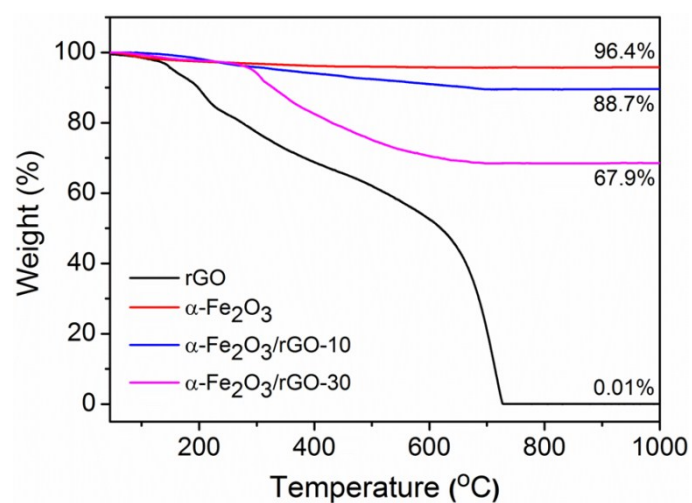


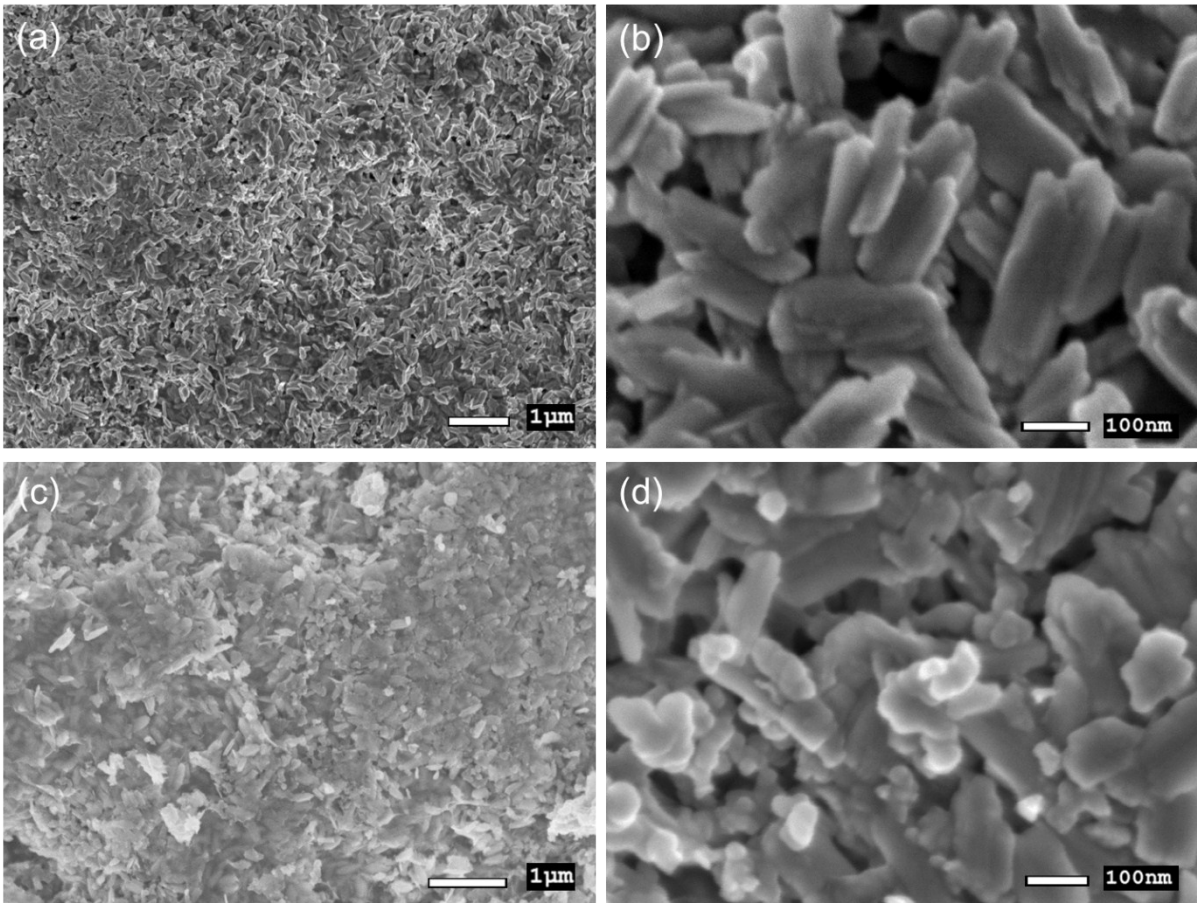
### Supporting information

## **Chemically modified graphene oxide wrapped porous hematite nano-architecture as high rate lithium-ion battery anode material**

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**Fig. S-1.** Thermogravimetric analysis of the  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub>/rGO composites compared with  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> nanorods and rGO in air.



**Fig. S-2.** FESEM images of fresh/before cycling electrode at (a) low and (b) high magnification. The fresh electrode consisted of active materials ( $\alpha$ - $\text{Fe}_2\text{O}_3/\text{rGO}$ ), carbon Super P and binder; (c-d) morphology of electrode after 100 cycles at 1A/g. The cycled cell was disassembled in glove box and washed several times in the solvent, DEC of the used electrolyte (1 M  $\text{LiPF}_6$  in 1:1 (v/v) of EC:DEC) and dried overnight prior to taking FESEM.