materials

Supplementary Materials: A Cellulose-Derived Nanofibrous MnO_2-TiO_2-Carbon Composite as Anodic Material for Lithium-Ion Batteries

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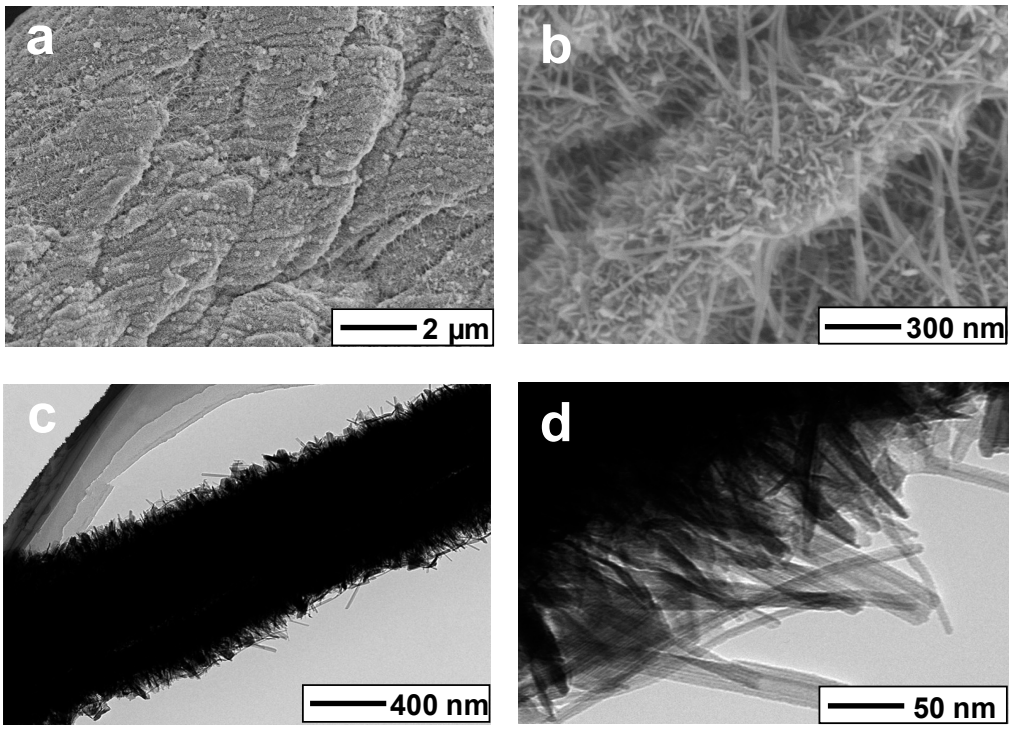

Figure S1. Electron micrographs of the nanofibrous MnO_2-TiO_2-carbon-37.81% composite derived from the natural cellulose substance. (**a**) SEM image of the MnO_2-TiO_2-carbon-37.81% composite, (**b**) SEM image of an individual composite nanofiber isolated from the assemblies, (**c**) and (**d**) the TEM images of an individual MnO_2-TiO_2-carbon-37.81% nanofiber at different magnifications.

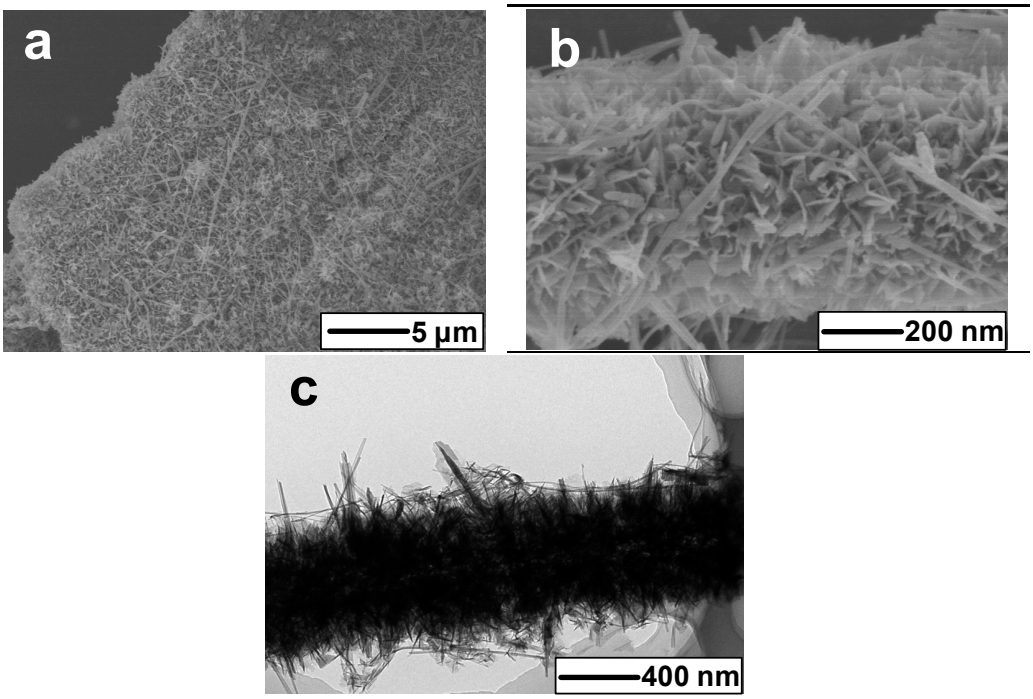

Figure S2. Electron micrographs of the nanofibrous MnO_2-carbon-33.30% composite derived from the natural cellulose substance. (**a**) SEM image of the MnO_2-carbon-33.30% composite, (**b**) SEM and (**c**) TEM images of an individual composite nanofiber.

