Electronic Supplementary Material (ESI) for RSC Advances

Supporting Information

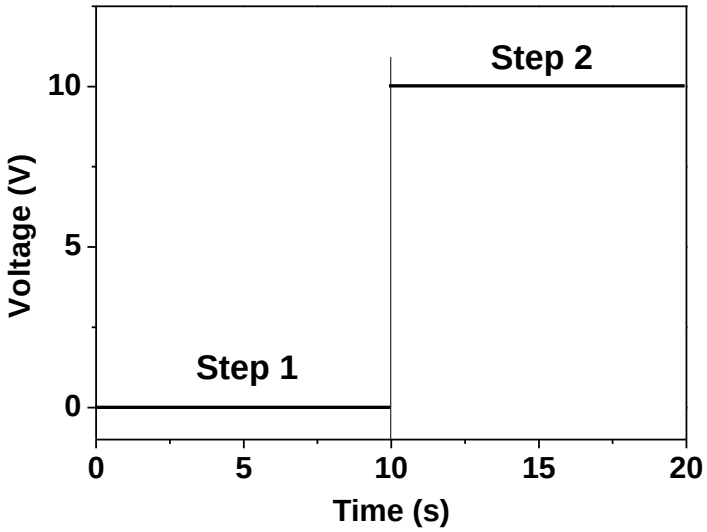

Figure S1. Applied step-voltage in the electrochemical preparation of Fe_2O_3/graphene hybrids.

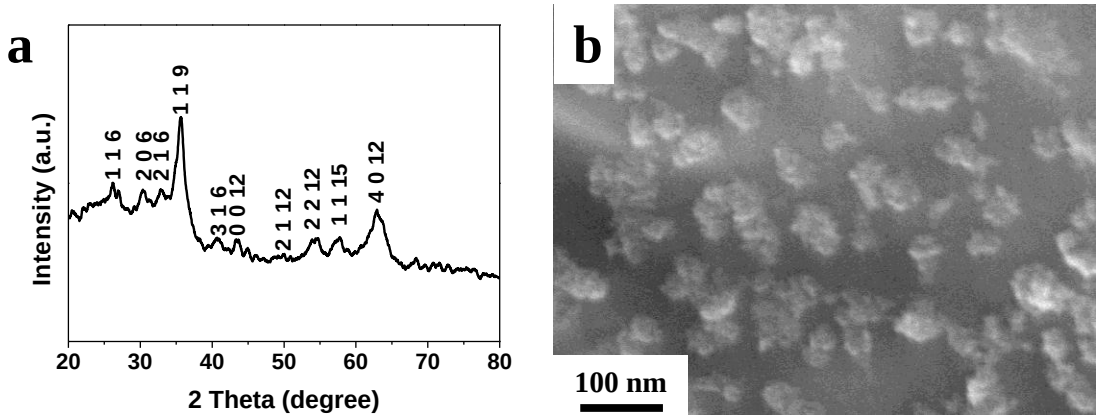

Figure S2. (a) XRD pattern and (b) SEM image of the Fe_2O_3/graphene hybrid with I_{FeSO_4}=0.03 M.

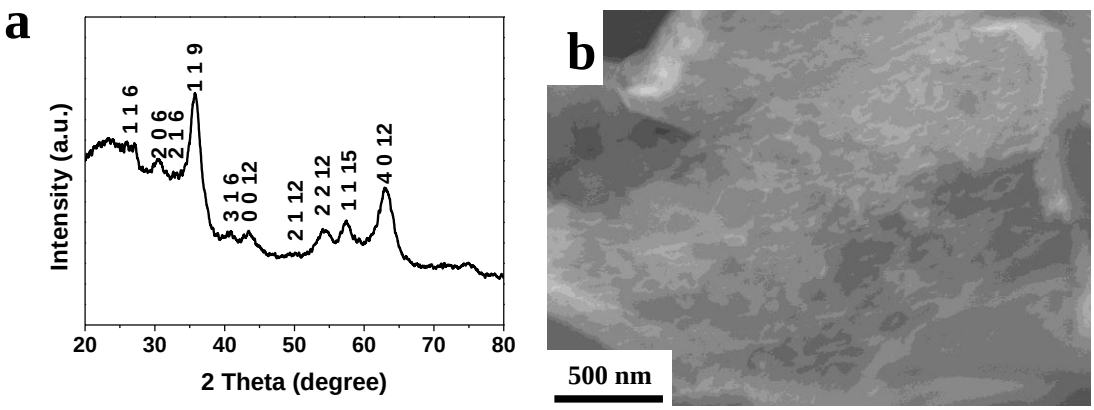

Figure S3. (a) XRD pattern and (b) SEM image of the Fe_2O_3/graphene hybrid with I_{FeSO_4}=0.15 M.

