Electronic Supplementary Information (ESI)

One-step sonochemical synthesis of graphene oxide-manganese oxide nanocomposite for catalytic glycolysis of poly(ethylene terephthalate)

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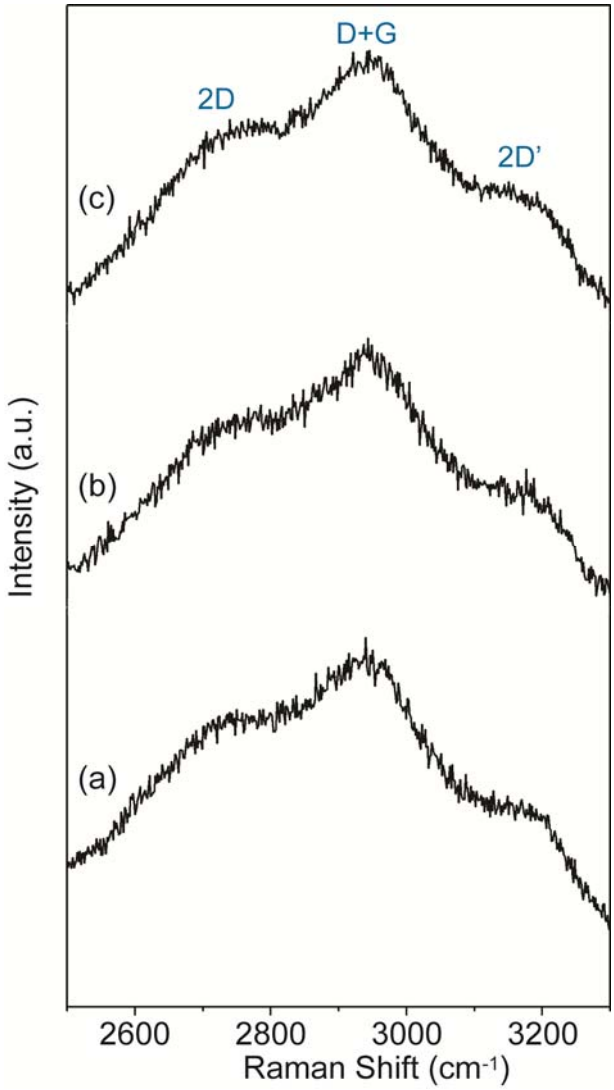

Fig. S1 Raman spectra of (a) GO/Mn_3O_4 A and (b) GO/Mn_3O_4 B. 2D, D + G and 2D' bands appear at around 2720, 2950 and 3200 cm^{-1}, respectively.

