

Supplementary Materials

Sensitive and selective detection of oxo-form organophosphorus pesticides based on CdSe/ZnS quantum dots

Jinchao Wei ¹, Jiliang Cao ¹, Hao Hu ^{1,2}, Qing Yang ², Fengqing Yang ³, Jianbo Wan ¹, Huanxing Su ¹, Chengwei He ¹, Peng Li ^{1,*}, and Yitao Wang ^{1,**}

¹ State Key Laboratory of Quality Research in Chinese Medicine, Institute of Chinese Medical Sciences, University of Macau, Macau, China

² State Key Laboratory of Hydraulics and Mountain River Engineering, Sichuan University, Chengdu, Sichuan, China

³ School of Chemistry and Chemical Engineering, Chongqing University, Chongqing, China

* State Key Laboratory of Quality Research in Chinese Medicine, Institute of Chinese Medical Sciences, University of Macau, Macau 999078, China

Correspondence: E-mail addresses: pli1978@hotmail.com (P. Li), ytwang@umac.mo (Y. Wang)

Figure captions

Fig.S1 The obvious UV-vis absorption peak and the fluorescence emission of the QDs with the maximum emission at 597nm.

Fig.S2 The fluorescence changes of 2.5 nM QDs with different concentration of ChOx (2.0, 8.0, 31.9, 63.8, 127.5, 212.5, 425.0, 637.5 U/L) in the presence of 200 μ M choline; The inset displays plots of the fluorescence intensity changes of QDs solution versus the logarithm of ChOx concentration.

Fig.S3 The fluorescence changes of 2.5 nM QDs with different concentration of AChE (0.4, 1.3, 4.1, 8.6, 17.2, 40.8, 203.4 U/L) in the presence of 300 μ M Ach, 637.5 U/L ChOx; The inset displays plots of the fluorescence intensity changes of QDs solution versus the logarithm of AChE concentration.

Fig.S4 The reproducibility of the proposed biosensor at five days

Fig.S5 The interference of coexisting substances on the detection of paraoxon.

Fig.S6 The plots of inhibition efficiency vs the Malaoxon (A), Paraoxon (B), Dibrom (C), Malathion (D), Parathion (E) and Demeton (F) concentration. The concentrations of QDs, AChE and ChOx in all experiments are 2.5 nM, 40.8 U/mL and 637.5 U/mL, respectively.

