Supporting Information

Metallic Transition Metal Dichalcogenide Nanosheets as an Effective and Biocompatible Transducer for Electrochemical Detection of Pesticide

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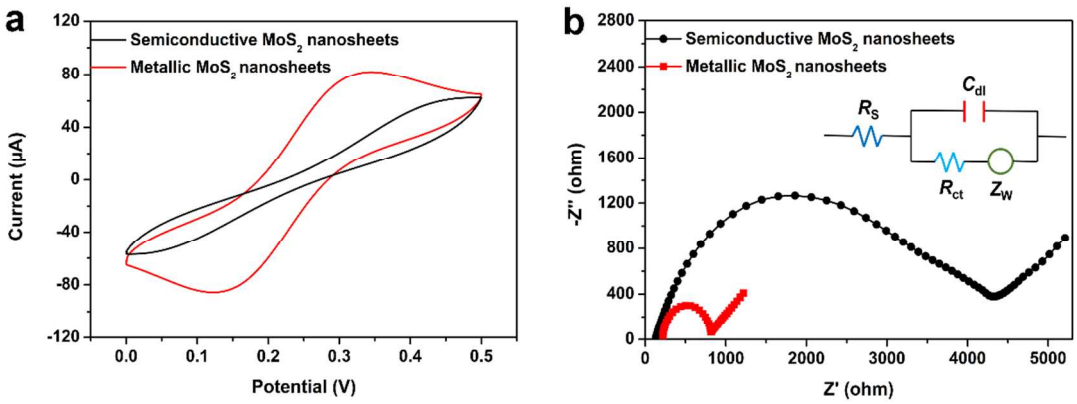

Figure S1. (a) CV and (b) EIS of semiconductive MoS_2 (2H-phase) and metallic MoS_2 (1T-phase dominated) modified SPE in 0.1 M KCl solution containing 5.0 mM $K_3[Fe(CN)_6]$. For CV, the experimental conditions were as follows: scan potential from 0 to +0.5 V, scan rate is 0.1 V s^{-1}. For EIS, the experimental conditions were as follows: frequency ranges from 100 kHz to 0.01 Hz, and AC amplitude is 5 mV.

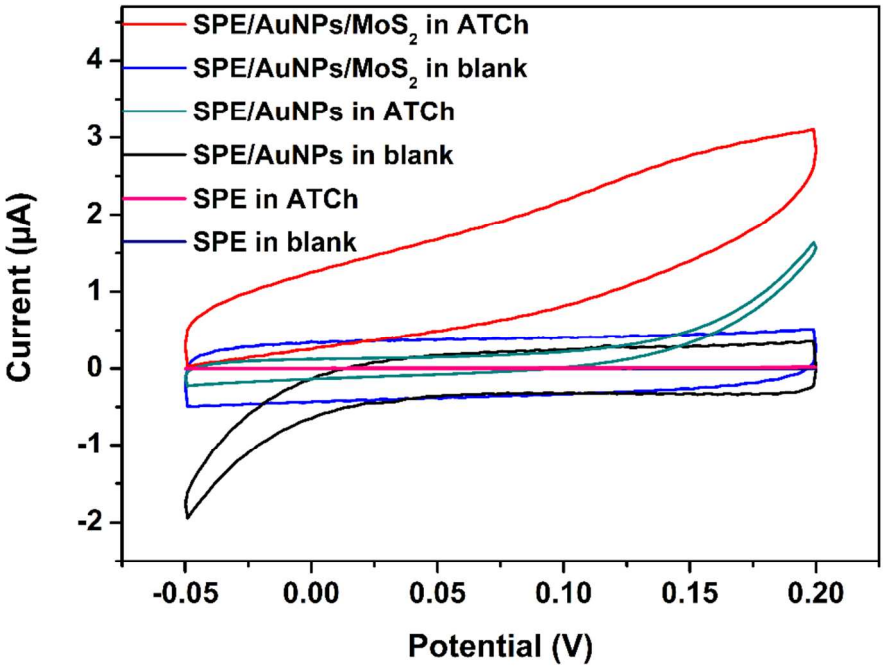

Figure S2. CV response of bare SPE, SPE/AuNPs, and SPE/AuNPs/MoS_2 with/without the addition of 500 μM ATCh. The experimental conditions were as follows: scan potential is from –0.05 to +0.2 V, scan rate is 0.02 V s^{-1}, and electrolyte is 0.01 M PBS (pH 7.4).

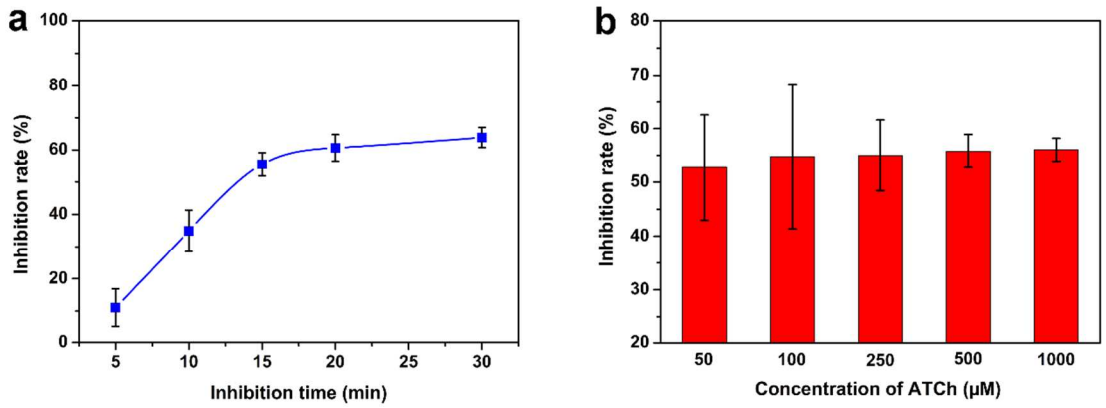

Figure S3. Optimization of (a) paraoxon inhibition time and (b) ATCh concentration.

Table S1. Comparison of different sensors for the detection of organophosphorus pesticides.

Sensor	Method	Pesticide	Linear range	LOD	Ref.
GCE/WS_2/GA/AChE	Amperometry	fenitrothion	1.0–1000 nM	2.86 nM	1
GCE/MoS_2-GR	Amperometry	methyl parathion	10–1.9×10^6 nM	3.23 nM	2
SPE/GR/Fe_3O_4NPs+CS/AChE	DPV	chlorpyrifos	0.1–285 nM	0.06 nM	3
MoS_2 QDs	Fluorescence	methyl parathion	379.9–1.1×10^5 nM	322.9 nM	4
SPE/AuNPs/MoS_2/GA/AChE	Amperometry	paraoxon	3.6–3634 nM	0.04 nM	This work

GCE: glassy cerbon electrode; GR: graphene; Fe_3O_4NPs: magnetic nanoparticles; CS: chitosan; DPV: differential pulse voltammetry; QDs: quantum dots.

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