Electronic Supplementary Material

Biomineralization-inspired copper-cystine nanoleaves capable of laccase-like catalysis for the colorimetric detection of epinephrine

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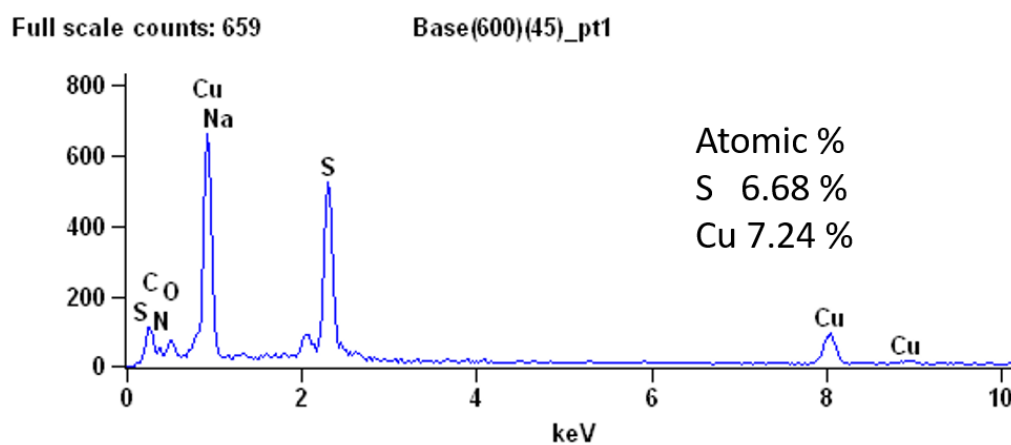
E-mail: mwang@tju.edu.cn

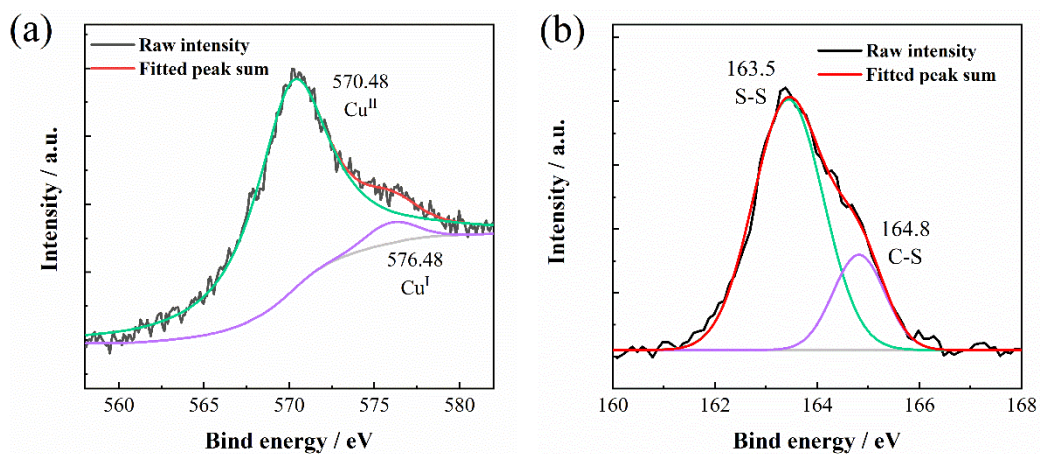**Fig. S1** The EDX spectrum of Cu-Cys NLs

