materials

Electronic Supplementary Information (ESI)

Harvesting 3D N-doped carbon network from waste bean dregs by ionothermal carbonization as electrocatalyst for oxygen reduction reaction

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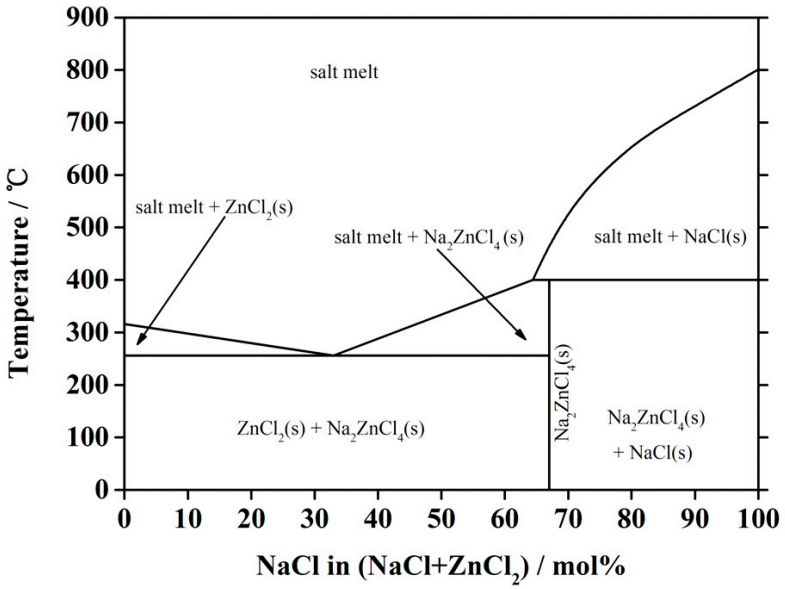

Figure S1. Phase diagram of NaCl/ZnCl2.

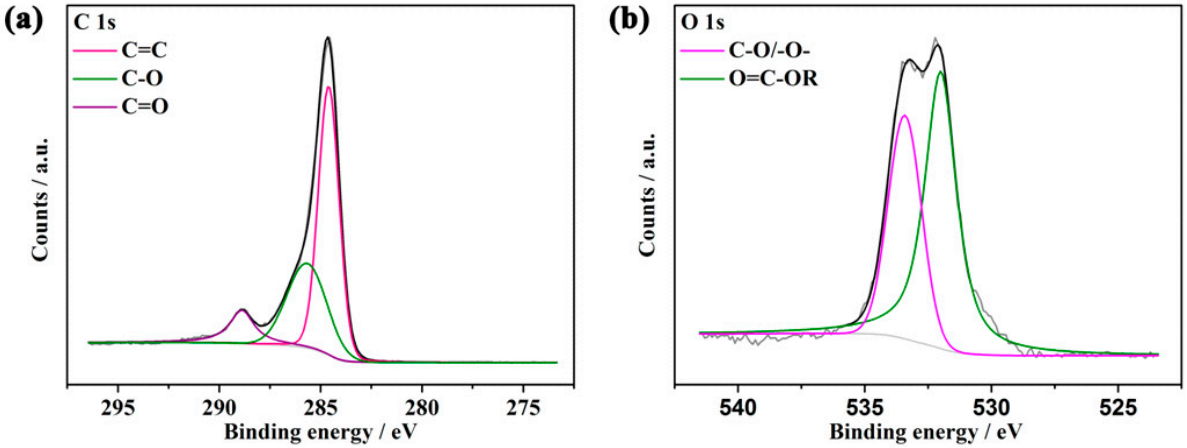

Figure S2. The high resolution (a) C 1s and (b) O 1s XPS spectrum of 3D–NDC.

