## **Supporting Information**

Fabrication of compressible PU@RGO@MnO<sub>2</sub> hybrid sponge for efficient removal of methylene blue with an excellent recyclability

Na Wang<sup>a</sup>, Xiaofeng Li<sup>a\*</sup>, Jing Yang<sup>a</sup>, Yuxia Shen<sup>a</sup>, Jin Qu<sup>a</sup>, Song Hong<sup>a</sup>, Zhong-Zhen Yu<sup>a,b\*</sup>

<sup>a</sup> State Key Laboratory of Organic-Inorganic Composites, College of Materials Science and Engineering, Beijing University of Chemical Technology, Beijing 100029, China

<sup>b</sup> Beijing Advanced Innovation Center for Soft Matter Science and Engineering, Beijing

University of Chemical Technology, Beijing 100029, China

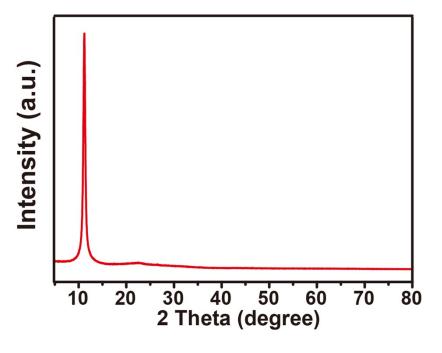


Figure S1. XRD pattern of GO

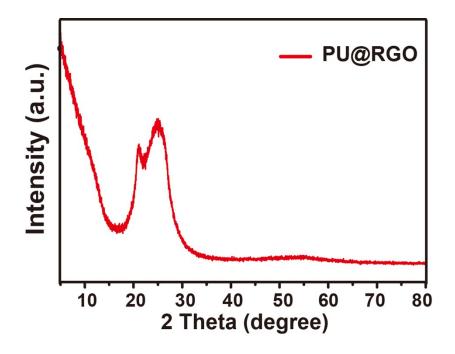


Figure S2. XRD pattern of PU@RGO sponge.

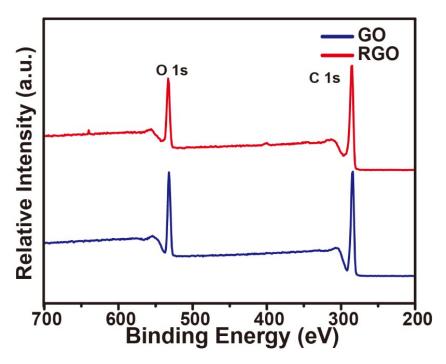


Figure S3. XPS spectra of GO and RGO.

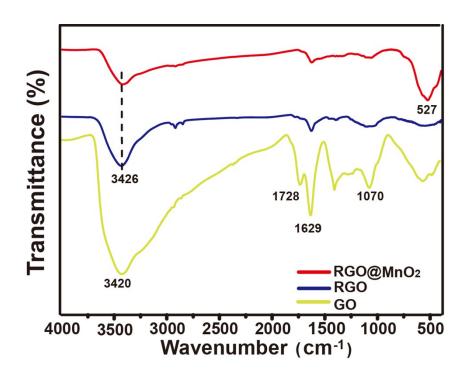


Figure S4. FT-IR spectra of GO, RGO and RGO@MnO<sub>2</sub>.

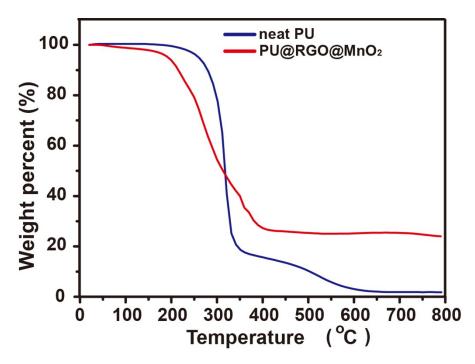
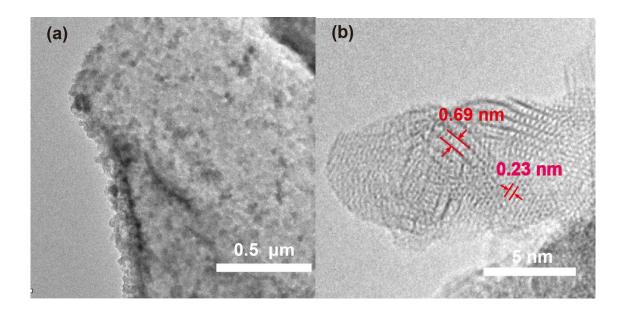
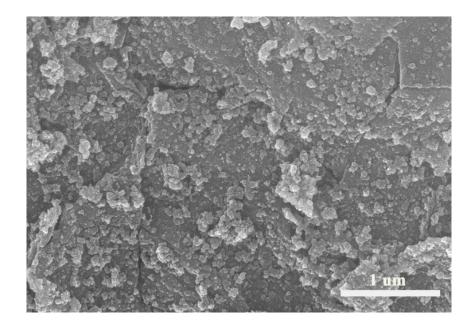


Figure S5. TGA curves of neat PU and PU@RGO@MnO<sub>2</sub> hybrid sponges in air atmosphere.



**Figure S6.** (a) Low and (b) high magnification TEM images of RGO@MnO<sub>2</sub> peeled from the hybrid sponge.



**Figure S7.** SEM image of the PU@RGO@MnO<sub>2</sub> hybrid sponge after repeated tests.