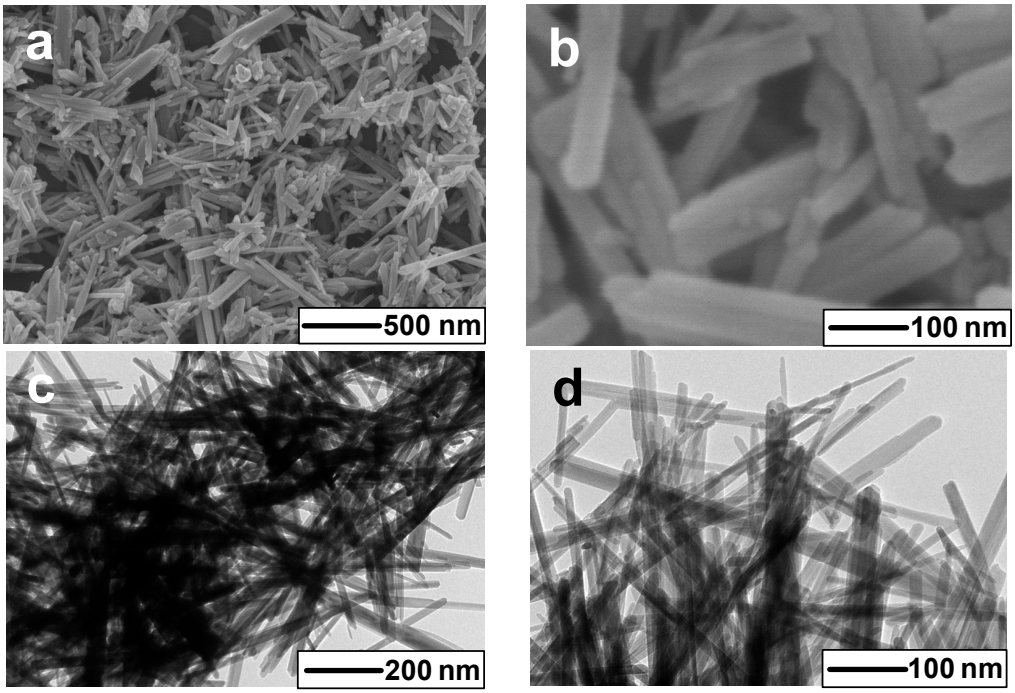

Figure S3. (**a**), (**b**) SEM and (**c**), (**d**) TEM micrographs of the MnO_2-NPs materials.

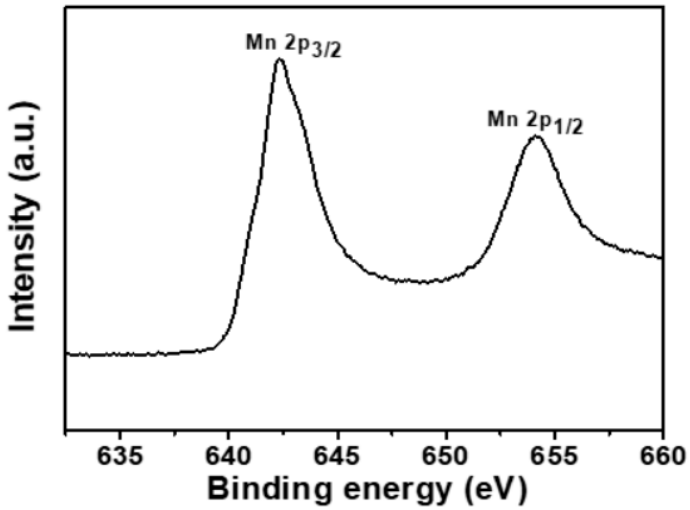

Figure S4. The high-resolution XPS spectra of Mn 2p regions of the MnO_2-TiO_2-carbon-37.81% composite.

