

## Supplemental Information

*A sensitive and stable acetylcholinesterase biosensor with TiO<sub>2</sub> nanoparticles anchored on graphitic carbon nanofibers for determination of organophosphate pesticides*

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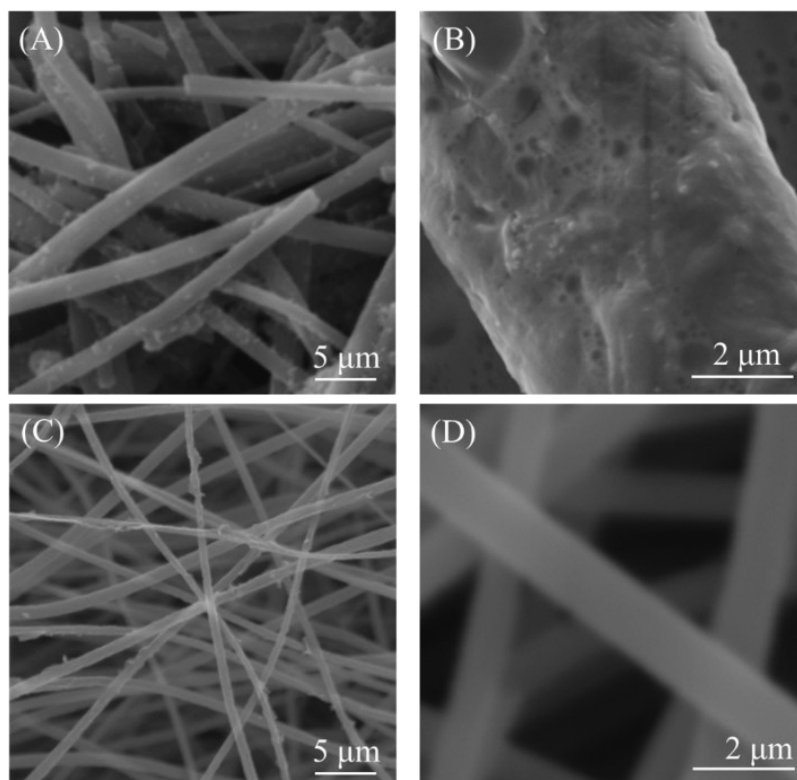


Fig S1. SEM images of AChE/TiO<sub>2</sub>/GNFs (A, B), and AChE/GNFs (C, D).

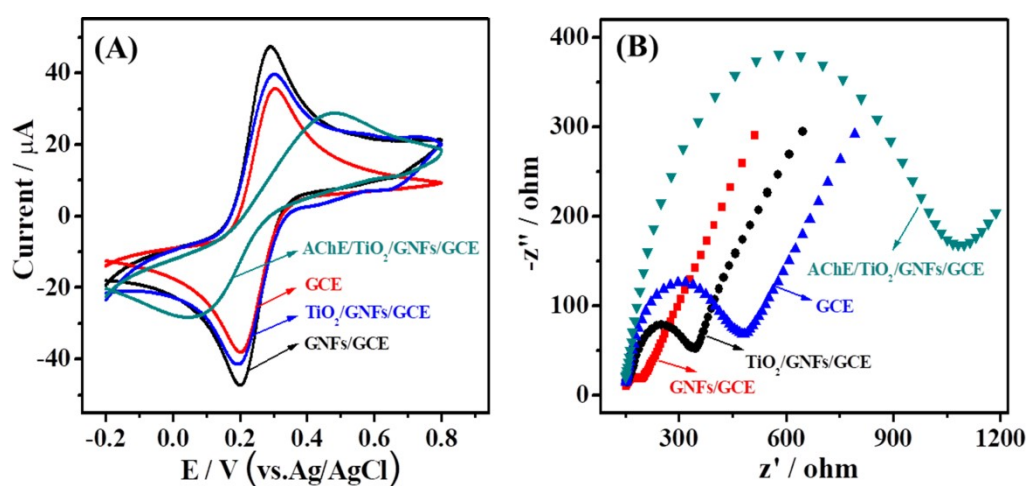


Fig S2. (A) CVs and (B) EIS of GCE, TiO<sub>2</sub>/GNFs/GCE, GNFs/GCE and AChE/TiO<sub>2</sub>/GNFs/GCE in 0.1 M KCl solution containing 5.0 mM Fe(CN)<sub>6</sub><sup>3-/4-</sup> at a scan rate of 50 mV s<sup>-1</sup>.