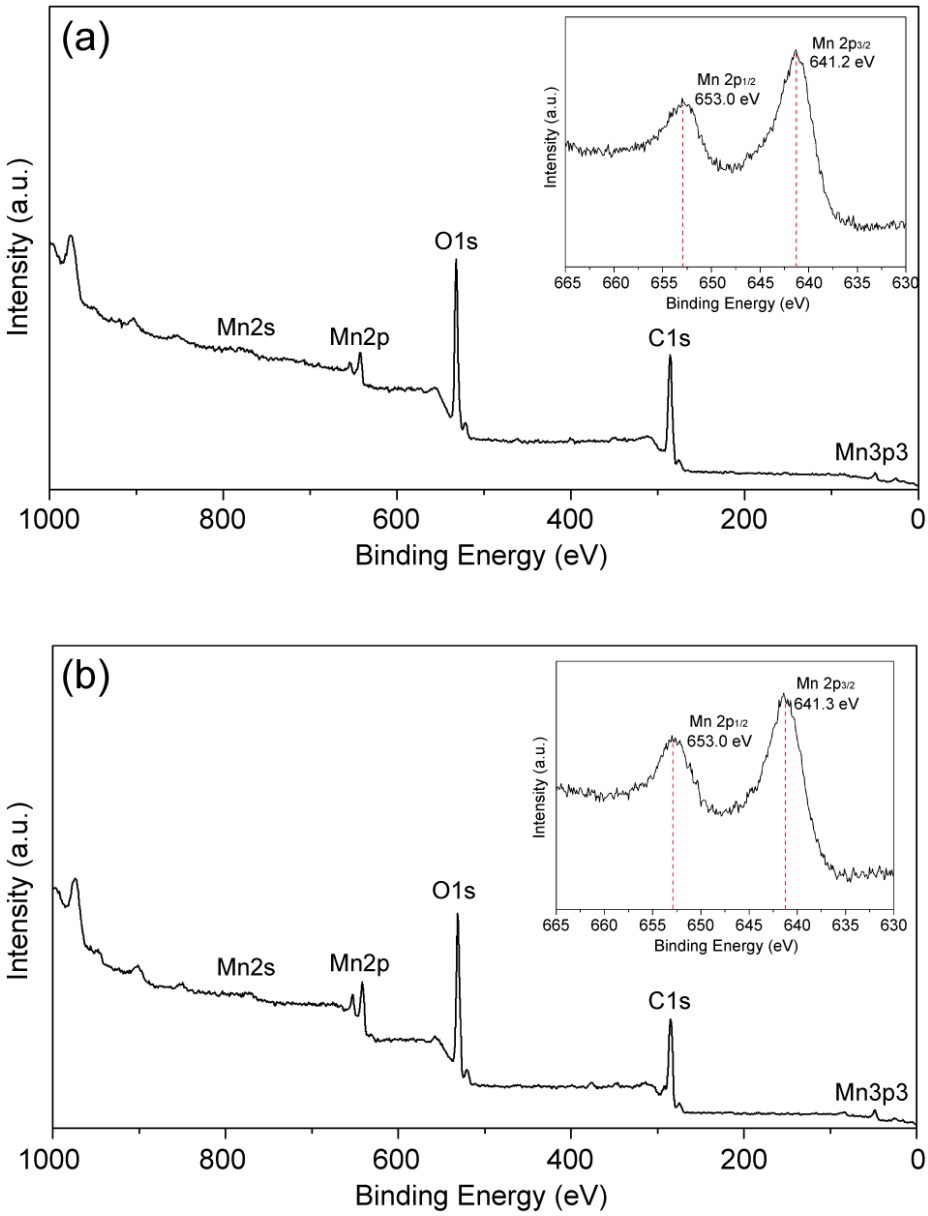

Fig. S2 XPS survey spectra and the core-level signals (inset) of (a) GO/Mn_3O_4 A and (b) GO/Mn_3O_4 B. C, O and Mn elements were observed on the surface of the nanocomposites and energy separations of Mn $2p_{1/2}$ and Mn $2p_{3/2}$ for both composites were well matched with the hausmannite Mn_3O_4.