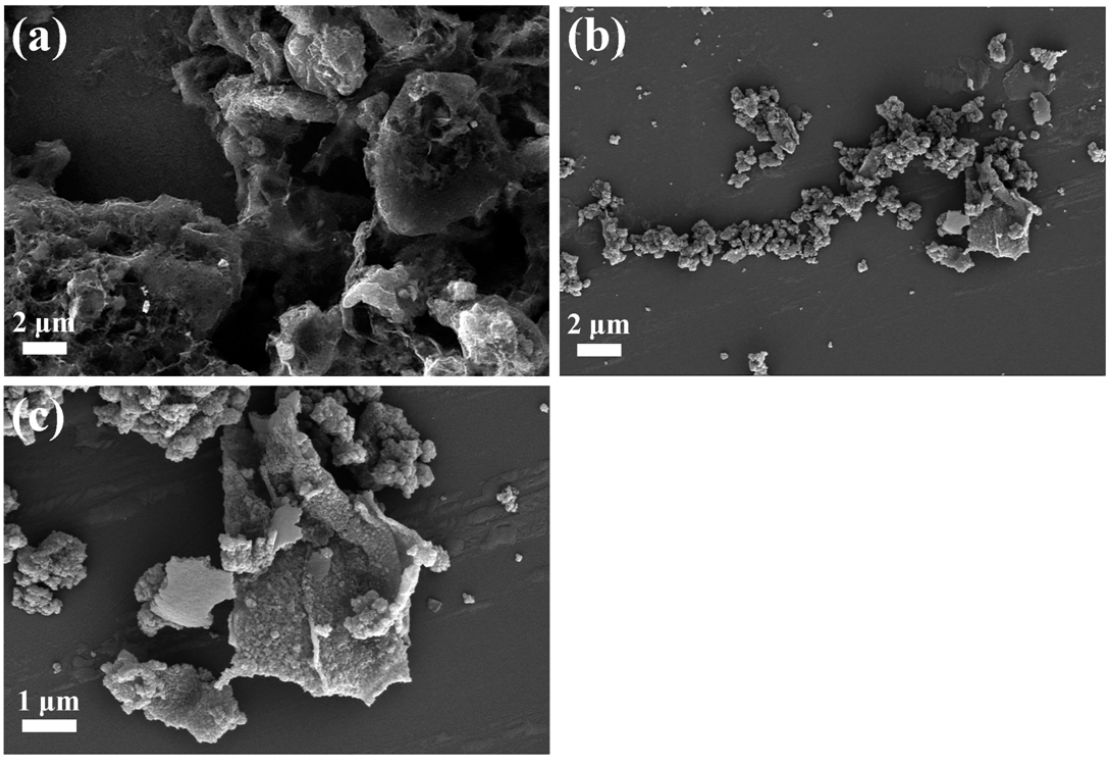

Figure S3. SEM images of carbon materials prepared using NaCl(a) and $ZnCl_2$(b,c) as medium respectively.

