

Supporting information

Achieving nitrogen-doped carbon/MnO₂ nanocomposites towards catalyzing oxygen reduction reaction

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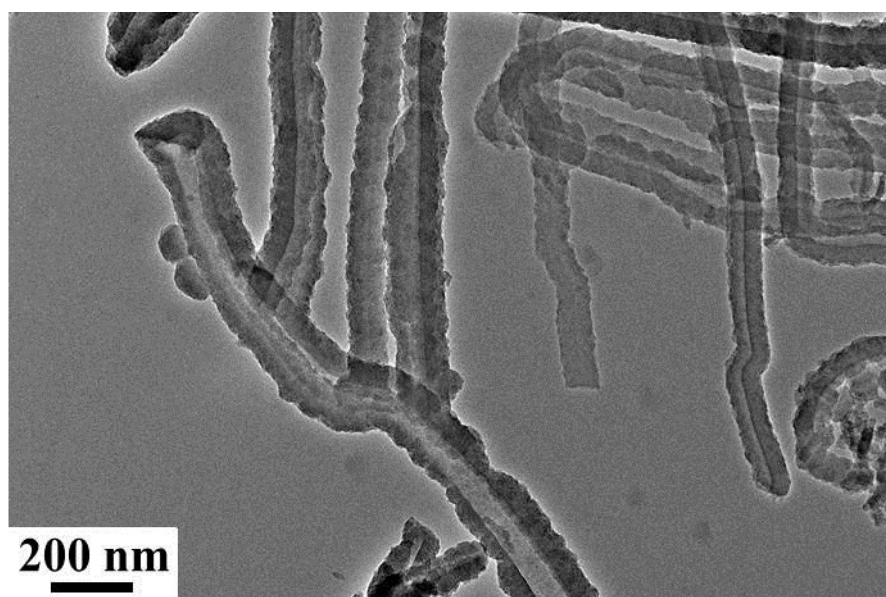


Figure S1. TEM images of N-C.

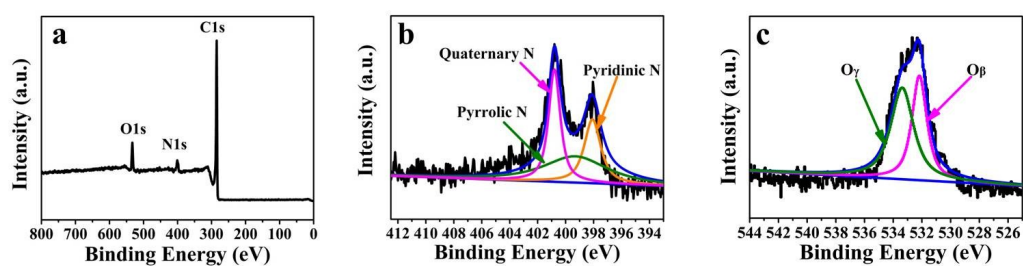


Figure S2. XPS survey spectrum (a), high-resolution (b) N 1s and (c) O 1s spectra of N-C.

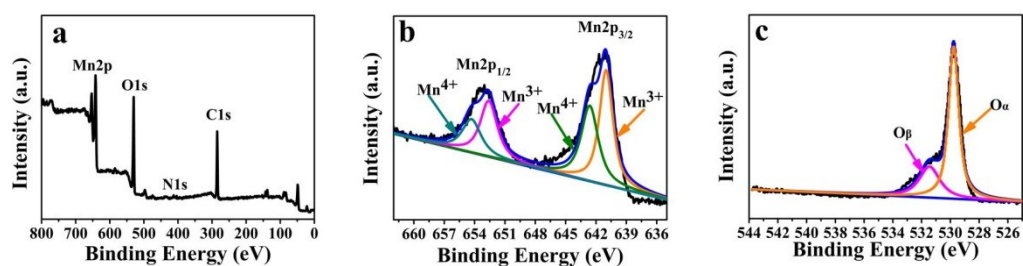


Figure S3. XPS survey spectrum (a), high-resolution (b) Mn 2p and (c) O 1s spectra of MnO₂.

