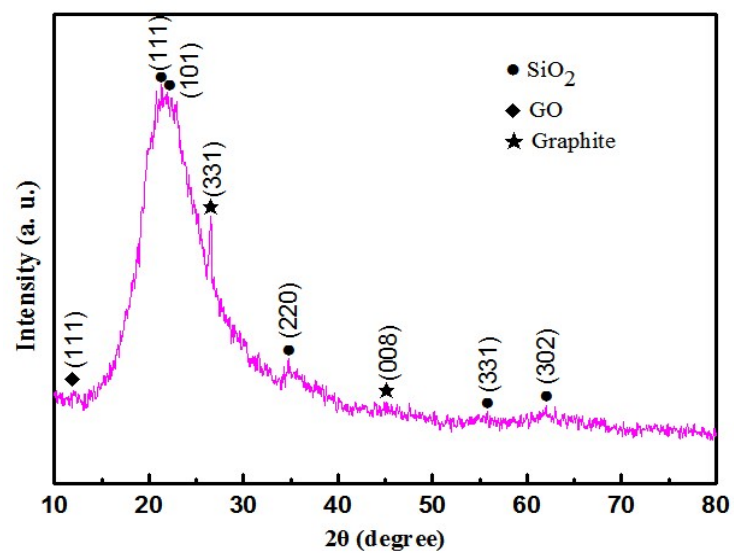
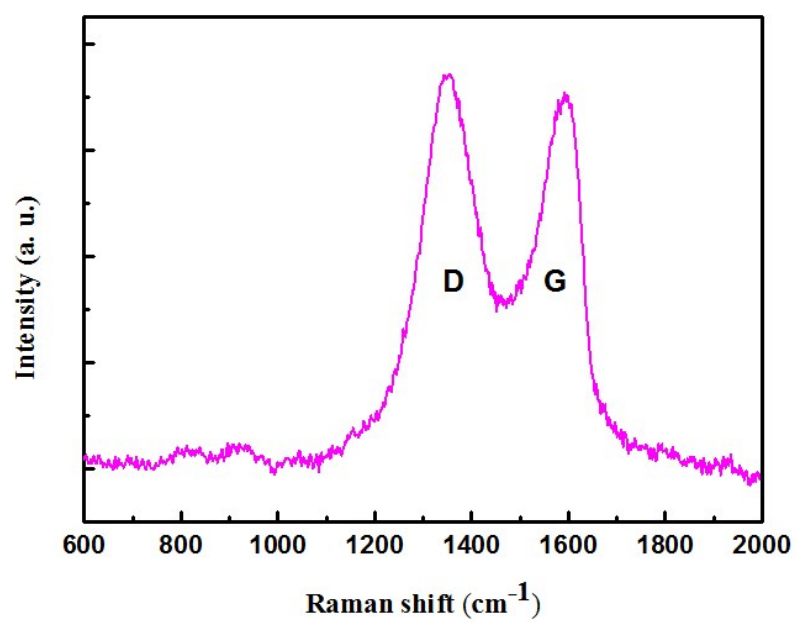