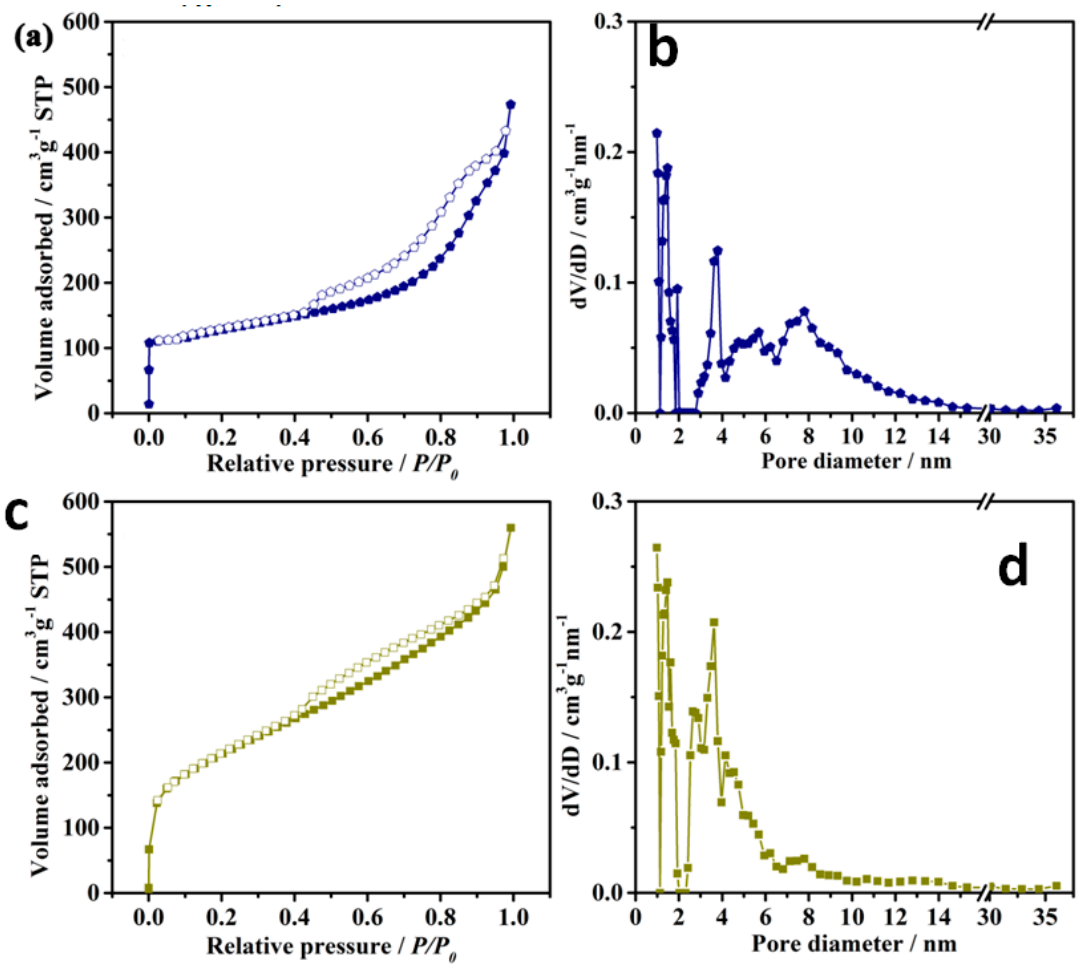

Figure S4. N_2 isotherm and pore size distribution of carbon materials prepared using NaCl (a,b) and $ZnCl_2$(c,d) as medium respectively.

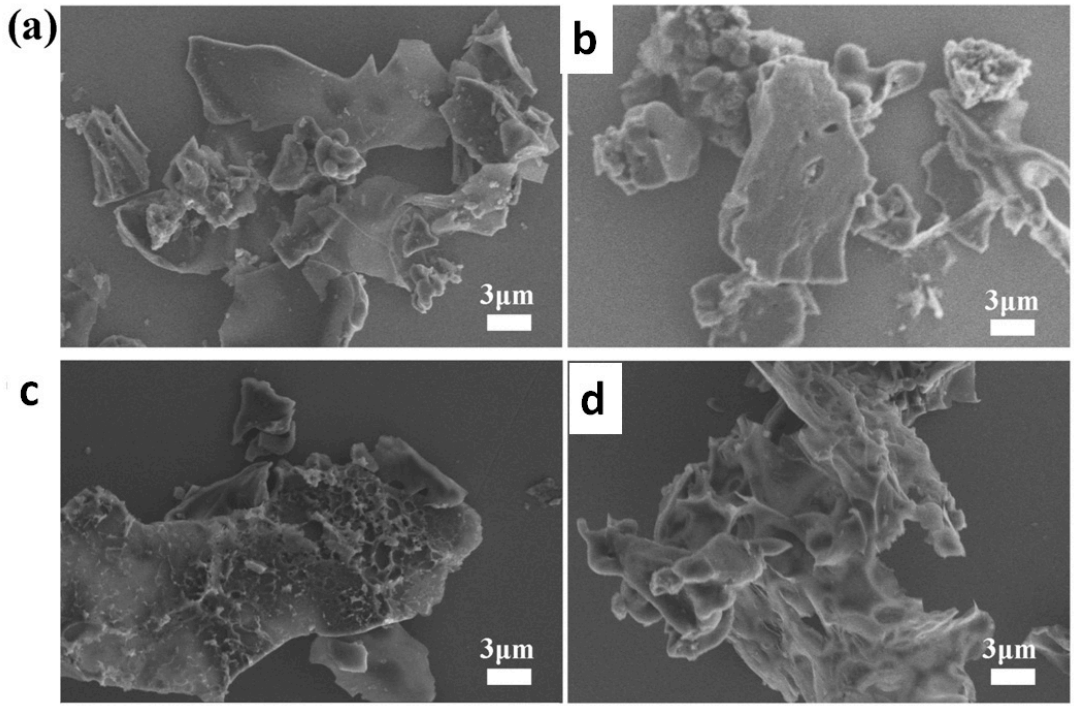

Figure S5. SEM images of carbon materials obtained at (a,b) 300 and (c,d) 500 °C respectively.