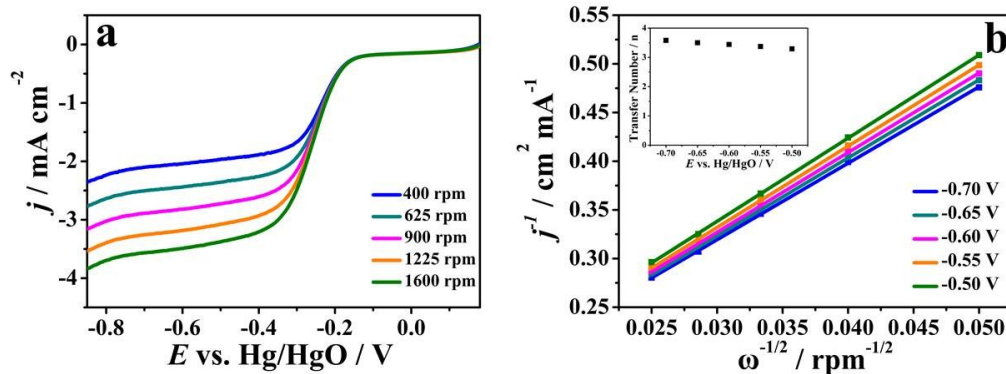


Figure S4. (a) LSV curves of N-C measured at different rotating rates; (b) Corresponding K-L plots of N-C in various potential range (vs. Hg/HgO, the inset gives the calculated electron transfer number at various potentials).

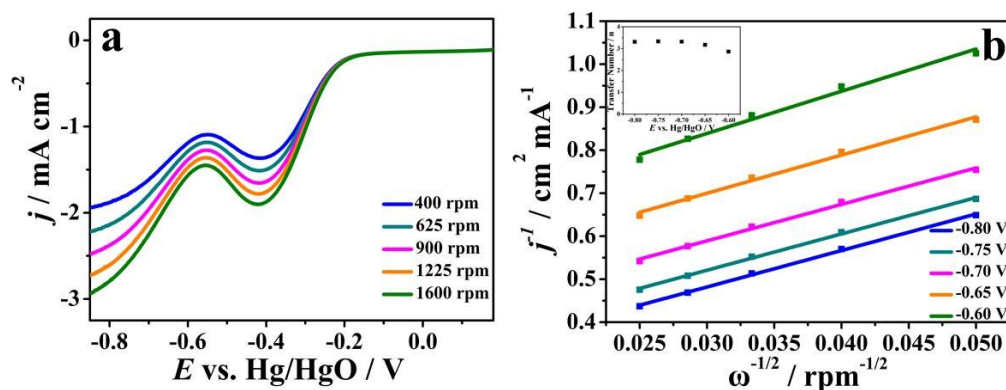


Figure S5. (a) LSV curves of MnO₂ measured at different rotating rates; (b) Corresponding K-L plots of MnO₂ in various potential range (vs. Hg/HgO, the inset gives the calculated electron transfer number at various potentials).

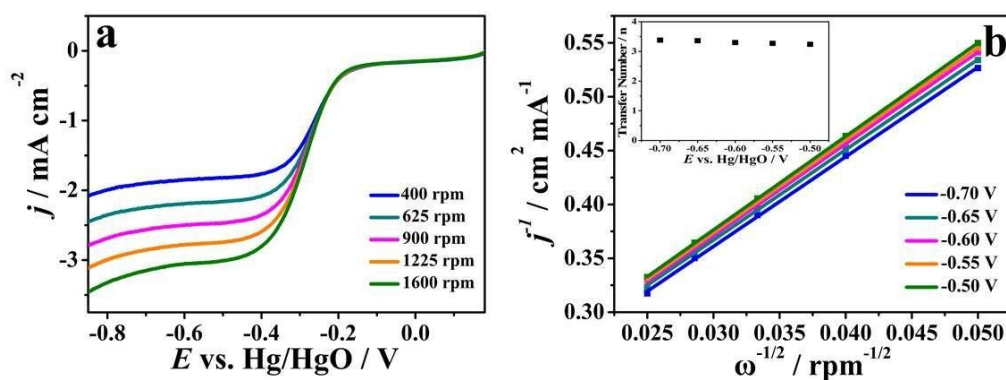


Figure S6. (a) LSV curves of N-C+MnO₂ measured at different rotating rates; (b) Corresponding K-L plots of N-C+MnO₂ in various potential range (vs. Hg/HgO, the inset gives the calculated electron transfer number at various potentials).