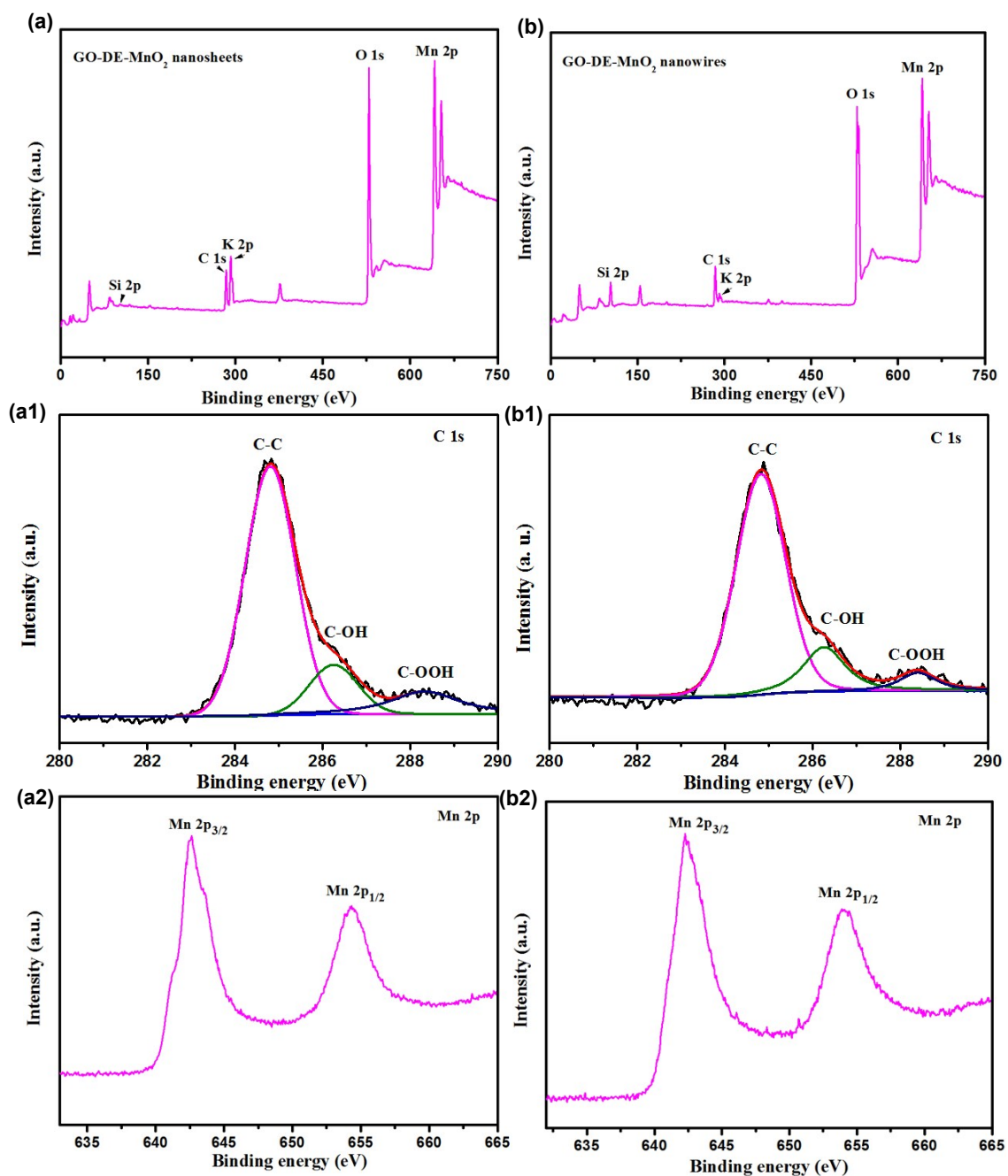
**Figure S1.** Typical SEM images of the GO-DE nano-hybrid. Note that GO was marked by purple ellipse.



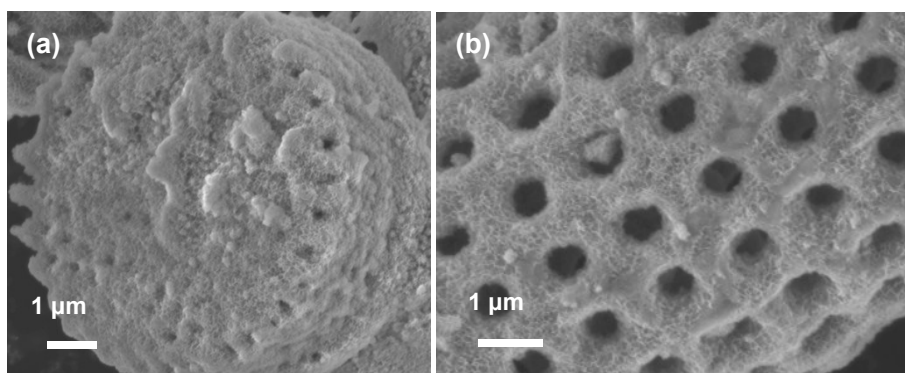
**Figure S2.** XRD pattern of the GO-DE nano-hybrid.



**Figure S3.** Raman spectroscopy plots of the GO-DE nano-hybrid.



**Figure S4.** (a) The survey XPS spectrum, high-resolution C 1s (a1) and Mn 2p (a2) of GO-DE@MnO<sub>2</sub> composite with MnO<sub>2</sub> nanosheets; (b) The survey XPS spectrum, high-resolution C 1s (b1) and Mn 2p (b2) of GO-DE@MnO<sub>2</sub> composite with MnO<sub>2</sub> nanowires.



**Figure S5.** SEM images of the DE@MnO<sub>2</sub> composite with MnO<sub>2</sub> nanosheets obtained at 160 °C for (a,b) 12 h.