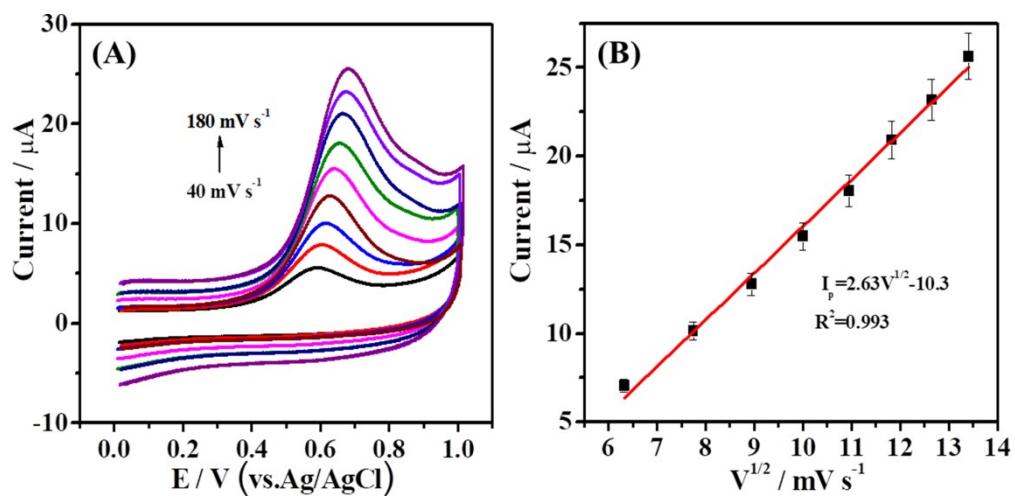


Fig. S3. (A) CVs of AChE/TiO<sub>2</sub>/GNFs/GCE in 0.1 M PBS (pH 7.0) containing 1.5 mM ATCl at different scan rates; (B) Plot of peak current versus square root of scan rate.

