

Article

Facile and Low-Cost SPE Modification Towards Ultra-Sensitive Organophosphorus and Carbamate Pesticide Detection in Olive Oil

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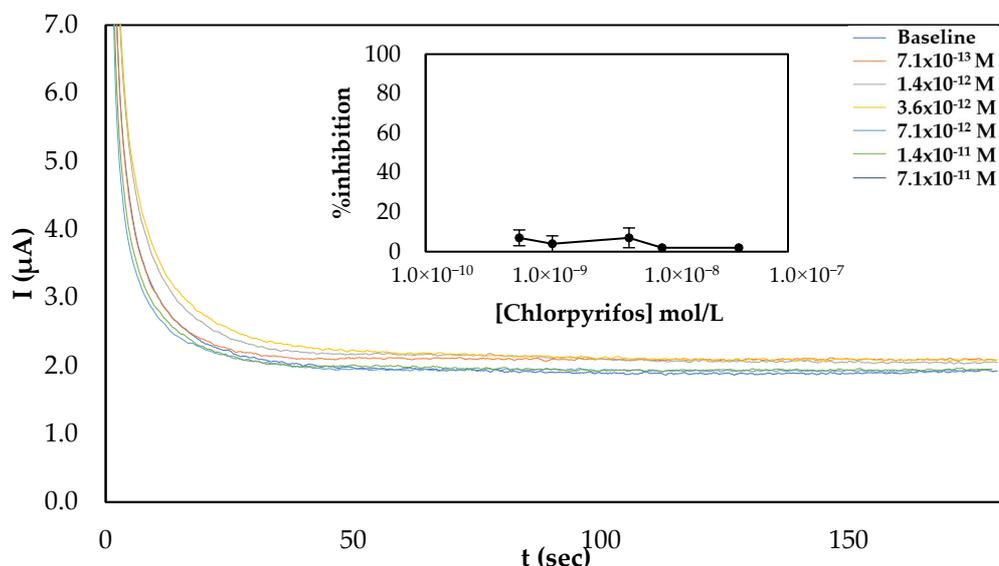
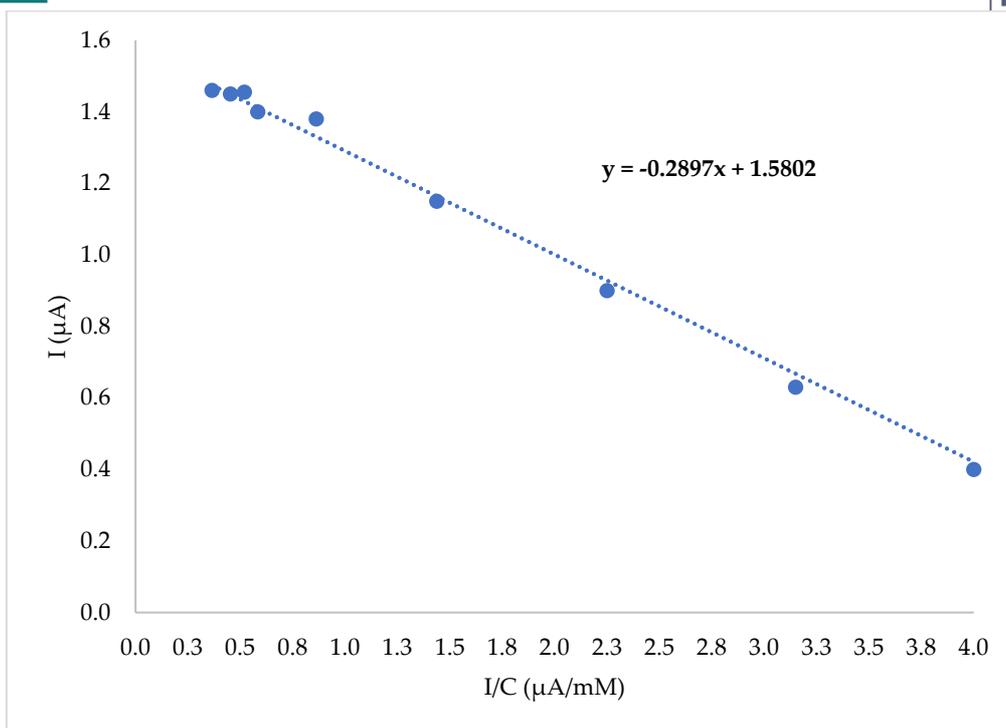
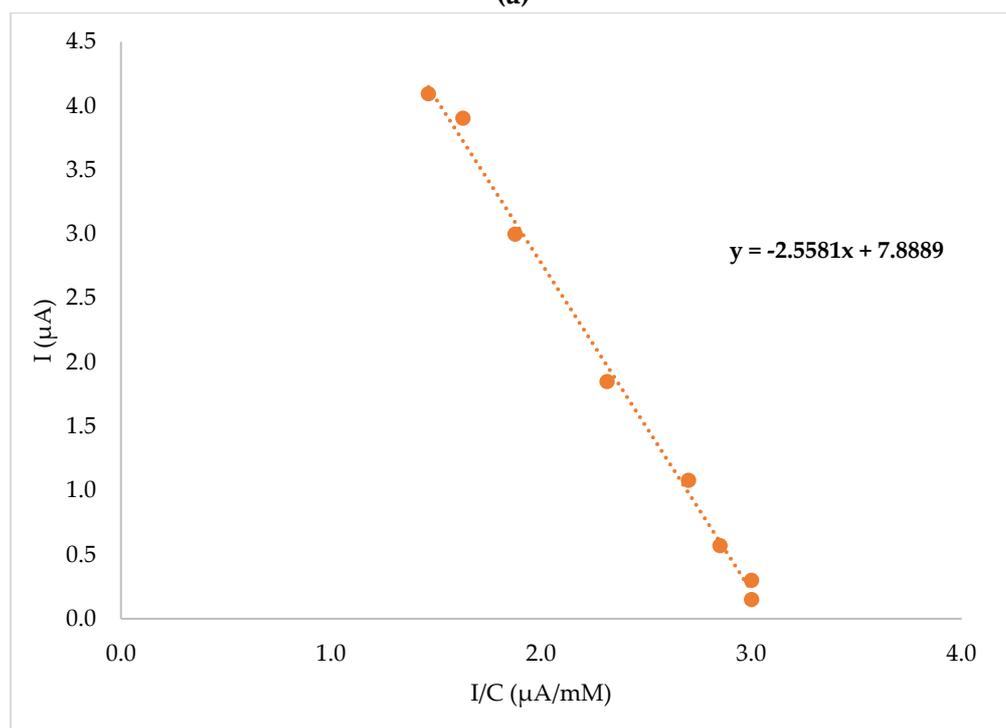


