**Supporting information**

**ESI, S1†.** UV-visible spectra of TA, TA-Sn^{4+} (a) and TA-Fe^{3+} (b) in ethanol.
ESI, S2‡. TGA spectrum of TA in N\textsubscript{2} flow.
**ESI, S3†.** X-ray diffraction (XRD) patterns of the C-SnO$_2$/rGO (a, b) (a: prepared at 500 °C, b: prepared at 400 °C) and the C-Fe$_2$O$_3$/rGO (c).
ESI, S4†. Transmission electron microscopy (TEM) images of the C-SnO$_2$/rGO at 500 °C with different magnifications.
**ESI, S5†.** Discharge profile of the C-SnO$_2$/rGO at 400 °C at a current density of 400 mA g$^{-1}$ in a voltage window of 0.02-1.5 V.