Fig.S1

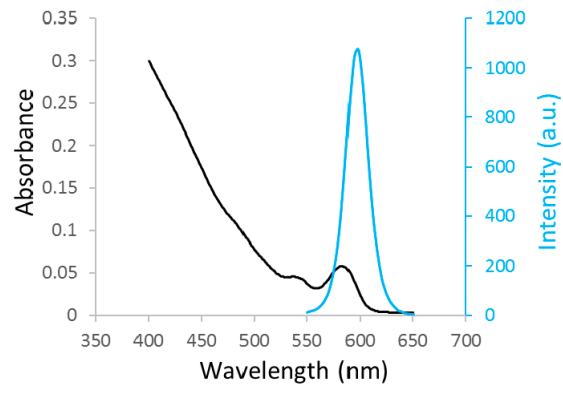


Fig.S2

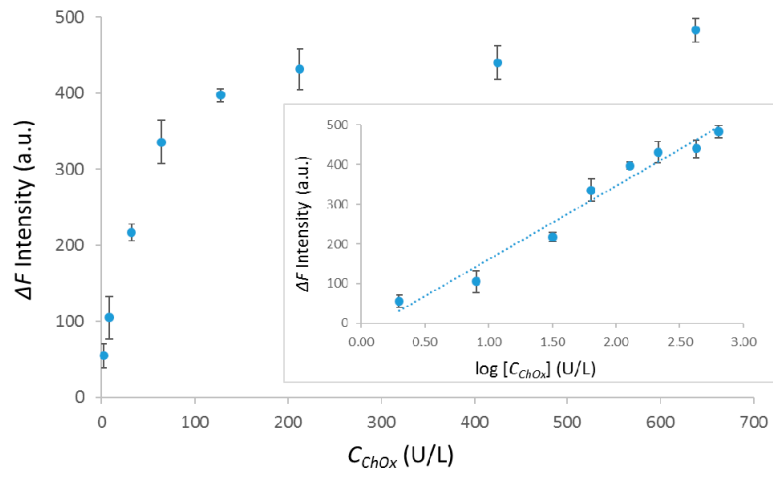


Fig.S3

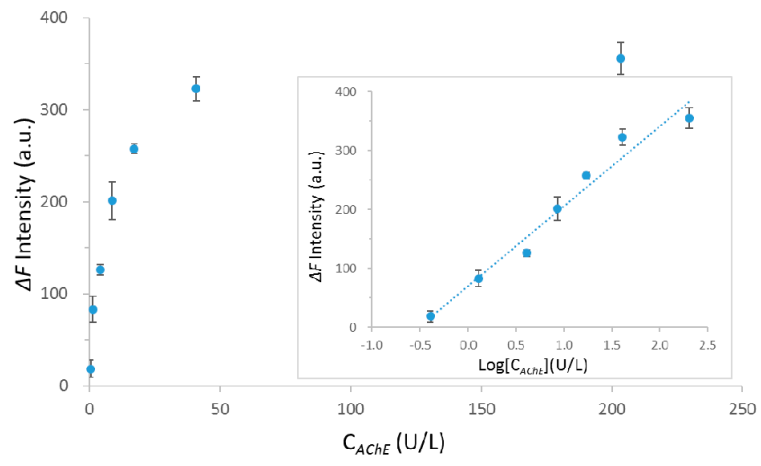


Fig.S4

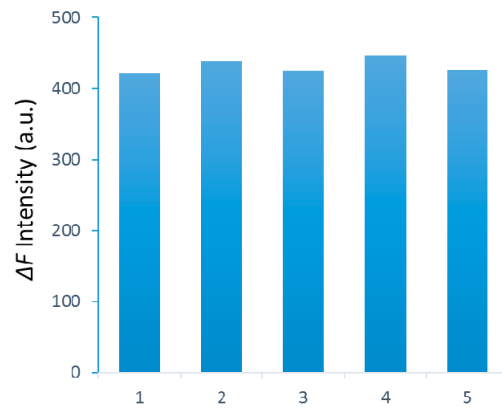


Fig.S5

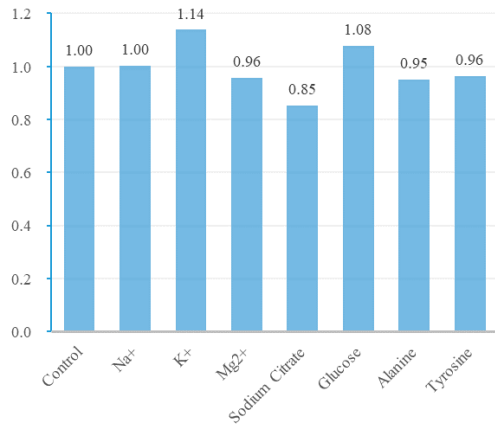


Fig.S6

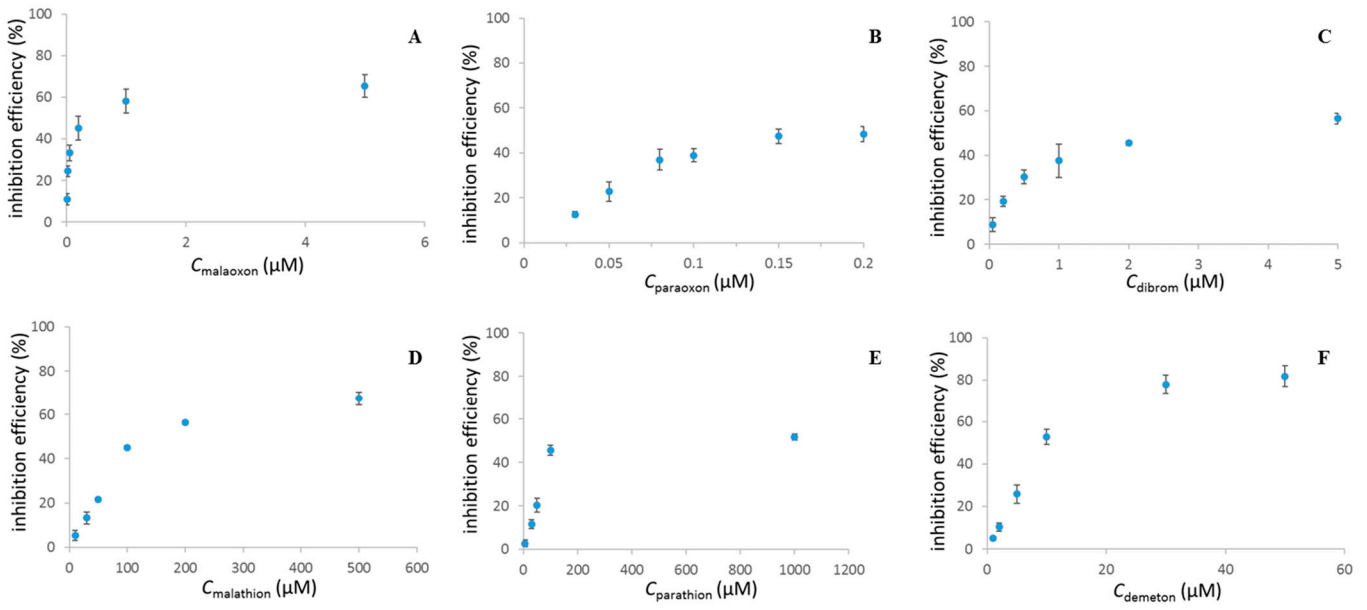


Table S1. Recoveries Obtained from the Determination of OPPs in Spiked Sample

Pesticide	Spiked (μM)	Measured (μM)	Recovery (%)
Paraoxon	0	ND ^a	
	0.05	0.05	93.55
	0.2	0.17	84.33
Malaoxon	0	ND	
	0.05	0.07	138.69
	0.2	0.29	142.55
Dibrom	0	ND	
	0.05	0.06	121.35
	0.2	0.16	81.65
Dichlorvos	0	ND	
	0.05	0.04	73.29
	0.2	0.17	85.11
Demeton	0	ND	
	1	0.08	75.83
	5	0.64	106.96
Parathion	0	ND	
	50	46.84	93.68
	100	102.09	102.09
Malathion	0	ND	
	50	34.43	68.87
	100	130.02	130.02