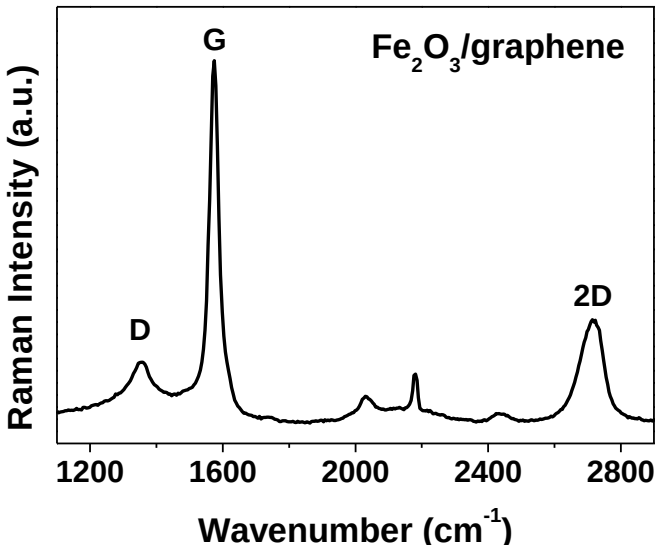

Figure S4. Raman spectrum of the Fe_2O_3/graphene hybrid with I_{FeSO_4}=0.1 M.

