Supporting information for

**Pesticide analysis using nanoceria-coated paper-based devices as a detection platform**

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Cost estimation of the developed device

Table S1 Cost of patterned paper based device

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Price ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whatman # 4</td>
<td>15 pieces</td>
<td>1.5</td>
</tr>
<tr>
<td>Polystyrene</td>
<td>5 g</td>
<td>0.035</td>
</tr>
<tr>
<td>Toluene</td>
<td>20 mL</td>
<td>0.538</td>
</tr>
</tbody>
</table>

Price per 15 pieces of circular Whatman # 4: 2.073
Price per one piece of circular Whatman # 4: 0.138
Price per one detection zone: 0.0011

Table S2 Cost of key chemicals

<table>
<thead>
<tr>
<th>Item</th>
<th>Shipping</th>
<th>Assay</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unit</td>
<td>Price ($)</td>
</tr>
<tr>
<td>AChE (518 U/mg Solid, 3.9 mg Solid)</td>
<td>2020 U</td>
<td>90.72</td>
</tr>
<tr>
<td>Acetylcholine chloride</td>
<td>25 g</td>
<td>68.49</td>
</tr>
<tr>
<td>ChOX (13 U/mg Solid, 8 mg Solid)</td>
<td>104 U</td>
<td>136</td>
</tr>
<tr>
<td>Cerium (IV) oxide (20%w/v, 500 mL)</td>
<td>100 g</td>
<td>297.47</td>
</tr>
</tbody>
</table>

Price per one detection zone: 0.033
Figure S1 (A) The steps for fabrication of paper-based device and (B) A paper-based device used in this work.

Figure S2 (A) Colorimetric response of CeO$_2$-coated paper-based device with concentration range of 1 to 5 % (w/v) for the analysis of 100 mM H$_2$O$_2$. (B) Plot of mean grey intensity as a function of CeO$_2$ NPs concentrations.
Figure S3 The colorimetric assay of nanoceria-coated paper-based device for the analysis of H$_2$O$_2$.

Figure S4 Reaction time optimization study.