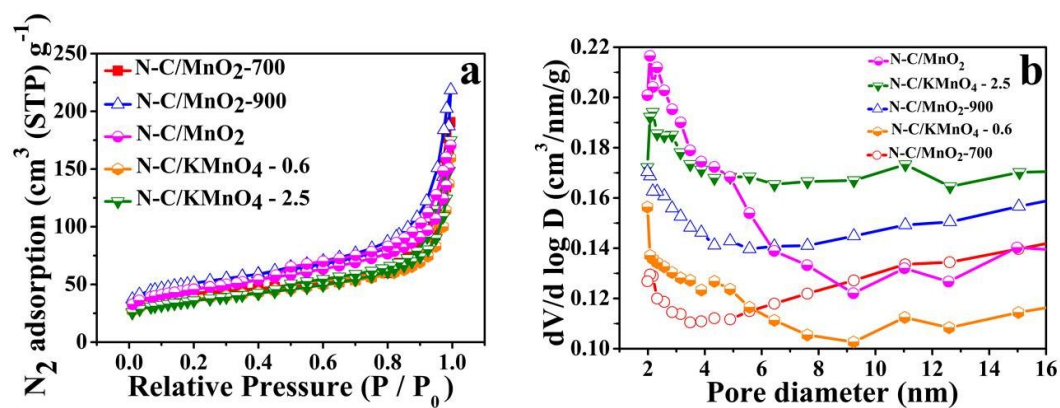


Figure S7. (a) Nitrogen adsorption-desorption isotherms and (b) corresponding pore size distributions of different samples.

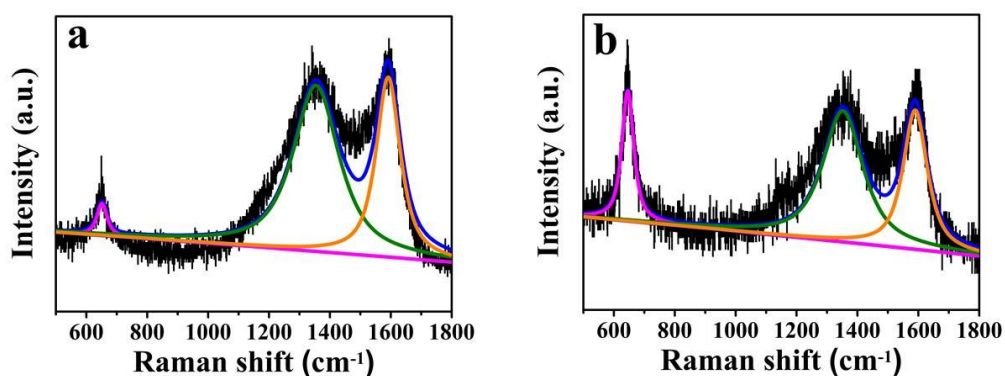


Figure S8. Raman spectra of N-C/MnO₂-700 (a) and N-C/MnO₂-900 (b).