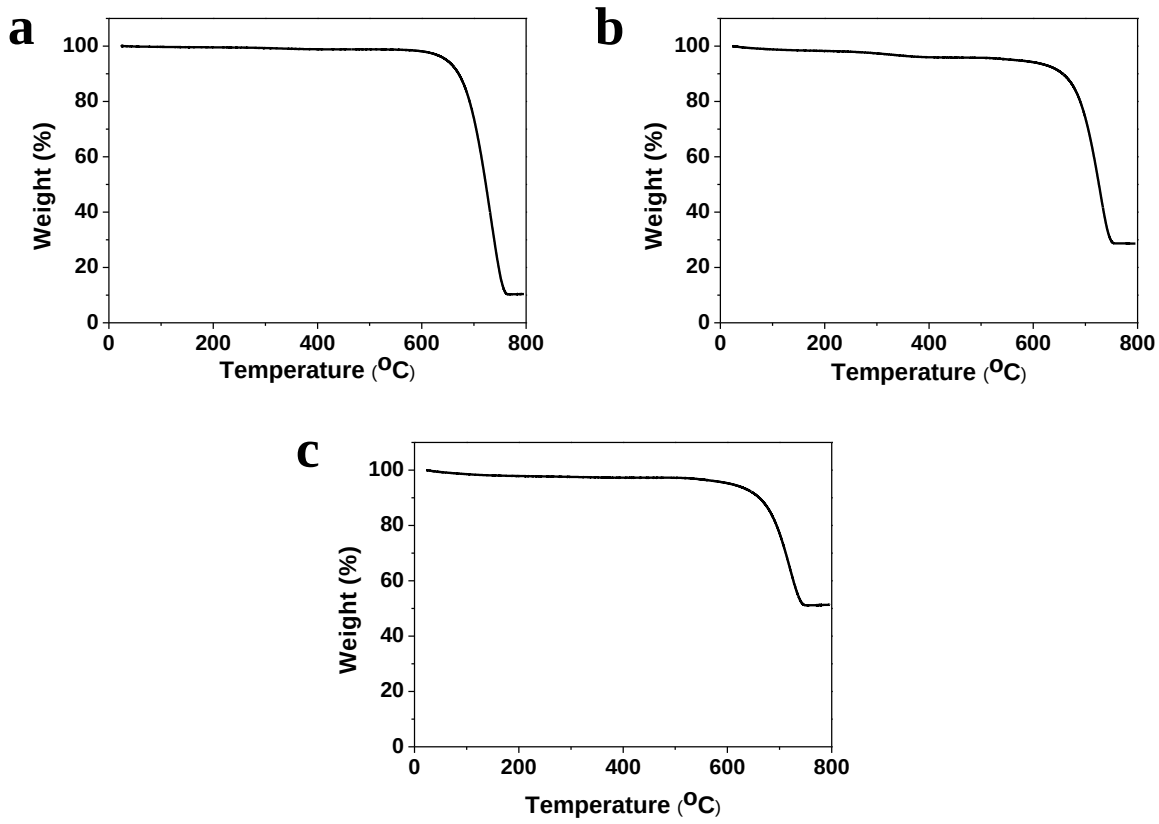

Figure S5. TGA results of Fe_2O_3/graphene samples prepared with I_{FeSO_4} = (a) 0.03, (b) 0.1 and (c) 0.15 M, respectively. The corresponding contents of Fe_2O_3, $C_{Fe_2O_3}$, are estimated to be (a) 10.7 wt%, (b) 29.0 wt% and (c) 52.1 wt%.

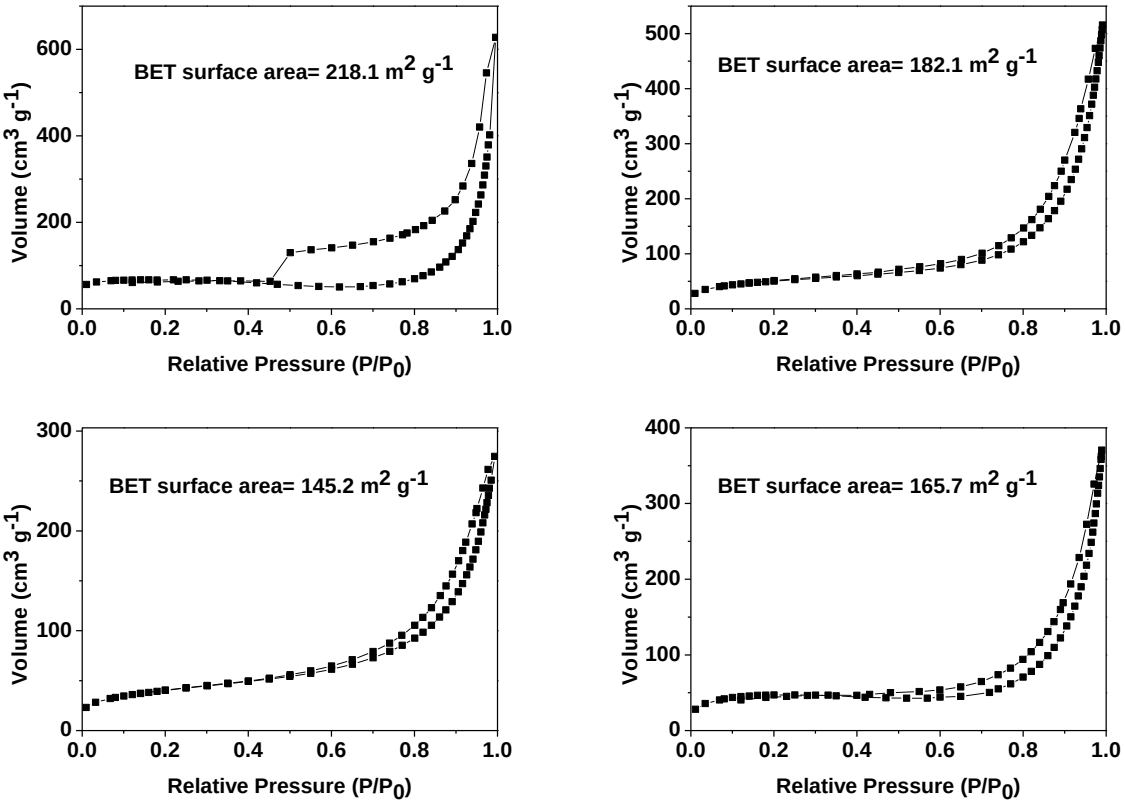

Figure S6. Nitrogen adsorption and desorption isotherms measured at 77 K for (a) graphene and Fe_2O_3/graphene with c(Fe_2O_3)= (b) 10.7 wt%, (c) 29.0 wt%, (d) 52.1 wt%.