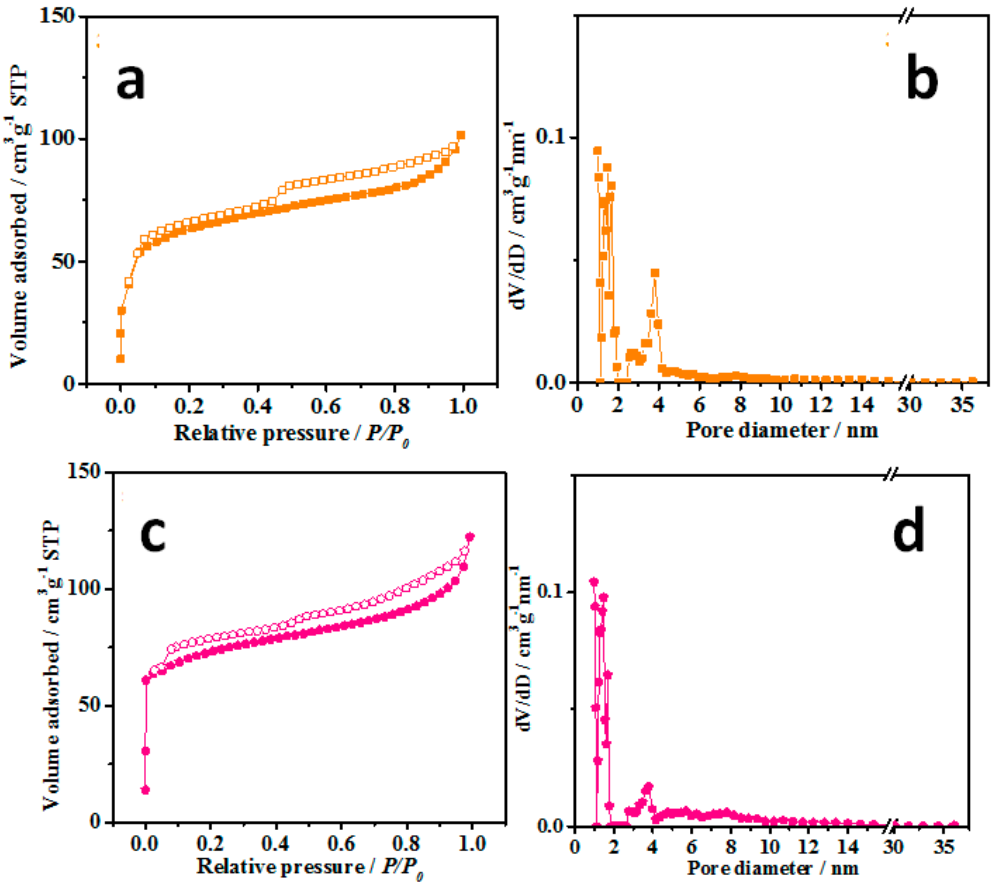

Figure S6. N_2 isotherms and pore size distributions of carbon materials of carbon materials obtained at (a,b) 300 °C and (c,d) 500 °C respectively.

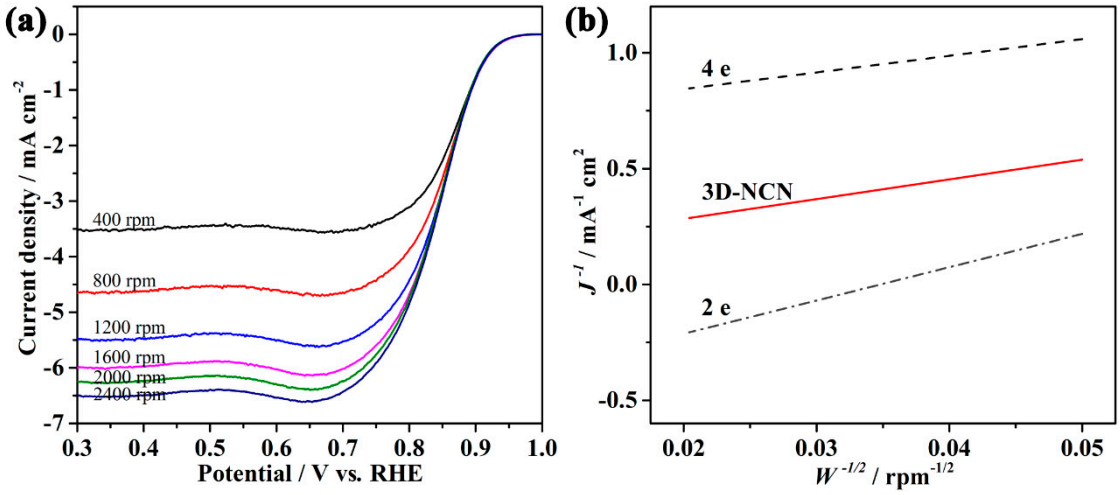

Figure S7. (a) Polarization curves of 3D–NCN in oxygen-saturated 0.1 M KOH solution at various rotation rate, scan rate is 5 mV s^{-1}. (b) Koutecky-Levich plots for 3D–NCN compared with ideal 2-electron and 4-electron processes at 0.462 V in 0.1 M KOH.