Supporting Information

Iron/Phosphorus Co-Doped Carbon Nanozyme for Colorimetric Sensing of Organophosphorus Pesticides in food

Ding Wang[a] , Shumin Xi[b], Peng Chen[a], Jingxi Wang[c] *

a School of Chemistry and Chemical Engineering, Chongqing University of Technology, Chongqing, 400054, PR China ;

b School of Food Science and Technology, Henan University of Technology, Zhengzhou Henan, 450001, PR China.

c Chongqing Key Laboratory of New Energy Storage Materials and Devices, School of Science, Chongqing University of Technology, Chongqing 400054, PR China

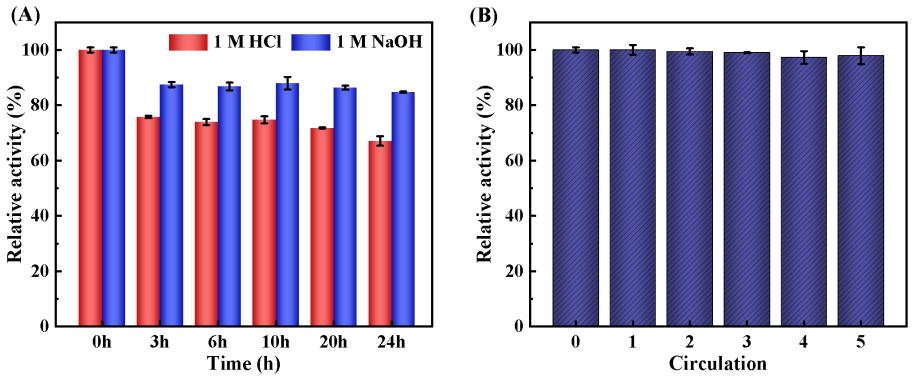
* Corresponding author. E-mail addresses:wangjx0224@cqut.edu.cn (J. X. Wang).

Contents

Table S1 Comparison of steady-state kinetic parameters of Fe/P-NC nanozyme with another report peroxidase mimics.

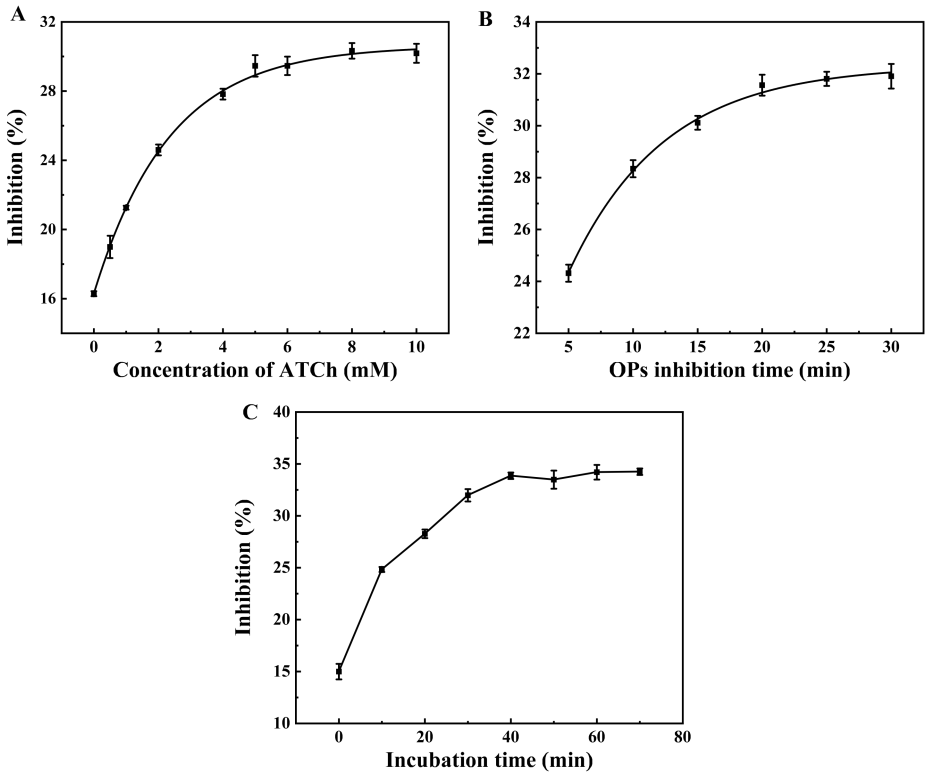
nanozyme	***K*m(mM)**		***V*max (10^{-8} M·s^{-1})**		Ref
	TMB	H_2O_2	TMB	H_2O_2	
HRP	0.434	3.7	10.00	8.71	[1]
Co_3O_4/CeO_2	0.36	132.21	16.66	4.34	[2]
FeNi MOF	1.97	0.01	1.31	5.29	[3]
Fe_3O_4	0.485	1175.3	5.63	2.4	[4]
NiONPs	0.0067	208	0.267	1.32	[5]
Hemin@MOF	0.068	10.9	8.98	6.07	[6]
2D Ni/Fe MOF	0.411	0.037	12.5	3.3	[7]
Fe/P-NC	0.832	1.807	16.19	4.97	This work