Figure S1. Characteristic amperograms of current recorded over time for the uninhibited enzyme (baseline) and following incubation with increasing concentrations of chlorpyrifos (standard samples) for CB/CS/AChE-modified electrodes fabricated following multistep approach at a constant applied potential of +250mV. The graph shown in the insets show the mean % inhibition of different concentrations of chlorpyrifos obtained from 5 different electrodes.



(a)



(b)

Figure S2. Eadie–Hofstee diagram for the Eadie-Hofstee plot for the determination of the apparent Michaelis-Menten constant K_m of the a) entrapped AChE on sensors fabricated using the one-step approach and b) crosslinked enzyme on sensors fabricated using the multistep approach.

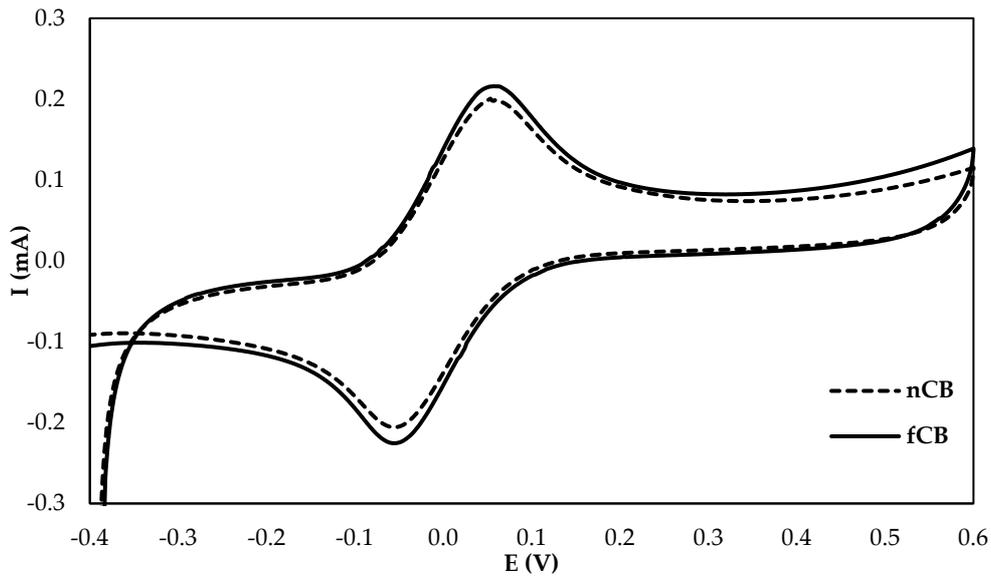


Figure S3. Cyclic voltammograms of 5mM $K_3Fe(CN)_6/K_4Fe(CN)_6$ in 1xPBS on CB/CS-modified carbon SPEs and fCB/CS-modified carbon SPEs. Scan rate 50mV/sec.