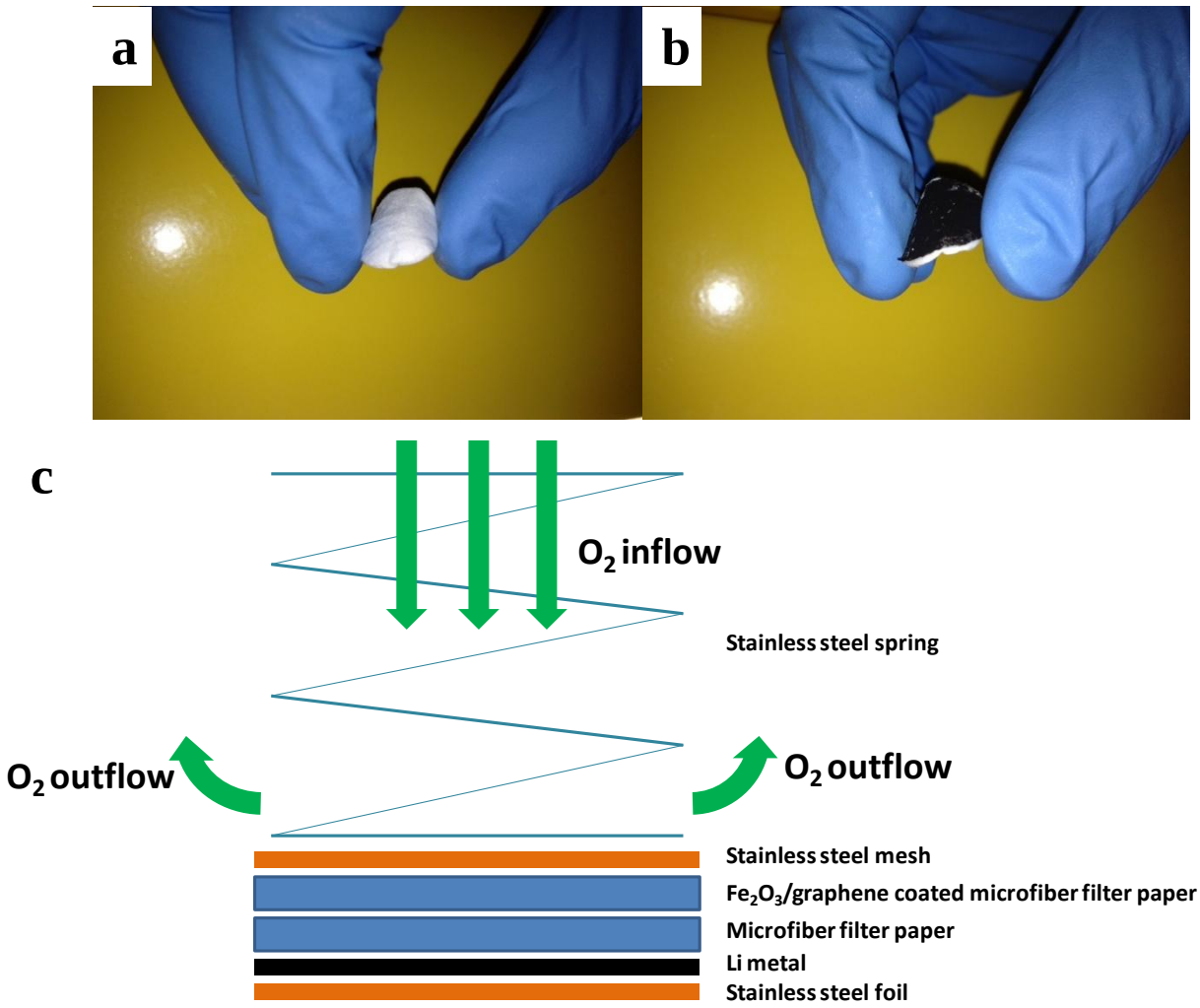

Figure S7. (a) Pristine microfiber filter paper, (b) the Fe_2O_3/graphene coated microfiber filter paper as O_2 electrode and (c) Li-O_2 cell construction.

