Supporting Information

A novel electrochemical sensor based on gold nanobipyramids and Poly-L-cysteine for sensitive determination of trilobatin

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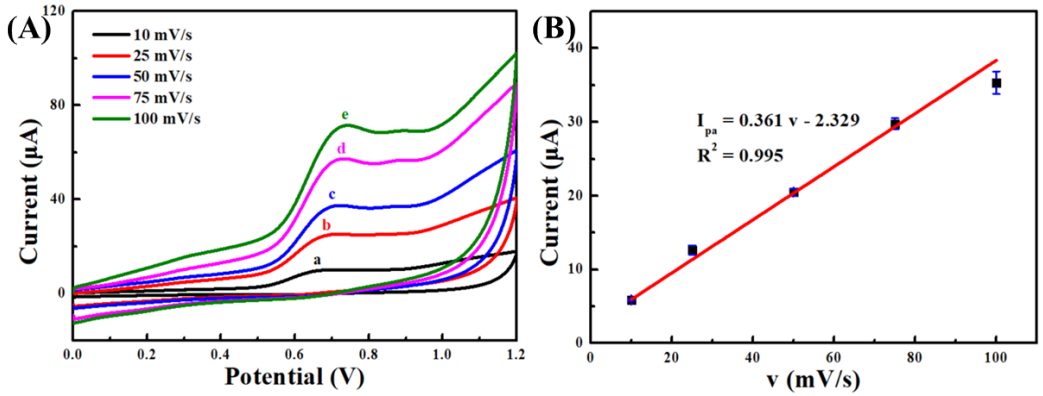

Fig. S1 CV of Poly-L-cys/AuNPs/GCE in 0.1 M PBS (pH 6.0) solution containing 1000 μM trehalose at different scan rates (a-e: 10 mV/s; 25 mV/s; 50 mV/s; 75 mV/s; 100 mV/s) (A); calibration curve of oxidation peak current versus scan rate (B).

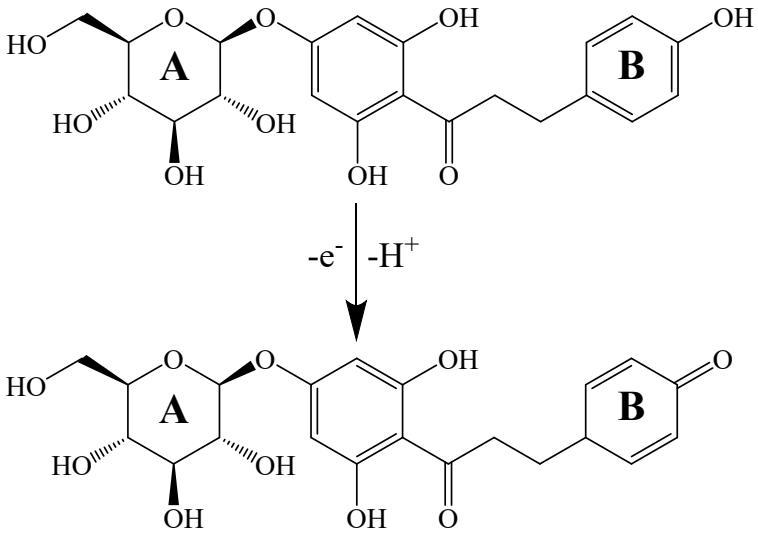

Fig. S2 The possible mechanism for the electrochemical processes of trilobatin.

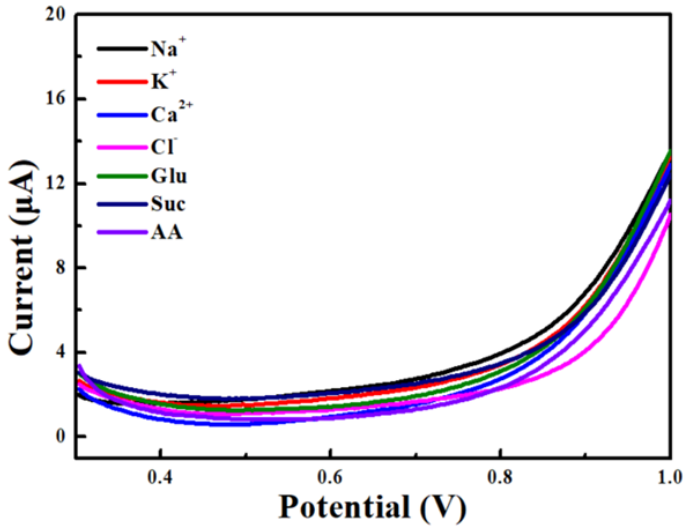

Fig. S3 DPV of Poly-L-cys/AuNBs/GCE in 0.1 M PBS (pH 6) containing interferent without trilobatin.

Table S1 Comparison of different methods for determining trilobatin.

Methods	Linear range	LOD	Ref.
UV	1.60 ~ 40.00 mg/L (3.67 ~ 91.66 μmol/L)	--	[1]
HPLC	8.90 ~ 2225.00 mg/L (20.39 ~ 5098.38 μmol/L)	0.05 mg/L (0.11μmol/L)	[2]
HPLC	12.5 ~ 100 mg/L (28.64 ~ 229.14 μmol/L)	180 mg/L (412.45 μmol/L)	[3]
DPV	5 ~ 100;100 ~ 1000 μmol/L	2.55 μmol/L	This work

Table S2 Recovery measurements of trilobatin in Lithocarpus polystachyus Rehd. using the Poly-L-cys/AuNBs/GCE.

Real sample	Added (μM)	Found (μM)	Average (μM)	Recovery (%)	RSD (%)
Lithocarpus polystachyus Rehd.	0	155.18	155.59	--	-
		157.02			
		154.57			
	50	203.19	204.47	98.83	1.49
		202.27		98.36	
		207.94		101.14	
	100	268.28	262.20	104.96	3.12
		252.89		98.94	
		265.44		103.85	

Notes and references

1 H. Q. Dong, Z. X. Ning, L. J. Yu, L. Li, L. C. Lin and J. B. Huang, *Molecules*, 2007, **12**, 552-562.

2 M. Wei, Y. L. Tuo, Y. Zhang, Q. Deng, C. Y. Shi, X. X. Chen and X. Zhang, *J. Anal. Methods Chem.*, 2020, **2020**, 8837526.

3 D. W. Zhou, D. J. Lv, H. Zhang, T. F. Cheng, H. Wang, P. C. Lin, S. B. Shi, S. L. Chen and J. W. Shen, *J. Ethnopharmacol.*, 2021, **280**, 114068.