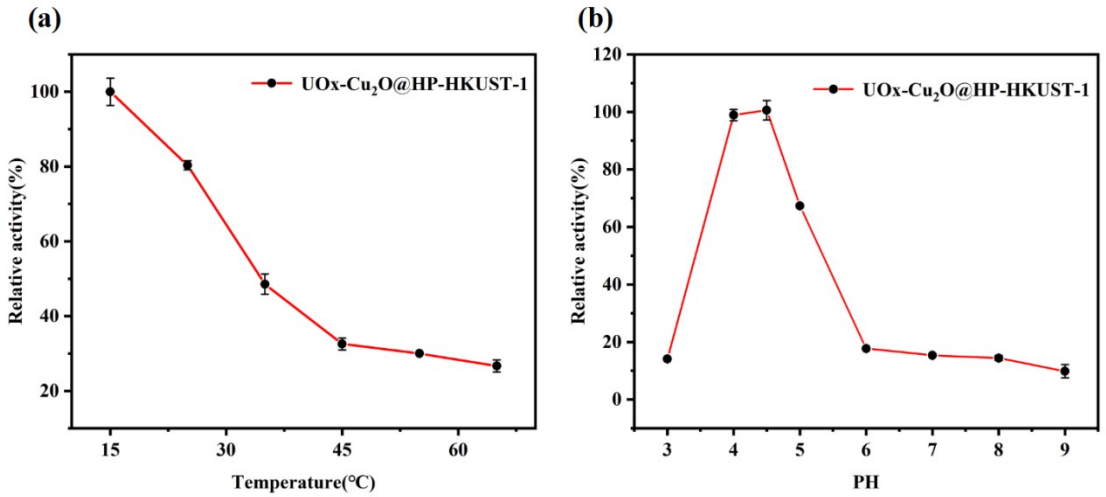

Fig. S3. Relative activity of UOx-Cu_2O@HP-HKUST-1 at different temperatures and pH values.

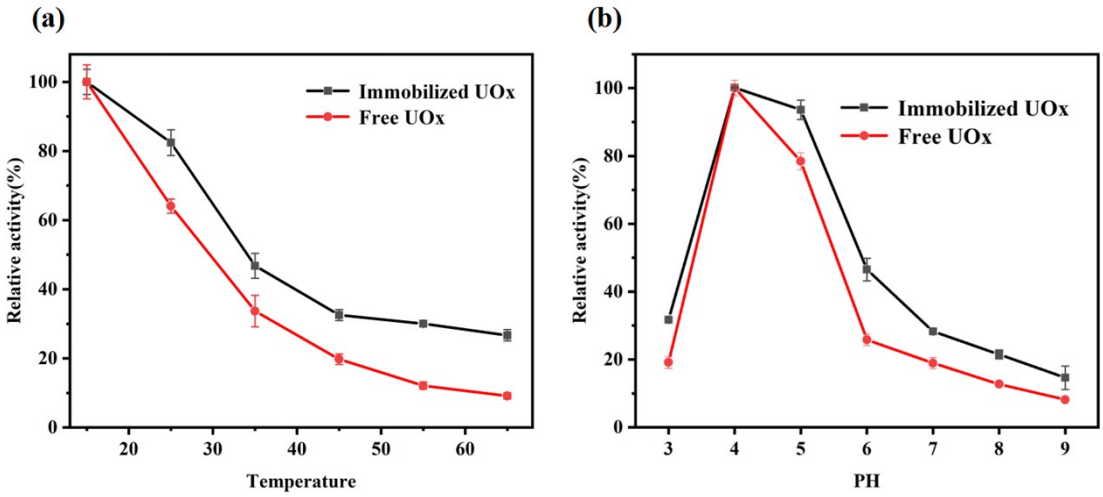

Fig. S4. Comparative activity of free and immobilized UOx at various temperatures (a) and pH levels (b).