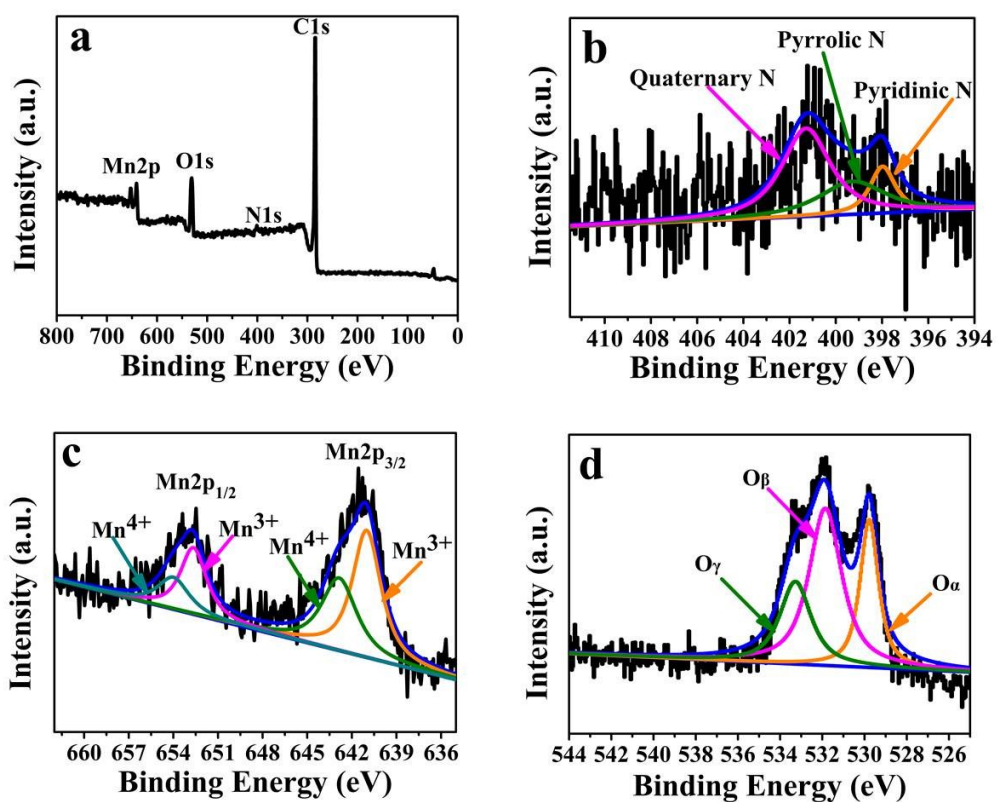


Figure S9. XPS survey spectrum (a) and high-resolution (b) N 1s; (c) Mn 2p and (d) O 1s spectra of N-C/MnO₂-900.

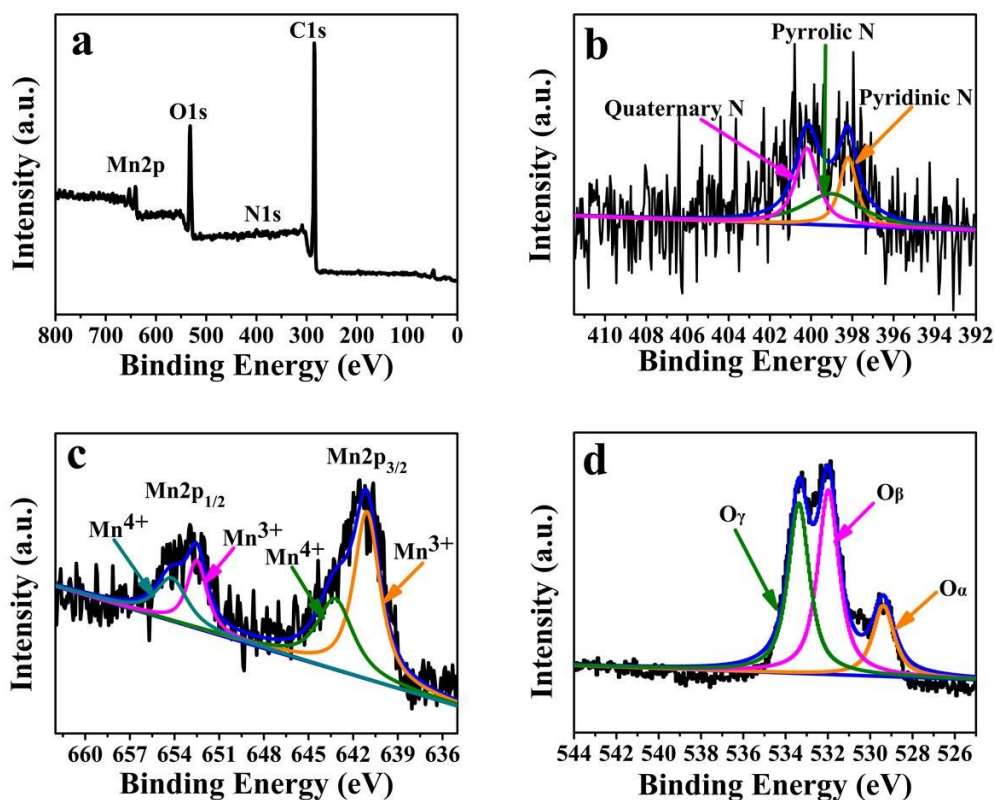


Figure S10. XPS survey spectrum (a) and high-resolution (b) N 1s; (c) Mn 2p and (d) O 1s spectra of N-C/MnO₂-700.

