

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

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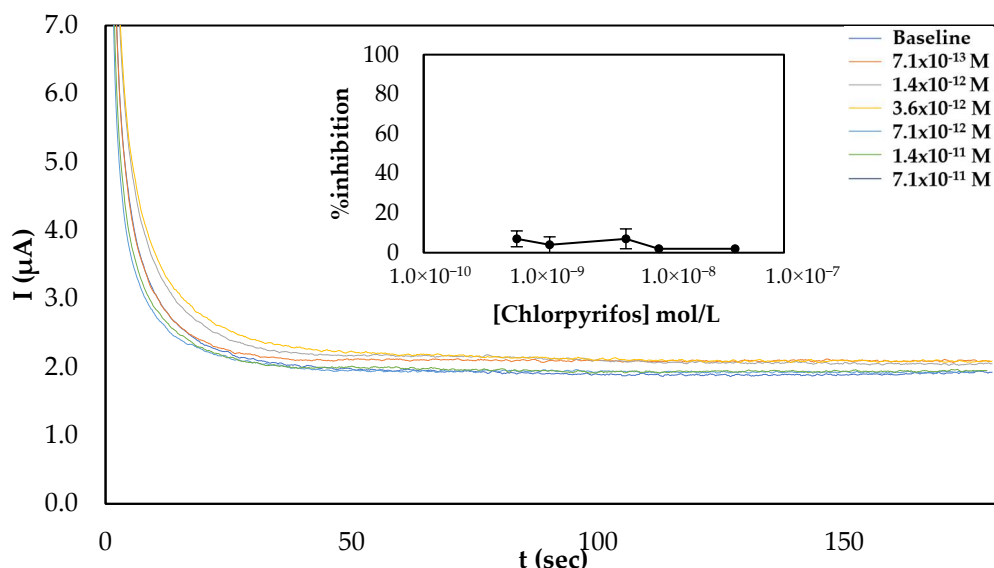
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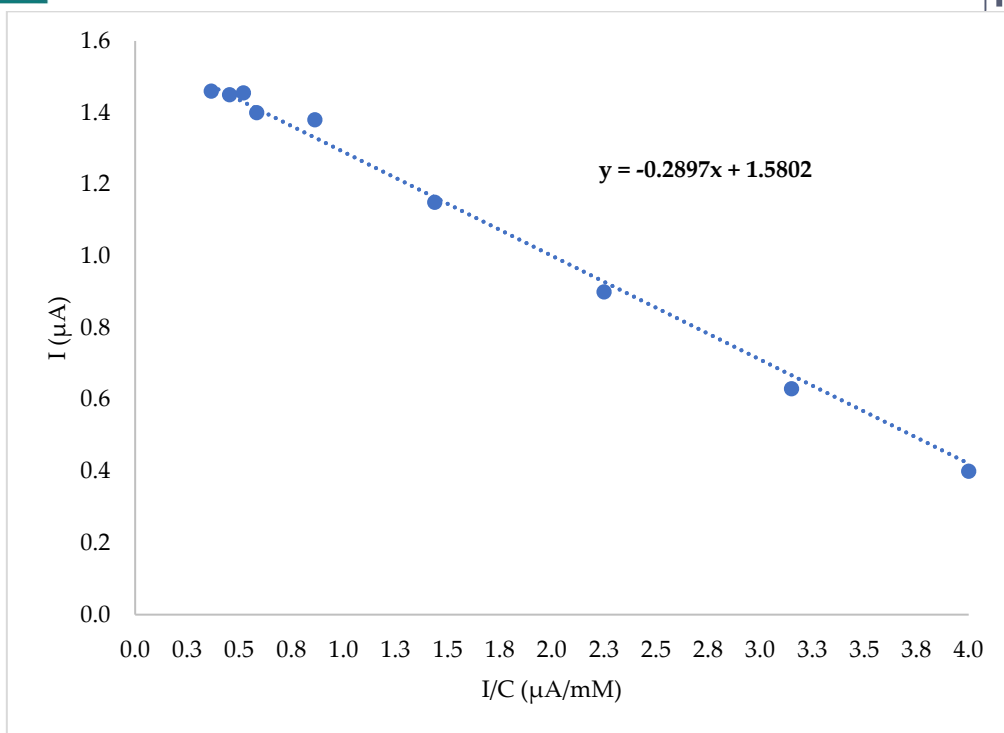
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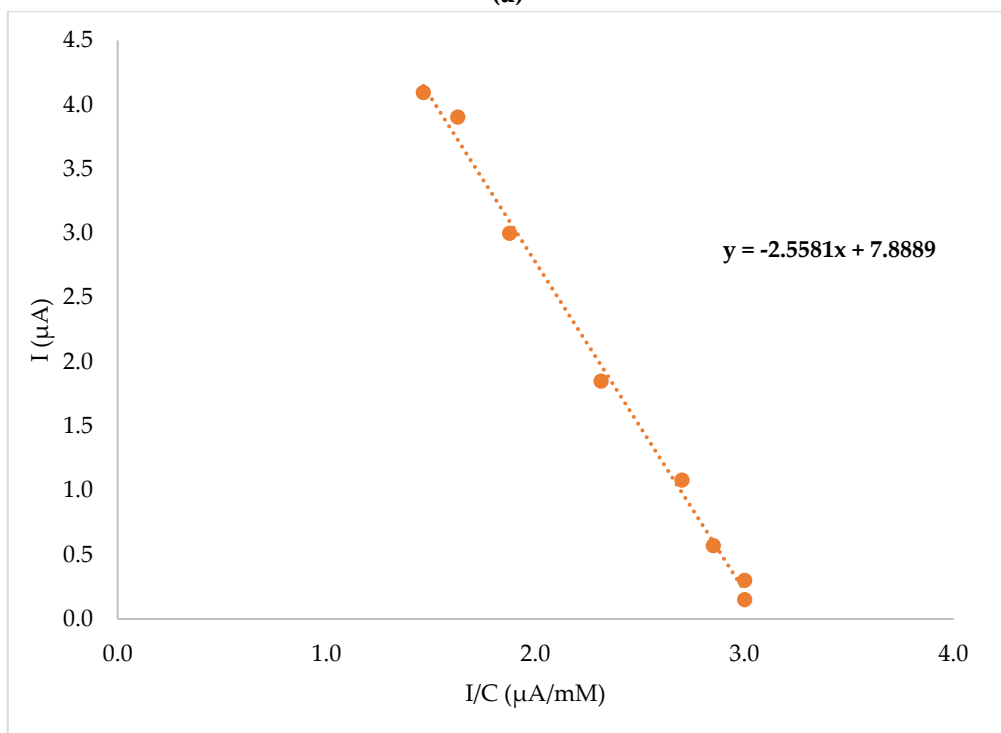
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**Figure S1.** Characteristic amperograms of current recorded over time for the uninhibited enzyme (baseline) and following incubation with increasing concentrations of chlorpyrifos (standard samples) for CB/CS/AChE-modified electrodes fabricated following 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.