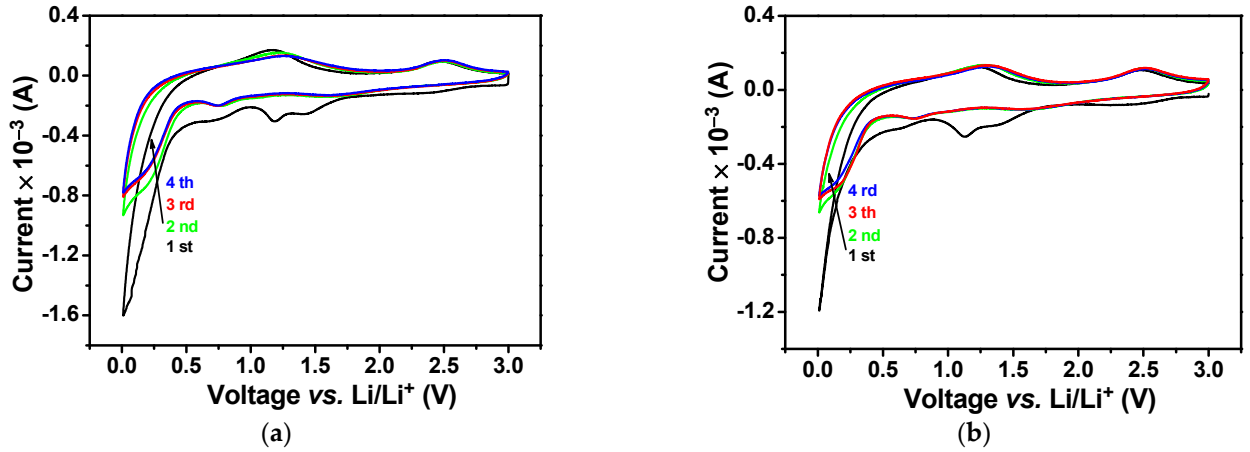

Figure S5. Cyclic voltammetry curves of (**a**) MnO_2-TiO_2-carbon-37.81% and (**b**) MnO_2-carbon-33.30% electrodes tested in the initial four charge/discharge cycles at a scan rate of 0.2 mV s^{-1} between 0.01 and 3 V (*versus* Li/Li^+).

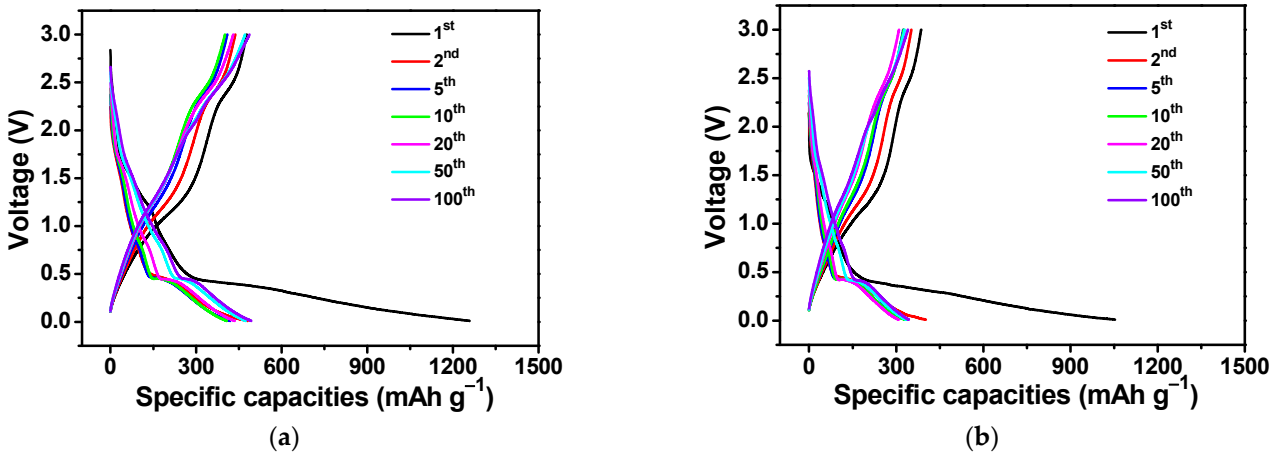

Figure S6. Galvanostatic charge/discharge profiles of (**a**) MnO_2-TiO_2-carbon-37.81% and (**b**) MnO_2-carbon-33.30% anode materials measured at a current density of 100 mA g^{-1} between 0.01 and 3.0 V.

Table S1. Equivalent circuit parameters obtained from fitting the experimental impedance spectra of the MnO_2-TiO_2-carbon-47.28%, MnO_2-carbon-33.30 and TiO_2-carbon nanocomposite electrodes.

Samples	R_s (Ω)	R_{ct} (Ω)
MnO_2-TiO_2-carbon-47.28%	8.719	46.32
MnO_2-carbon-33.30	12.34	155
TiO_2-carbon	12.71	231.7

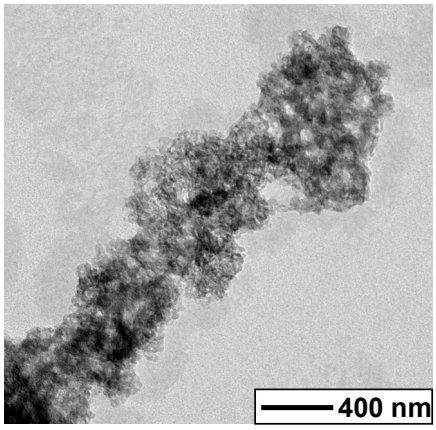

Figure S7. TEM image of the MnO_2-TiO_2-carbon-47.28% anode material after 200 charge/discharge cycles.