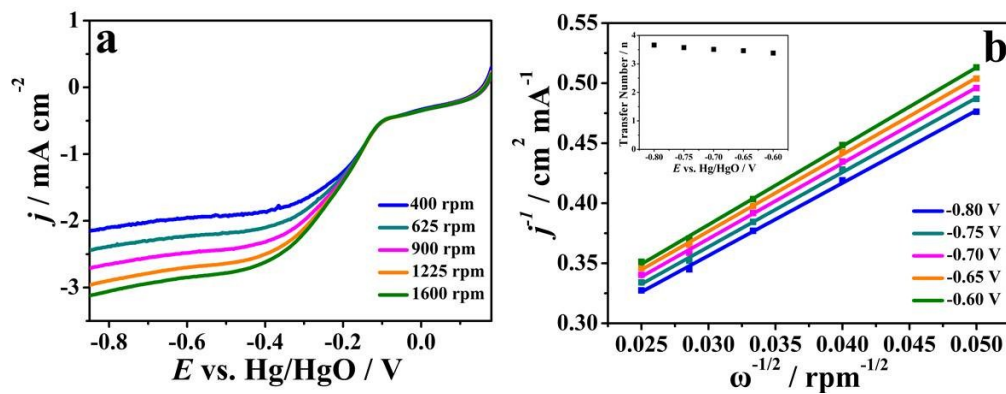


Figure S11. (a) LSV curves of N-C/MnO₂-700 measured at different rotating rates; (b) Corresponding K-L plots of N-C/MnO₂-700 in various potential range (vs. Hg/HgO, the inset gives the calculated electron transfer number at various potentials).

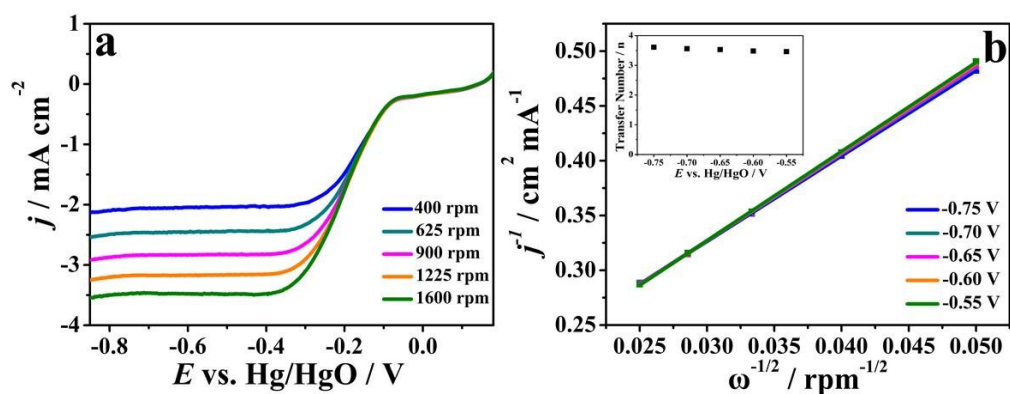


Figure S12. (a) LSV curves of N-C/MnO₂-900 measured at different rotating rates; (b) Corresponding K-L plots of N-C/MnO₂-900 in various potential range (vs. Hg/HgO, the inset gives the calculated electron transfer number at various potentials).