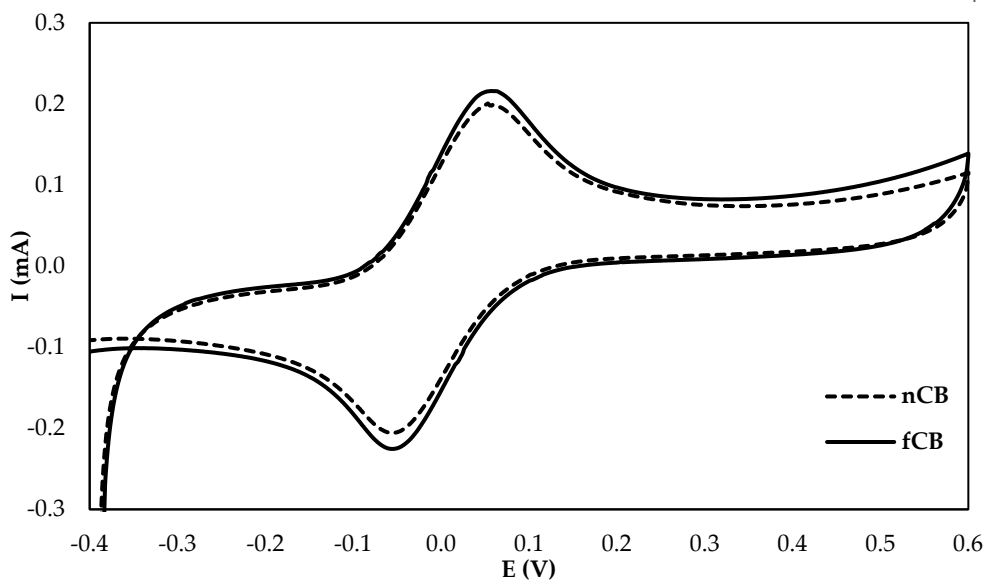


(a)

