Supporting Information:

![Graph with peaks labeled (001), (100), (101), (102), (110), (111), (113), and (201).]

Figure S1. XRD patterns obtained with different reaction time (a) 2 h, (b) 4 h.

![TEM images of (a) typical nanoplates, and (b) the interconnection between two nanoplates.]

Figure S2. TEM images of (a) typical nanoplates, and (b) the interconnection between two nanoplates.
Figure S3. FTIR spectra of samples obtained with different reaction time (a) 2 h, (b) 4 h, (c) 8 h.

Figure S4. SEM images of samples obtained with different reaction conditions (a) 10 ml 0.02M NiCl₂ and 10 ml 2M NaOH, 160 °C, 8 h; (b) 10 ml 0.02M NiCl₂ and 10 ml 0.0002M NaOH, 160 °C, 8 h.
**Figure S5.** SEM images of (a), (b) Ni(OH)$_2$ nanoslices and (c), (d) Ni(OH)$_2$ nanoplates

**Figure S6.** Linear response for H$_2$O$_2$ concentrations with different modified electrode (a) Ni(OH)$_2$ nanocolumns/GCE; (b) Ni(OH)$_2$ nanoplates/GCE; (c) Ni(OH)$_2$ nanoslices/GCE