

Supporting Information

**Exonuclease I-aided homogeneous electrochemical strategy for
organophosphorus pesticide detection based on enzyme inhibition
integrated with DNA conformational switch**

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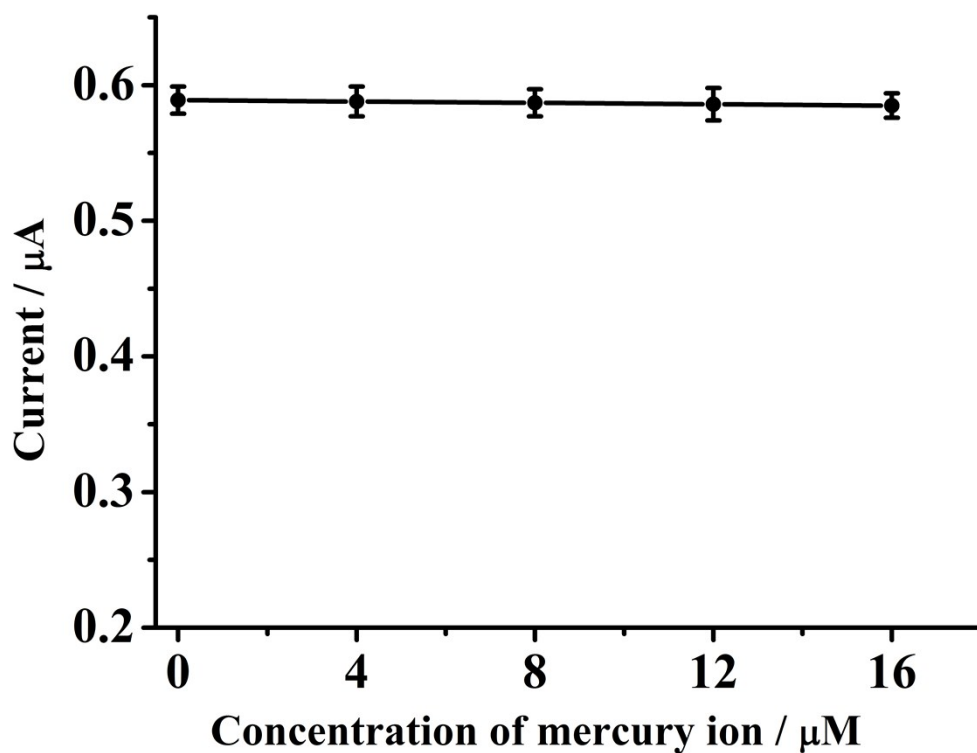


Fig. S1 Electrochemical currents of the reaction system (with HP1 substituted by HP2) in the presence of Hg^{2+} with different concentrations. The error bars represent the standard deviation of three measurements. The concentrations of HP2 and Exo I were $2 \mu\text{M}$ and 20 U, respectively.

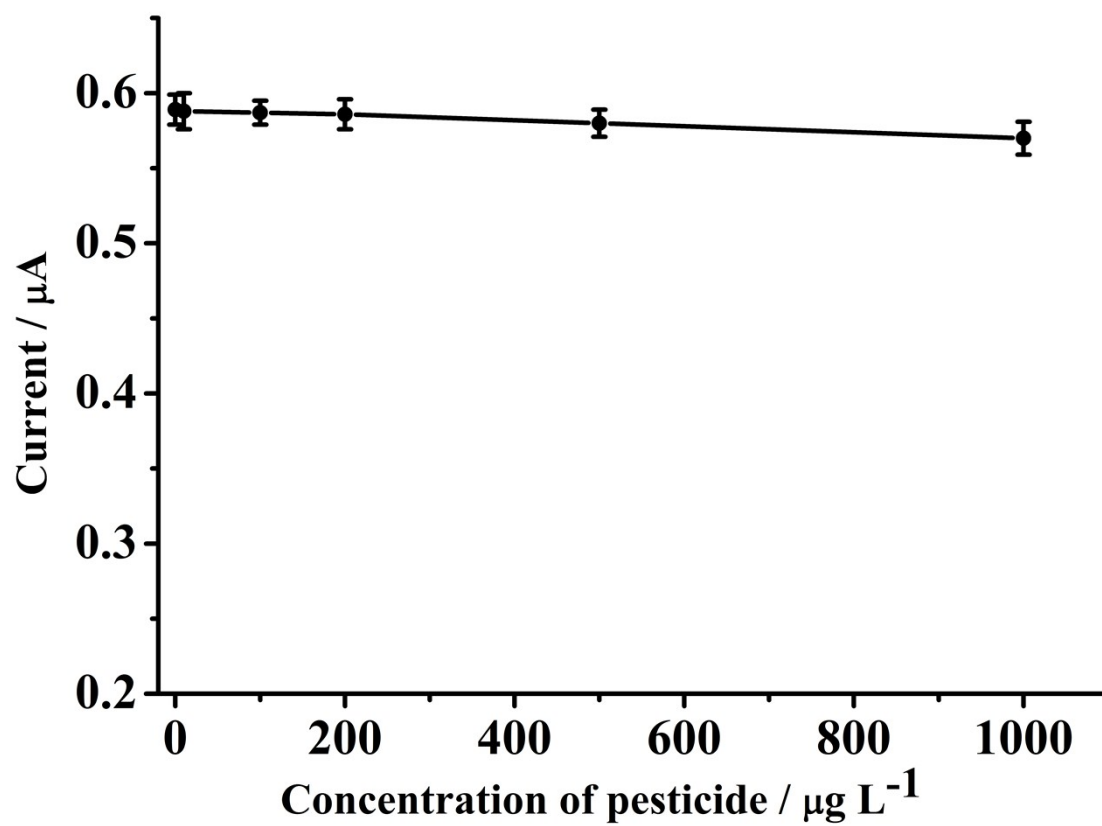


Fig. S2 Electrochemical currents of the reaction system (with HP1 substituted by HP2) in the presence of pesticides with different concentrations. The error bars represent the standard deviation of three measurements. The concentrations of HP2 and Exo I were 2 μM and 20 U, respectively.