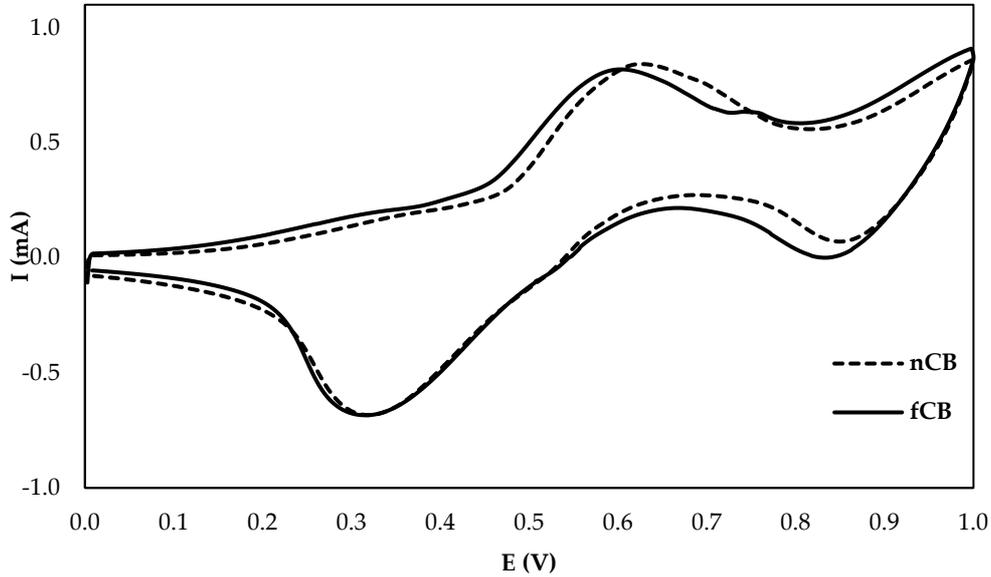
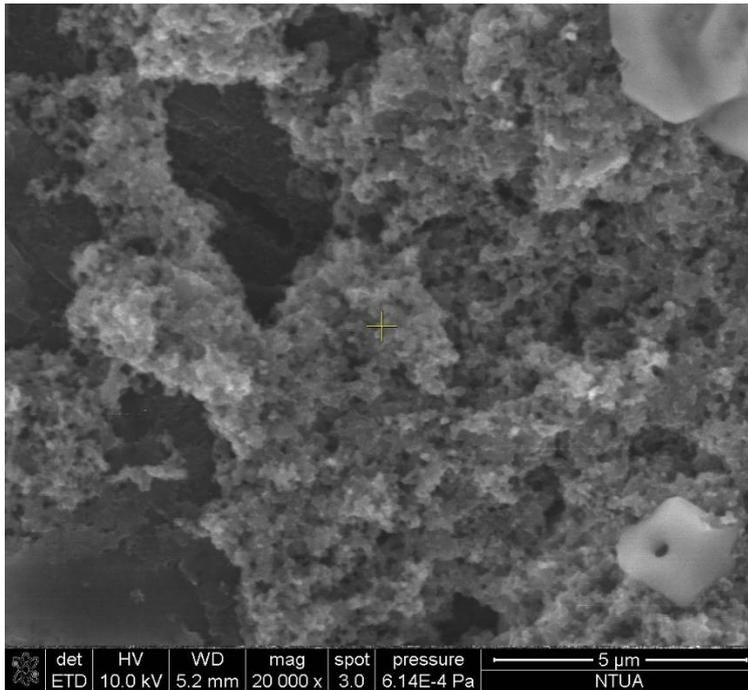
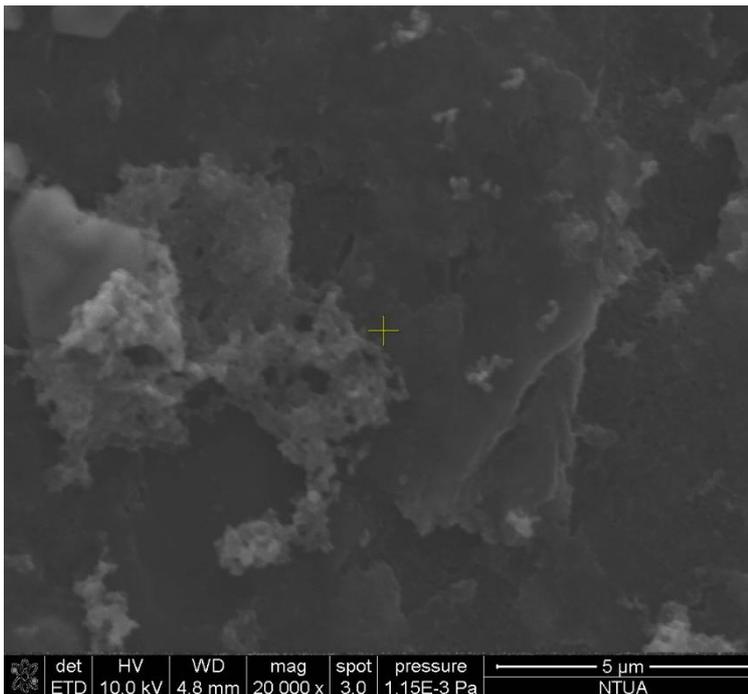


Figure S4. Cyclic voltammograms of 10mM AChI on CB/CS-modified carbon SPEs and fCB/CS-modified carbon SPEs at a scan rate of 50mV/sec.



(a)



(b)

Figure S5 SEM images for electrode surfaces modified with (a) non-functionalized CB and (b) functionalized CB. In both cases the CB particles were dispersed in a CS mesh.