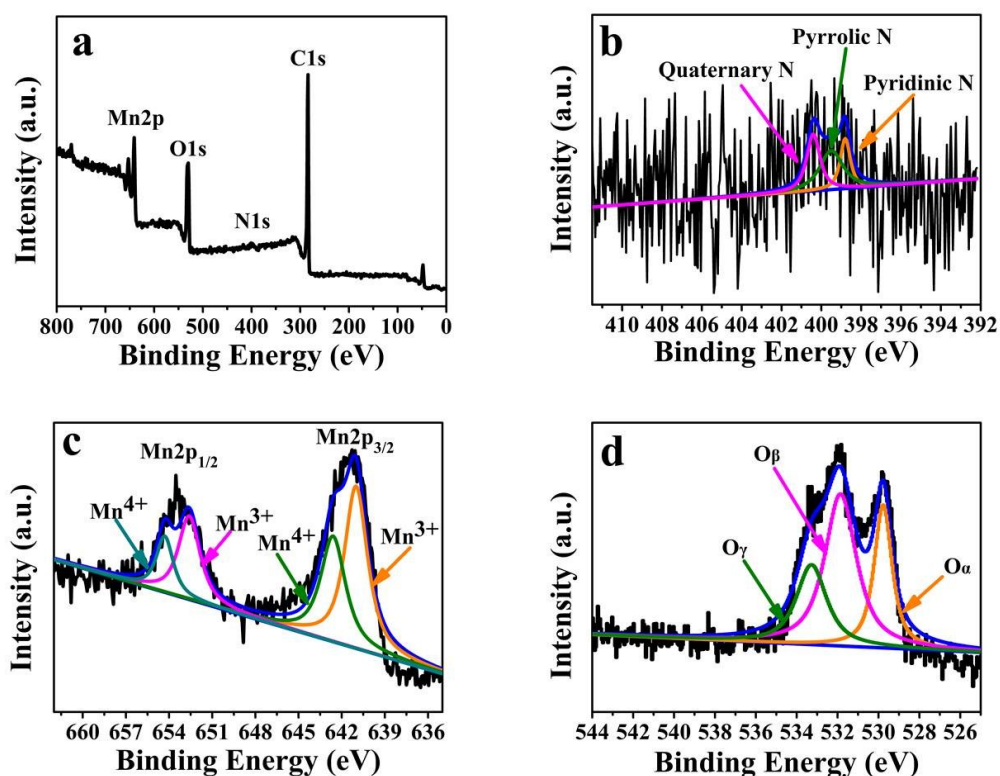


Figure S13. XPS survey spectrum (a) and high-resolution (b) N 1s; (c) Mn 2p and (d) O 1s spectra of N-C/MnO₂-0.6.

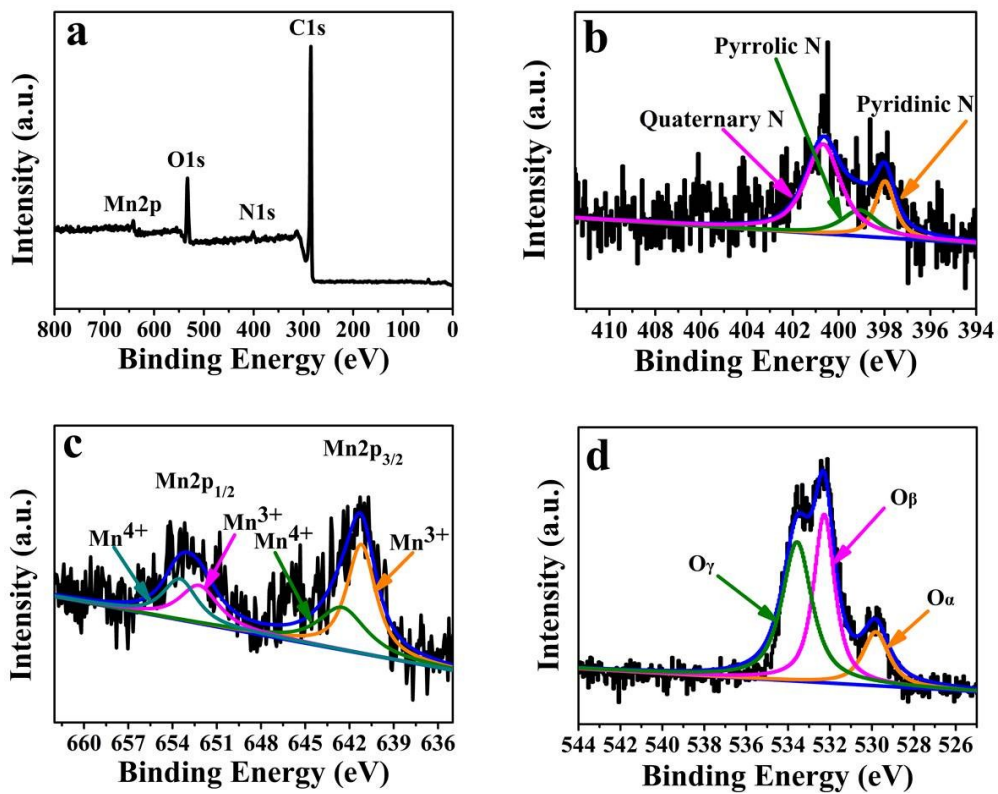


Figure S14. XPS survey spectrum (a) and high-resolution (b) N 1s; (c) Mn 2p and (d) O 1s spectra of N-C/MnO₂-2.5.