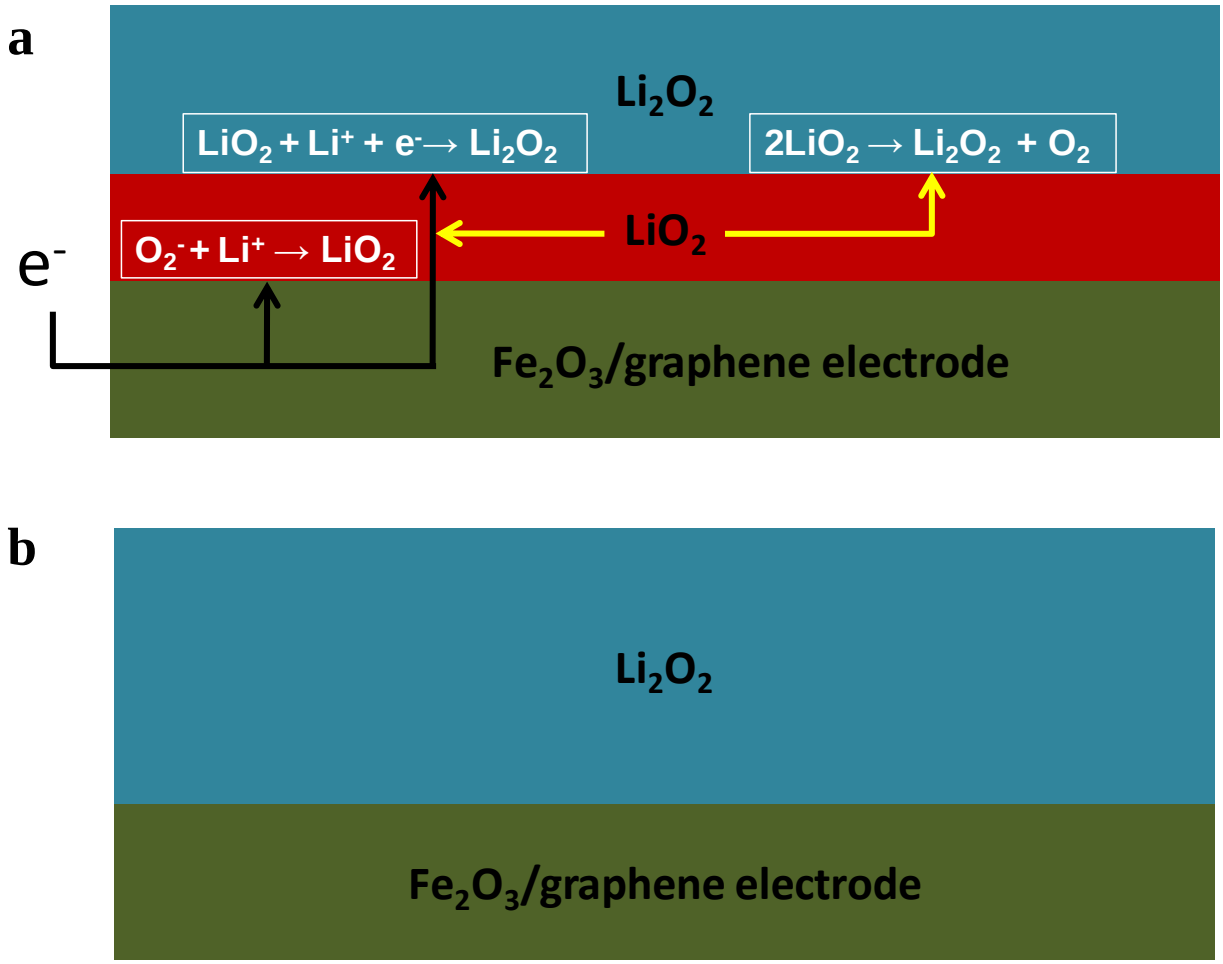

Figure S8. Proposed working mechanism of the Fe_2O_3/graphene electrode: (a) During discharge and (b) at the end of discharge.