Supporting information (SI)

TiO$_2$ sol-embedded in electroless Ni-P coating: A novel approach for ultra-sensitive sorbitol sensor
Pranee Rattanawaleedirojna,*, Kanokwan Saengkiettiyuta,
Yuttanant Boonyongmaneerata, Supin Sangsukb, Nadtinan Promphetc,
Nadnudda Rodthongkuma

$^a$Metallurgy and Materials Science Research Institute, Chulalongkorn University, Soi Chula 12,
Phayathai Road, Pathumwan, Bangkok 10330 Thailand

$^b$School of Agricultural Resources, Chulalongkorn University, Soi Chula 64, Phayathai Road,
Pathumwan, Bangkok 10330 Thailand

$^c$Nanoscience and Technology Program, Graduate School, Chulalongkorn University, Bangkok
10330, Thailand

*Corresponding author e-mail: pranee.r@chula.ac.th (Rattanawaleedirojn, P.)
Fig S1 The configuration of an electrochemical cell used in this work.

Fig S2 An XRD spectrum of white TiO₂ powder after calcination at 600 °C for 1 hour (Rigaku, SmartLab, scan rate 10-80 degree, speed 1 degree/min, step 0.01 degree).
Fig. S3 SEM images of TiO₂ sol in Ni-P electroless bath.
Fig. S4 AFM images indicating the surface area \(S\) of (a) Ni-P-TiO\(_2\) (2 g/L of TiO\(_2\)) coating, (b) Ni-P/Ni-P (0 g/L of TiO\(_2\)) coating, (c) Ni-P/Ni-P-TiO\(_2\) (2 g/L of TiO\(_2\)) coating and (d) Ni-P/Ni-P-TiO\(_2\) (4 g/L of TiO\(_2\)) coating. (SPA-400 atomic force microscope (Seiko Instruments, Inc., Japan), using non-contact mode).
Fig. S5 An SEM image of Ni-P-TiO₂ (top) and the surface mapping indicates the distribution of Ti on the coated surface (bottom).
Fig. S6 Reproducibility of Ni-P/Ni-P-TiO$_2$ electrode for 10 consecutive detection of sorbitol.

Table S1 Stability of electrode for the detection of different compounds after storage for 7 days.

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<thead>
<tr>
<th>Electrode</th>
<th>% of current signal compared to an original current signal</th>
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<tr>
<td></td>
<td>Methanol</td>
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<tr>
<td>Ni-P</td>
<td>85.1 ± 13</td>
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<tr>
<td>Ni-P-TiO$_2$ (2 g/L of TiO$_2$)</td>
<td>89.0 ± 3.9</td>
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<tr>
<td>Ni-P/Ni-P-TiO$_2$ (2 g/L of TiO$_2$)</td>
<td>91.5 ± 1.4</td>
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