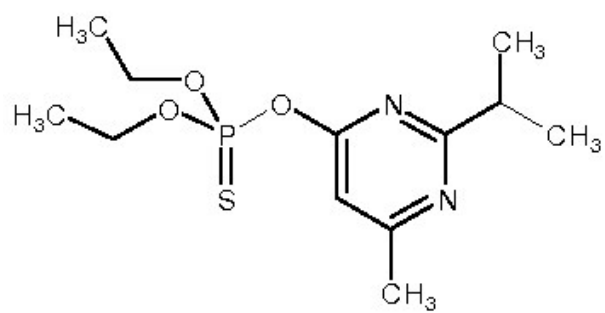


Fig. S3 The chemical structure of diazinon

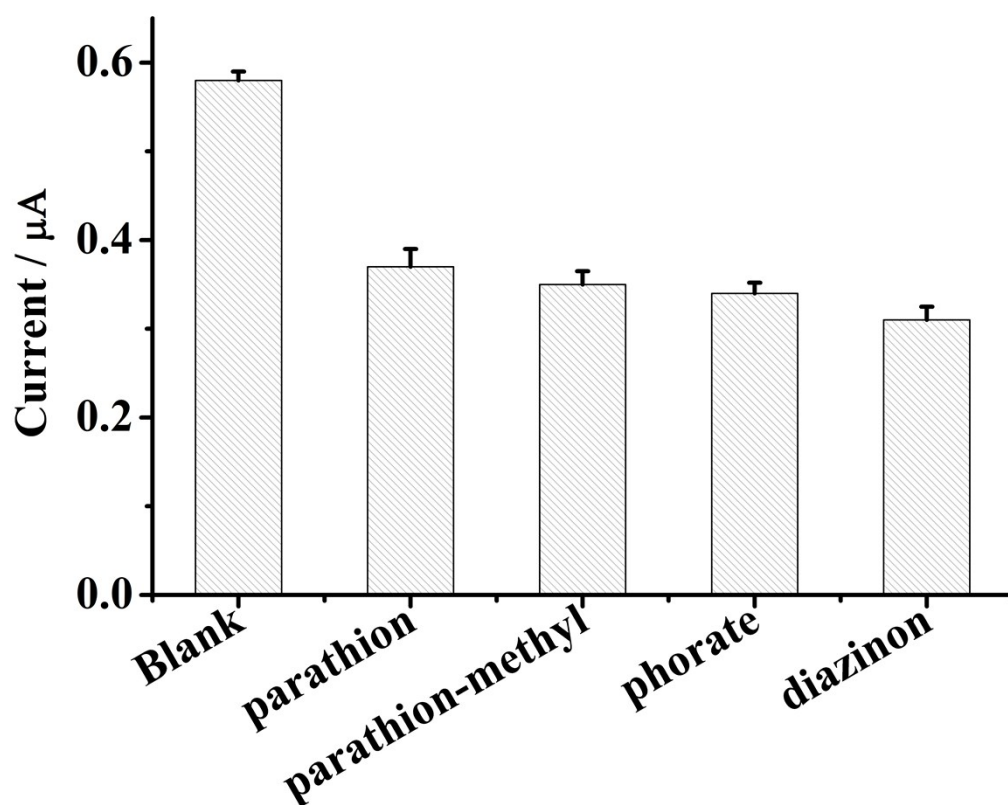


Fig. S4 Electrochemical response of the biosensing platform in the presence of parathion, parathion-methyl, phorate and diazinon, respectively, in which “blank” indicates the condition in the absence of pesticides. The concentrations of the above pesticides were all $20 \mu\text{g L}^{-1}$. The error bars represent the standard deviation of three measurements.

Table S1 Precision (RSD %) and accuracy (Recovery %) of diazinon spiked into artificial lake water and apples extract solution samples

Samples	Amount added ($\mu\text{g/L}$)	Amount measured ($\mu\text{g/L}$)	RSD (%) (n=6)	Recovery (%)	HPLC results* ($\mu\text{g/L}$)
Artificial lake water	5.00	5.40	6.31	108	5.12
	10.00	9.73	4.50	97.3	10.08
	50.00	50.52	5.77	101	49.67
Apples extract solution	5.00	5.31	5.52	106	4.95
	10.00	9.96	4.38	99.6	9.80
	50.00	47.52	7.01	95.0	48.33

* The concentration of OPs was analyzed by HPLC according to the literature¹.

Reference:

1. Y.H. Yi, G.B. Zhu, C. Liu, Y. Huang, Y.Y. Zhang, H.T. Li, J.N. Zhao and S.Z. Yao, *Anal. Chem.*, 2013, 85, 11464-11470.