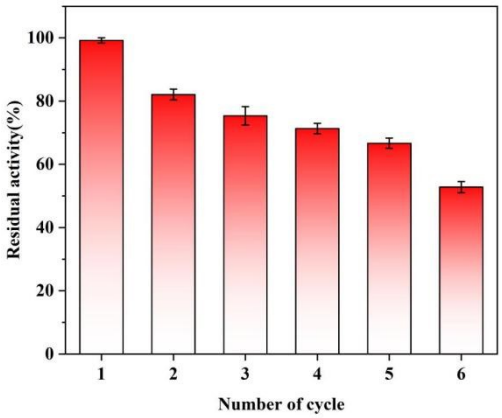

Fig. S5. The Cycling Stability of UOx-Cu_2O@HP-HKUST-1.

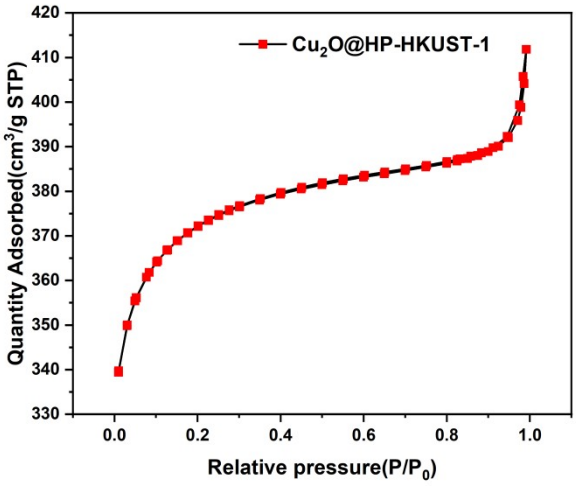

Fig. S6. N_2 adsorption-desorption isotherms of UOx-Cu_2O@HP-HKUST-1.

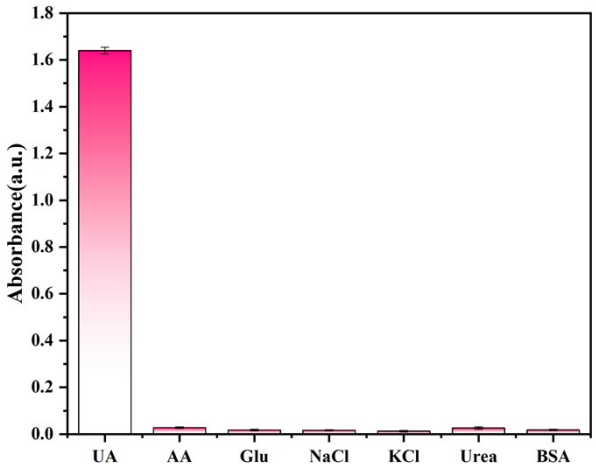

Fig. S7. The specificity of UOx-Cu_2O@HP-HKUST-1: absorbance of UA and other interfering substances.

The serum samples were obtained from Shanghai yuanye Bio-technology Co., Ltd. The supernatant was diluted 5 times with ultrapure water. The detection procedure for UA in the serum is the same as the above detection procedure in Section 2.6, except that 200 μL of diluted serum was added to each sample.

The accuracy of the UOx-Cu_2O@HP-HKUST-1 colorimetric method in actual samples was evaluated using the standard addition method. The serum was diluted 5 times with ultrapure water before the experiment. Known concentrations of UA standard solution were added to the diluted serum to determine the total UA content, and the recovery rate and relative standard deviation (RSD) were calculated, as shown in Table S1, to assess its practicality in actual samples. Experimental results show that this method can reliably be used for determining UA in biological samples, with recovery rates ranging from 94.5% to 107.9% and RSD ranging from 1.4% to 2.9% in the spiked samples.

Accordingly，the UA detection table in actual samples is as follows:

Table S1. Determination of UA in actual samples (n=3)

Sample	UA Added (μM)	UA Found (μM)	Recovery(%)	RSD(%)
1	100	535	94.5	2.9
2	100	632	96.1	2.1
3	100	583	107.9	1.8
4	100	473	104.2	1.4