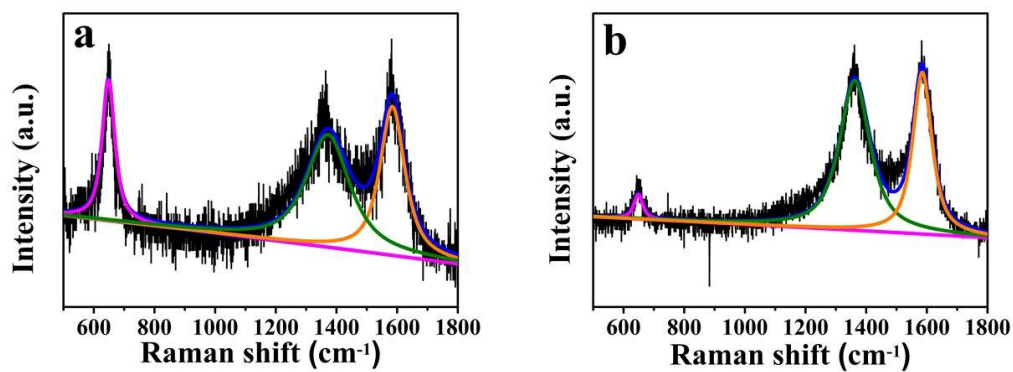


Figure S15. Raman spectra of N-C/MnO₂-0.6 (a) and N-C/MnO₂-2.5 (b).

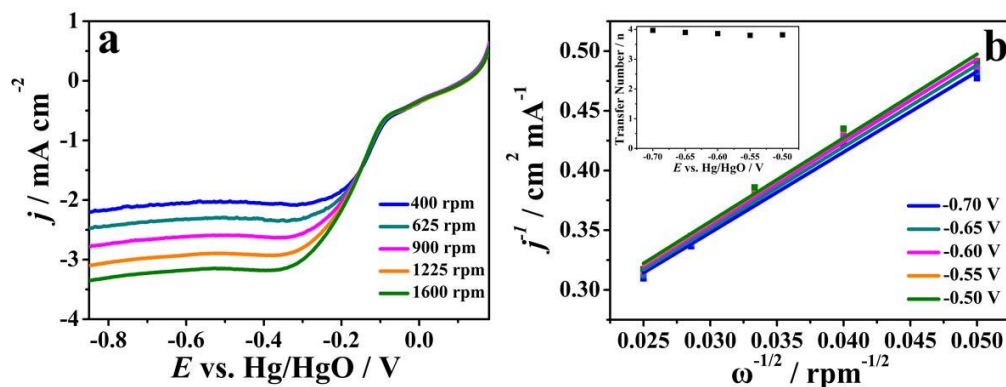


Figure S16. (a) LSV curves of N-C/MnO₂-0.6 measured at different rotating rates; (b) Corresponding K-L plots of N-C/MnO₂-0.6 in various potential range (vs. Hg/HgO, the inset gives the calculated electron transfer number at various potentials).

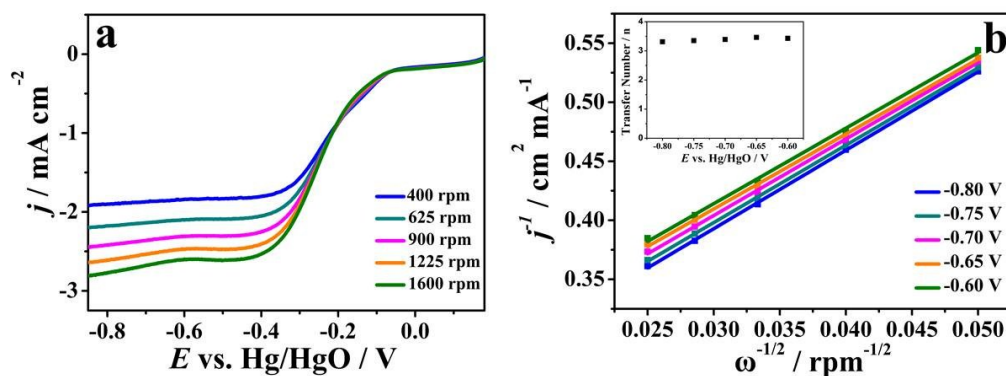


Figure S17. (a) LSV curves of N-C/MnO₂-2.5 measured at different rotating rates; (b) Corresponding K-L plots of N-C/MnO₂-2.5 in various potential range (vs. Hg/HgO, the inset gives the calculated electron transfer number at various potentials).