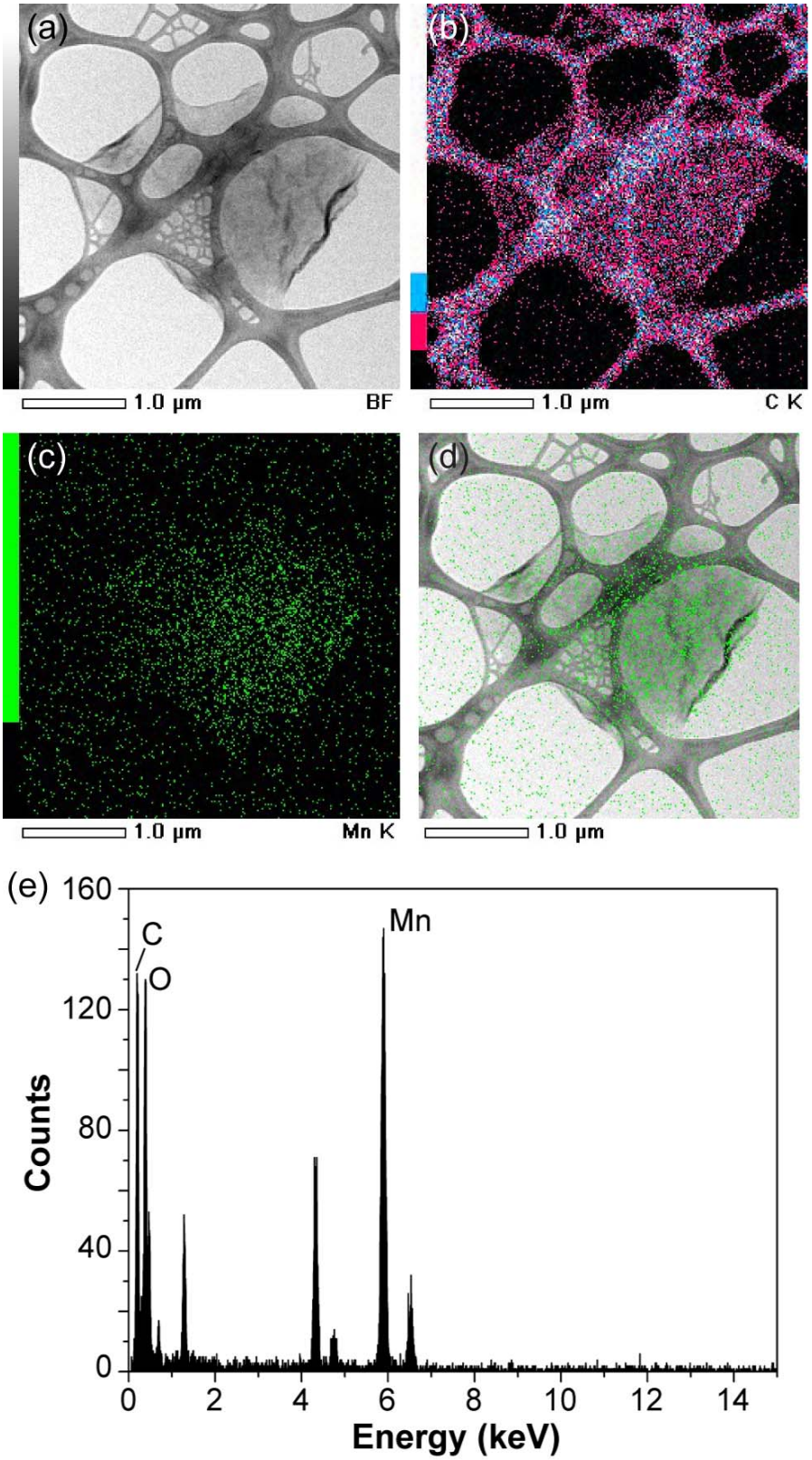

Fig. S3 (a) TEM image of the GO/Mn_3O_4 C with corresponding EDS mapping of (b) carbon and (c) manganese (Mn), and (d) overlayed image with Mn. Position of Mn is well-matched with the GO sheet. (e) EDS analysis of the GO/ Mn_3O_4 C displaying presence of Mn.

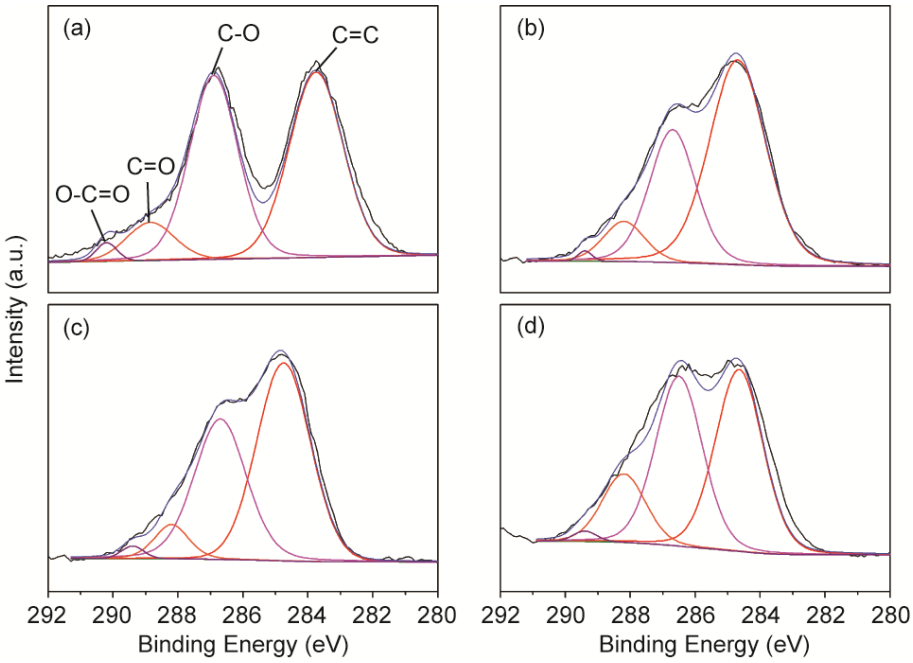

Fig. S4 XPS core-level analyses of C1s of (a) GO, (b) GO/Mn_3O_4 A, (c) B and (d) C. C=C, C-O, C=O and O-C=O peaks were located at 284.6, 286.5, 287.9 and 288.8 eV, respectively.