Figure S1 The stabilities of Fe/P-NC nanozyme



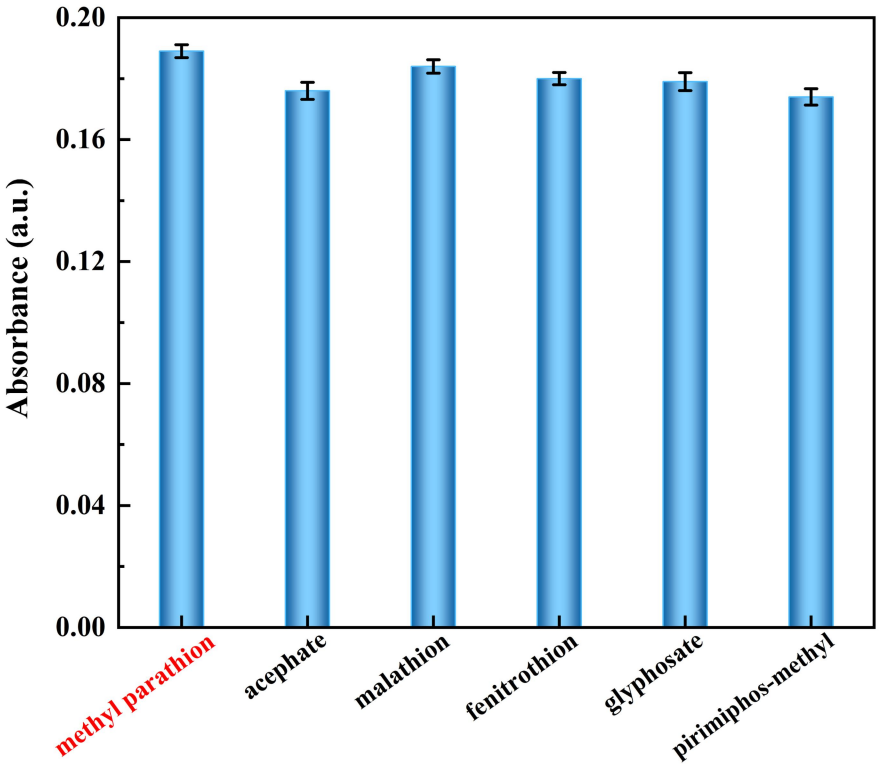
(A) Fe/P-NC nanozyme treated with HCl (1 M) and NaOH (1 M), respectively, and (B) reusability of Fe/P-NC nanozyme.

Figure S2 Optimization of reaction conditions for the detection of OPs.



(A) The concentration optimization of ATCh. (B) The incubation time optimization of AChE and ATCh. (C) Inhibition time optimization of OPs on AChE.

Figure S3 Different OPs detection using proposed method.



REFERENCES

[1] L.Z. Gao, J. Zhuang, L. Nie, J.B. Zhang, Y. Zhang, N. Gu, T.H. Wang, J. Feng, D.L. Yang, S. Perrett, X. Yan, *Nat. Nanotechnol.*, 2007, **2**, 577-583.

[2] N. Alizadeh, A. Salimi, R. Hallaj, *Sensor. Actuat. B-Chem.*, 2019, **288**, 44-52.

[3] J.N. Wang, M.Y. Bao, T.X. Wei, Z.Y. Wang, Z.H. Dai, *Anal. Chim. Acta*, 2020, **1098**, 148-154.

[4] M. Ma, J. Xie, Y. Zhang, Z.P. Chen, N. Gu, *Mater. Lett.*, 2013, **105**, 36-39.

[5] Q.Y. Liu, Y.T. Yang, H. Li, R.R. Zhu, Q. Shao, S.G. Yang, J.J. Xu, *Biosens. Bioelectron.*, 2015, **64**, 147-153.

[6] F.X. Qin, S.Y. Jia, F.F. Wang, S.H. Wu, J. Song, Y. Liu, *Catal. Sci. Technol.*, 2013, **3**, 2761-2768.

[7] Q.T. Li, Q. Wang, Y. Li, X.D. Zhang, Y.M. Huang, *Anal. Methods*, 2021, **13**, 2066-2074.