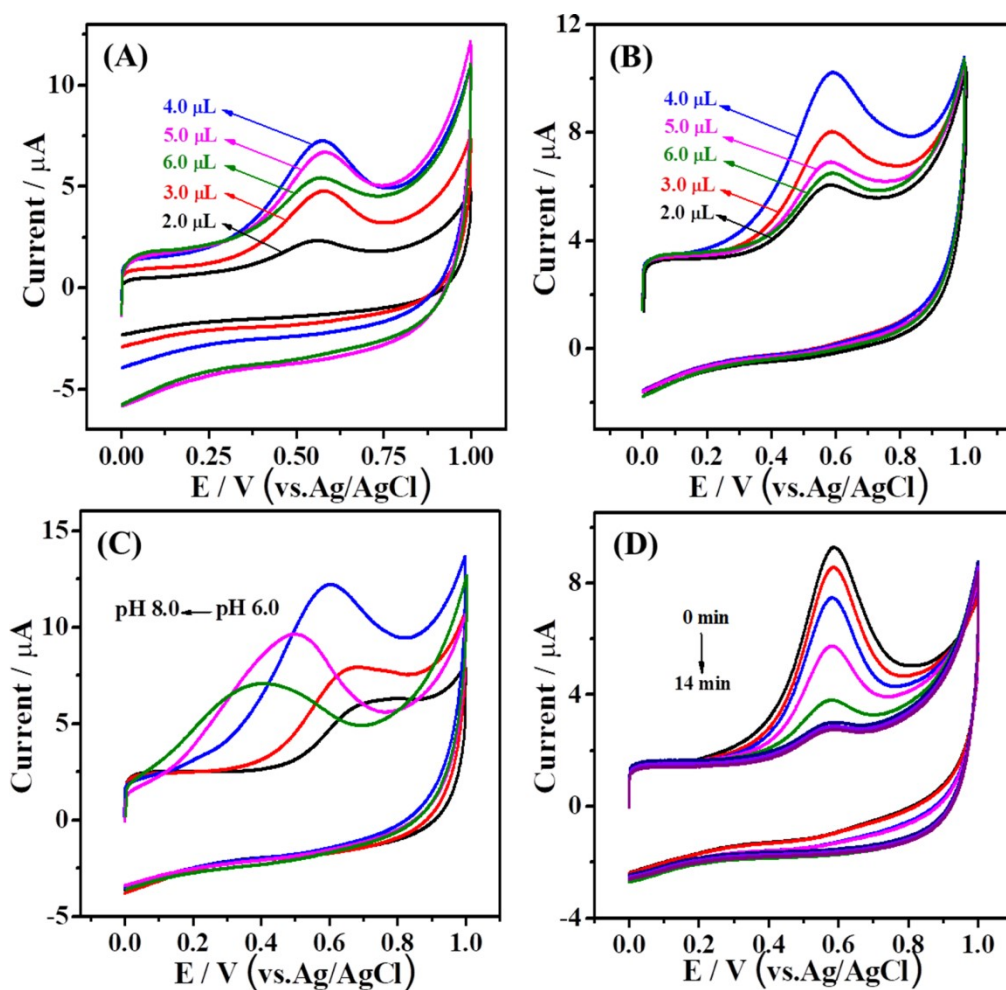


Fig. S4. (A) CVs of AChE/TiO<sub>2</sub>/GNFs/GCE electrode in 0.1 M PBS (pH 7.0) containing 1.0 mM ATCl with different dosages of TiO<sub>2</sub>/GNFs; (B) CVs of AChE/TiO<sub>2</sub>/GNFs/GCE electrode in 0.1 M PBS containing 1.5 mM ATCl (pH 7.0) with different AChE amounts; (C) CVs of AChE/TiO<sub>2</sub>/GNFs/GCE electrode in 0.1 M PBS containing 1.5 mM ATCl at different pH values (from right to left: 6.0, 6.5, 7.0, 7.5, 8.0); (D) The inhibition tests of AChE/TiO<sub>2</sub>/GNFs/GCE electrode were carried by CVs in 0.1 M PBS containing 1.5 mM ATCl after being incubated at various incubation times.

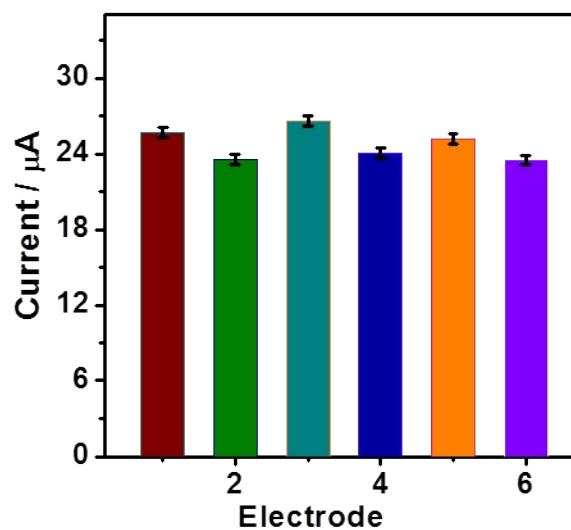


Fig. S5. Histogram of current changes for AChE/TiO<sub>2</sub>/GNFs/GCE electrodes.

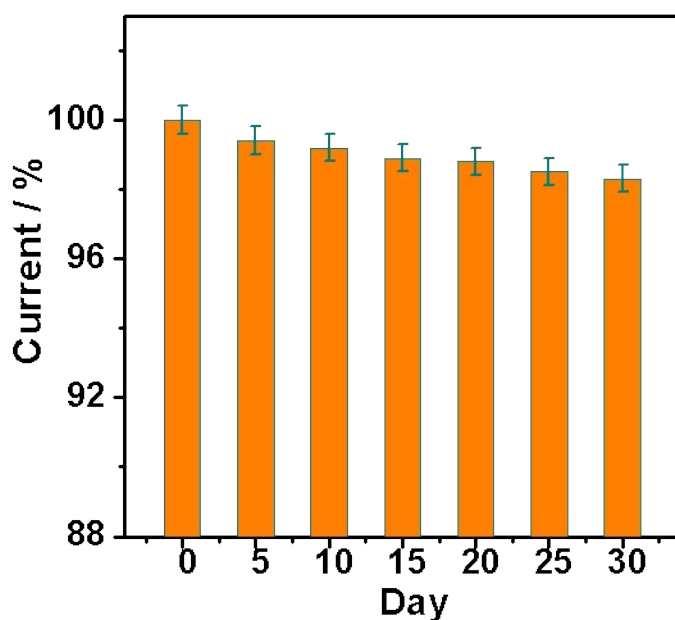


Fig. S6. Current changes for 30 consecutive days test at room temperature for AChE/TiO<sub>2</sub>/GNFs/GCE; the current changes were recorded the oxidation peak currents of AChE/TiO<sub>2</sub>/GNFs/GCE in 0.1 M PBS (pH 7.0) containing 1.5 mM ATCl, scan rate: 50 mV s<sup>-1</sup>.