

## **Supporting Information**

# **Light-Driven Self-Powered Biosensor for Ultrasensitive Organophosphate Pesticides Detection via Integration of the Conjugated Polymer Sensitized CdS and Enzyme Inhibition Strategy**

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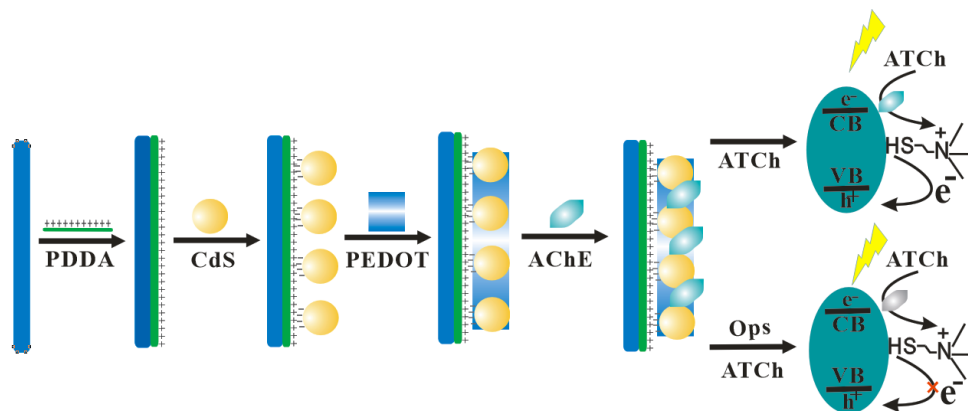
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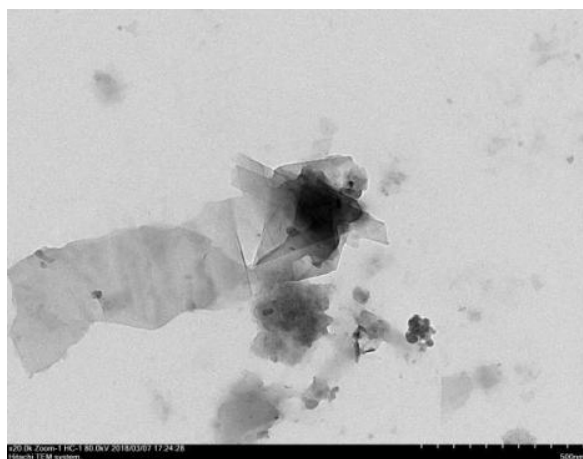
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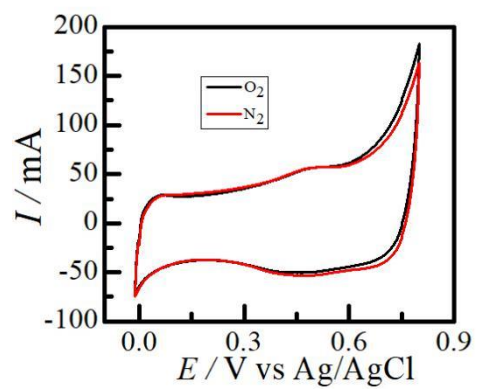
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**Scheme S1.** Illustration of the ITO/PDDA/CdS/PEDOT/AChEphotoanode for OPs determination.



**Fig. S1.**TEM image of PEDOT.



**Fig. S2.** CVs of the CNTs/AuNPs modified CP in PB (pH = 7.4) saturated with N<sub>2</sub> or O<sub>2</sub>. Scanning rate = 50 mV s<sup>-1</sup>

**Table S1.** Comparison of the as-prepared self-powered sensor for pesticides detection with other AChE-based biosensors.

<b>Method</b>	<b>Pesticides</b>	<b>LOD (ng mL<sup>-1</sup>)</b>	<b>Linear range (µg mL<sup>-1</sup>)</b>	<b>Ref.</b>
FL <sup>a</sup>	parathion-methyl	0.14	$3.3 \times 10^{-4} \sim 6.67 \times 10^{-3}$	1
EC <sup>b</sup>	carbofuran	0.015	$3 \times 10^{-5} \sim 8.1 \times 10^{-4}$	2
EC	fenitrothion	0.793	$2.8 \times 10^{-4} \sim 0.28$	3
EC	chlorpyrifos	0.29098	0.35~ 3.5	4
EC	paraoxon-ethyl	0.1376	$2.75 \times 10^{-4} \sim 1.37 \times 10^3$	5
EC	paraoxon	35	0.035 ~ 1.38	6
PEC <sup>c</sup>	acetochlor	0.008	$5.4 \sim 2.7 \times 10^3$	7
PEFC <sup>d</sup>	chlopyrifos	0.012	0.00005 ~0.1	this work

<sup>a</sup> Fluorescence; <sup>b</sup> Electrochemistry; <sup>c</sup> Photoelectrochemistry; <sup>d</sup> Photoelectrochemical enzymatic biofuel cell

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