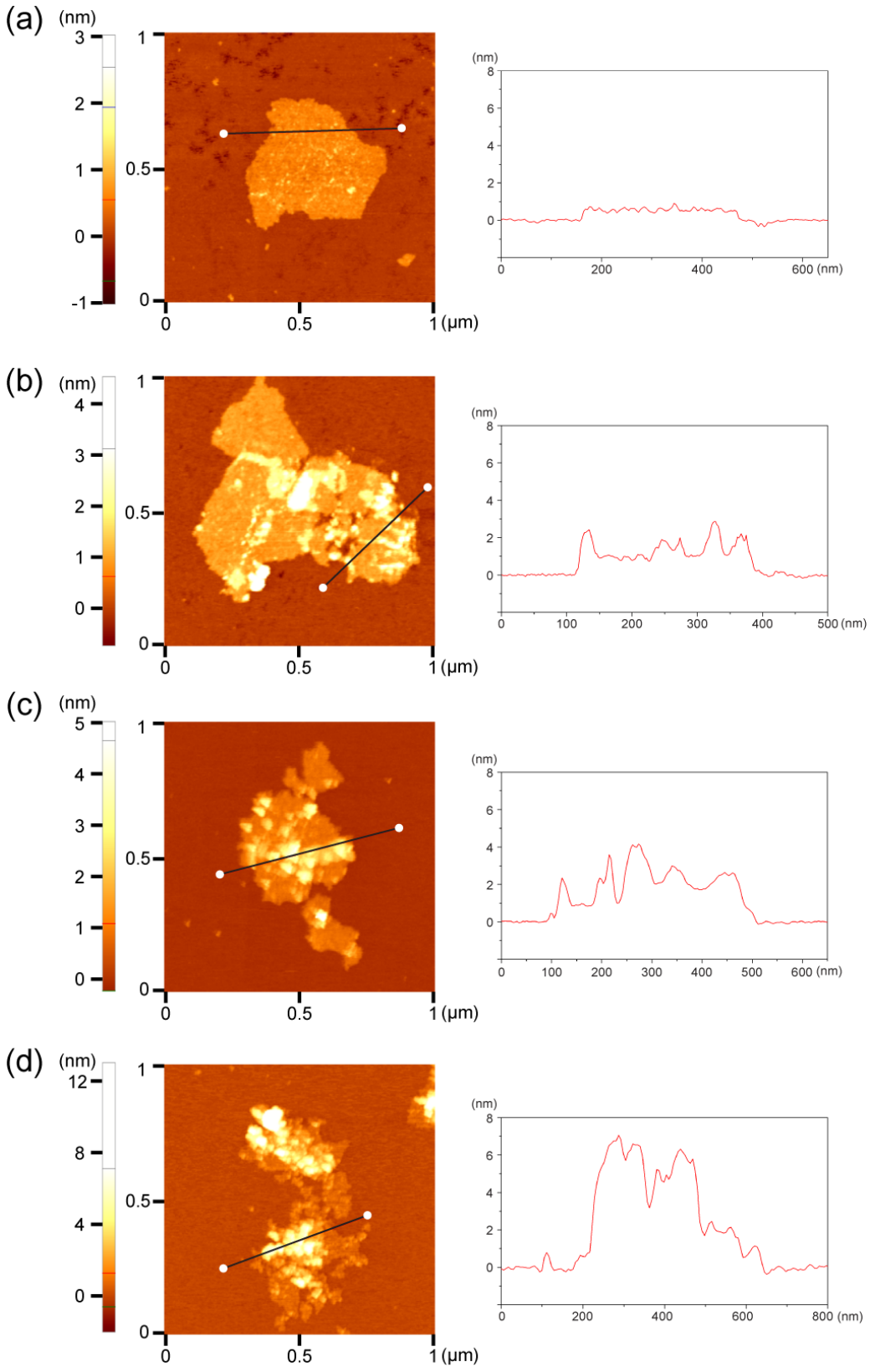

Fig. S5 AFM images of (a) exfoliated GO sheets, (b) GO/Mn_3O_4 A, (c) B and (d) C with their line profiles with height. On the fully exfoliated GO sheet, increase in both thickness and roughness caused by the Mn_3O_4 structure was observed.