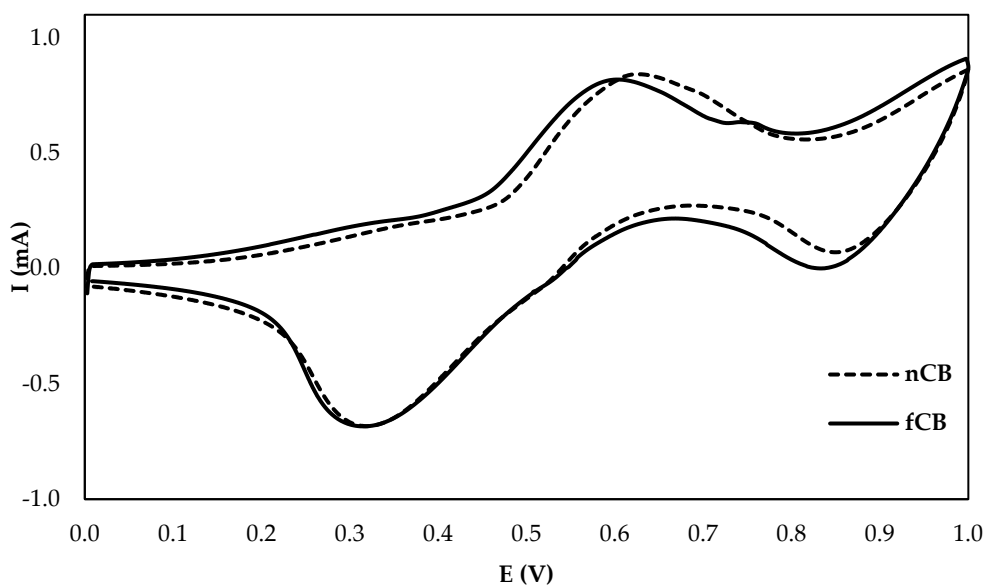


(b)

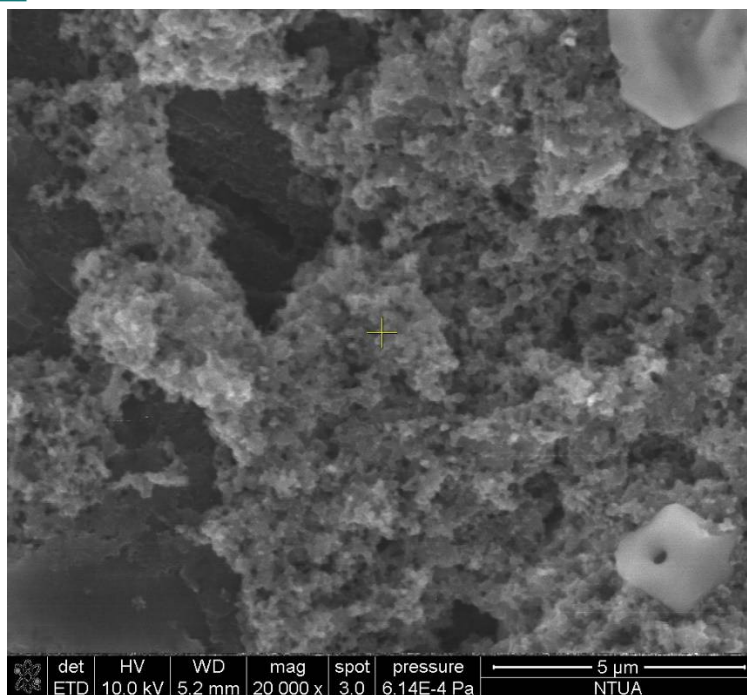
**Figure S2.** Eadie–Hofstee diagram for the Eadie-Hofstee plot for the determination of the apparent Michaelis-Menten constant  $K_m$  of the a) entrapped AChE on sensors fabricated using the one-step approach and b) crosslinked enzyme on sensors fabricated using the multistep approach.



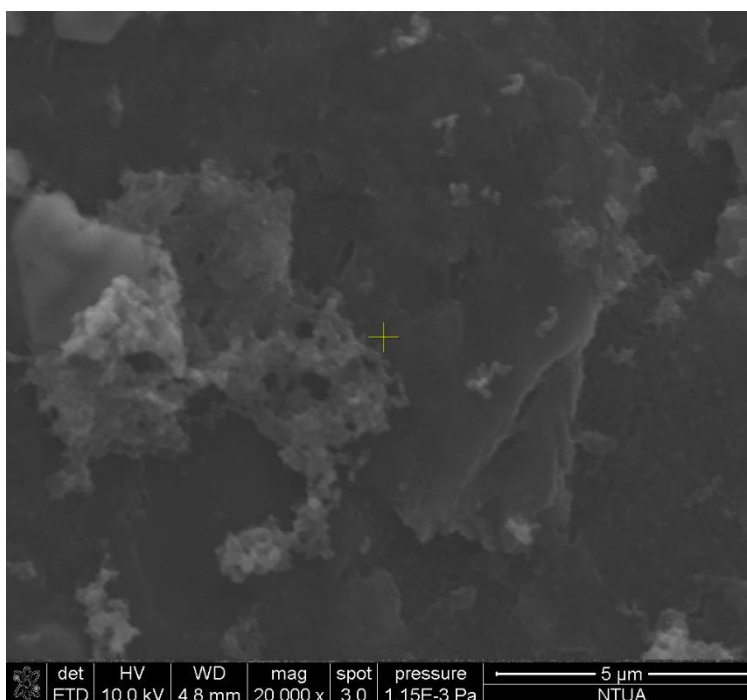
**Figure S3.** Cyclic voltammograms of 5mM  $K_3Fe(CN)_6/K_4Fe(CN)_6$  in 1xPBS on CB/CS-modified carbon SPEs and fCB/CS-modified carbon SPEs. Scan rate 50mV/sec.



**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.