Fig. S2 The Cu LMM Auger spectrum (a) and S 2p XPS spectrum (b) of Cu-Cys NLs
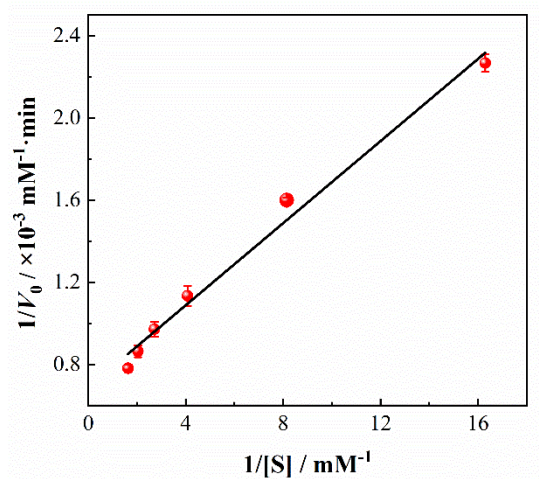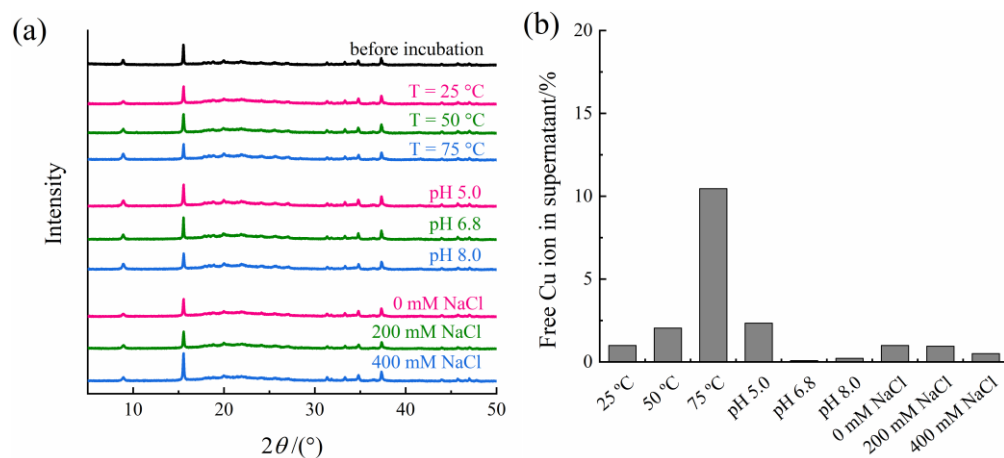

Fig. S3 The linear Lineweaver-Burk plots for Cu-Cys NLs

Table S1 Kinetic parameters for Cu-Cys NLs and some reported natural laccases

Catalyst	K_m /mM	V_{max} /(μM min^{-1})	k_{cat}/K_m /($\times 10^{-3}$ g^{-1} min^{-1} L)	Reference
Cu-Cys NLs	0.14	1.44	102.86	This work
Laccase	0.08	1.97	121.25	This work
Laccase	0.40	3.51	54.84	Wang *et al.* [1]
Laccase	0.41	6.41	156.34	Wang *et al.* [2]
Laccase	0.062	5.81	937.10	Shams *et al.* [3]
Laccase	0.65	0.15×10^3	2307.69	Liang *et al.* [4]

Fig. S4 XRD analysis of Cu-Cys NLs (a) and ICP analysis of supernatant (b) after 6 days of incubation under different conditions
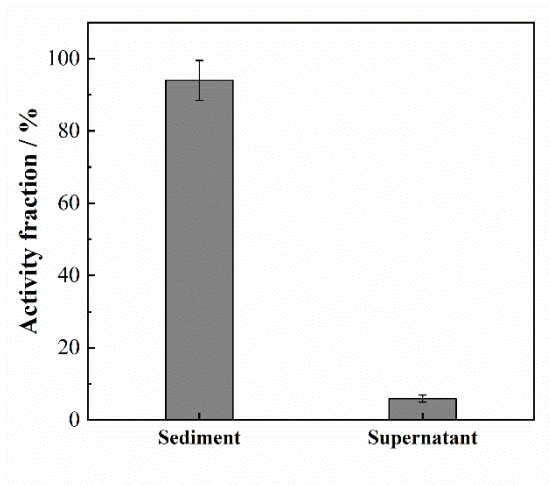
Fig. S5 The activity contribution of Cu-Cys NLs in sediment and the free Cu(II) ions in

supernatant

Table S2 Comparison of laccase mimics and laccase for the quantitative determination of

epinephrine

Method	Catalyst	Linear range /μM	LOD /μM	Reference
Colorimetry	CH-Cu	22.8-227.6	1.4	Wang *et al.* [2]
Colorimetry	CuCl2	20-500	10	Sivasankaran *et al.* [5]
Amperometry	MXene/GCPE	0.02−10, 10−100	0.009	Shankar *et al.* [6]
Amperometry	Laccase-OE	3.0-100	3.0	Molinnus *et al.* [7]
Fluorimetry	GQDs	1–200	0.5	Wang *et al.* [8]
Colorimetry	Cu-Cys NLs	9-455	2.7	This work