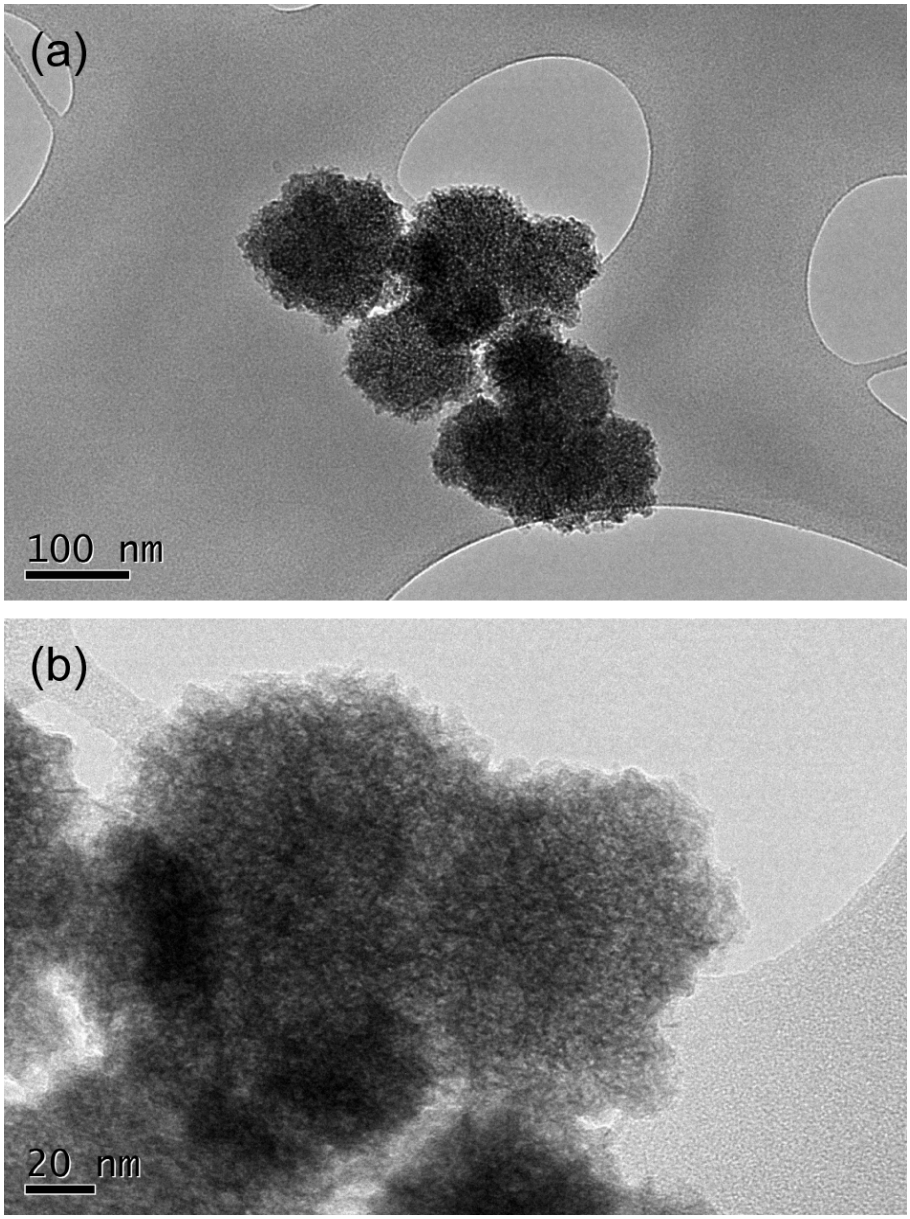

Fig. S6 TEM images of Mn_3O_4 without GO support with (a) low magnification and (b) high magnification. Unlike the Mn_3O_4 formed on the GO sheet, aggregated entities in the size of hundreds of micrometer were observed.