Supplementary information:

Visible-light-activated photoelectrochemical biosensor for the detection of pesticide acetochlor in vegetable and fruit based on its inhibition towards glucose oxidase

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**Fig. S1** UV–vis diffuse reflection spectra of (a) GOx, (b) NH$_2$-MIL-125(Ti)/TiO$_2$, (c) NH$_2$-MIL-125(Ti)/TiO$_2$/Gox, and (d) GOx/CS/NH$_2$-MIL-125(Ti)/TiO$_2$.

**Fig. S2** FTIR spectra of (a) NH$_2$-MIL-125(Ti)/TiO$_2$, (b) GOx, (c) GOx/NH$_2$-MIL-125(Ti)/TiO$_2$, and (d) GOx/CS/NH$_2$-MIL-125(Ti)/TiO$_2$. 
**Fig. S3** UV–vis diffuse reflection spectra of (a) TiO$_2$ (b) NH$_2$-MIL-125(Ti) and (c) NH$_2$-MIL-125(Ti)/TiO$_2$.

**Table S1** Comparison of the analytical performance of different methods for acetochlor detection

<table>
<thead>
<tr>
<th>Method</th>
<th>Linear range (mol L$^{-1}$)</th>
<th>Detection limit (mol L$^{-1}$)</th>
<th>Reference</th>
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</thead>
<tbody>
<tr>
<td>MSPE-DLLM/GC$^a$</td>
<td>$3.7 \times 10^{-10}$–$1.8 \times 10^{-7}$</td>
<td>$4.0 \times 10^{-11}$</td>
<td>Bai et al., 2013</td>
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<tr>
<td>SPME/GC–MS$^b$</td>
<td>$3.7 \times 10^{-10}$–$3.7 \times 10^{-8}$</td>
<td>$4.0 \times 10^{-12}$</td>
<td>Xu et al., 2007</td>
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<tr>
<td>UPLC/MS/MS$^c$</td>
<td>$3.0 \times 10^{-11}$–$1.9 \times 10^{-10}$</td>
<td>$7.0 \times 10^{-14}$</td>
<td>Gervais et al., 2008</td>
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<td>Photocatalytic–electrochemical sensor</td>
<td>$5.0 \times 10^{-7}$–$2.0 \times 10^{-5}$</td>
<td>$2.0 \times 10^{-10}$</td>
<td>Jin et al., 2014</td>
</tr>
<tr>
<td>GOx/CS/NH$_2$-MIL-125(Ti)/TiO$_2$ biosensor</td>
<td>$2.0 \times 10^{-11}$–$1.0 \times 10^{-9}$</td>
<td>$3.0 \times 10^{-12}$</td>
<td>This work</td>
</tr>
</tbody>
</table>

$^a$MSPE-DLLM/GC: magnetic solid phase extraction-dispersive liquid liquid microextraction combined with gas chromatography
bSPME/GC–MS: solid-phase microextraction combined with gas chromatography with mass spectrometry

cUPLC/MS/MS: ultra-performance liquid chromatography combined with tandem mass spectrometry

REFERENCES