

Supplementary Information

Defect and oxygen-rich nanocarbon derived from solution plasma for bifunctional catalytic activity of oxygen reduction and evolution reactions

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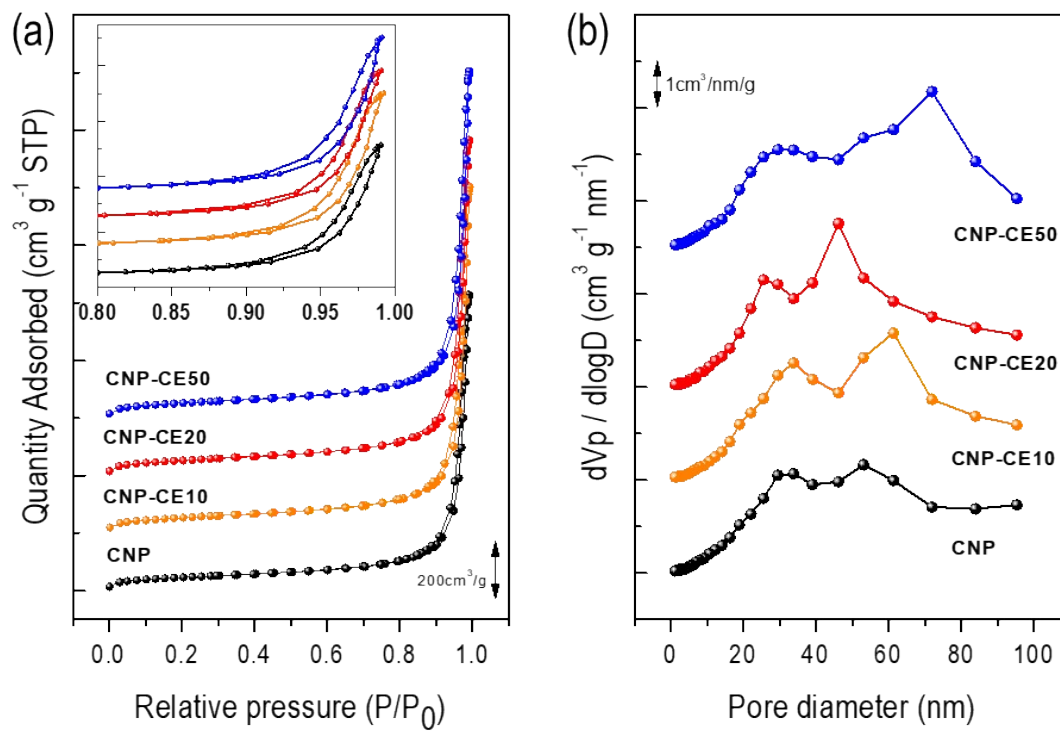


Fig. S1. (a) N_2 adsorption/desorption isotherms and (b) pore size distributions of CNP and CNP-CEs.

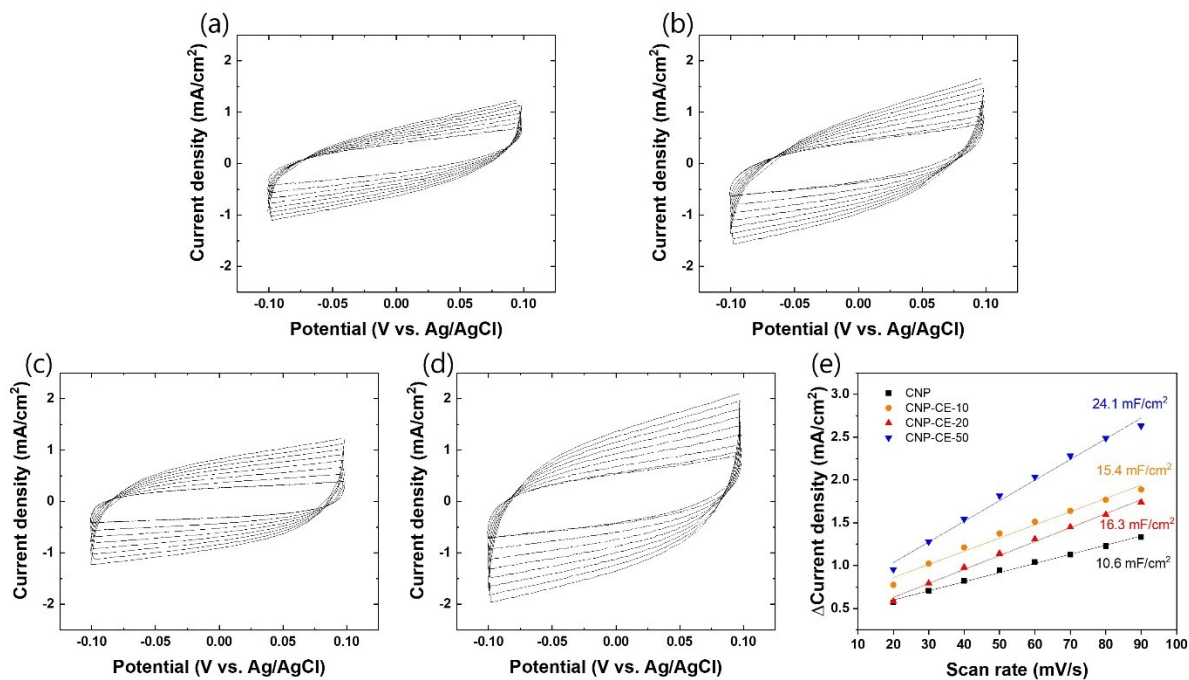


Fig. S2. CV curves of CNP and CNP-CEs in the non-faradaic region for (a) CNP, (b) CNP-CE-10, (c) CNP-CE-20, (d) CNP-CE-50 at scan rate of 20~90 mV/s in the 0.1 M KOH. (e) linear regression between the current density at the various scan rate in the half potential of CV curves for estimation electrochemical active surface areas.

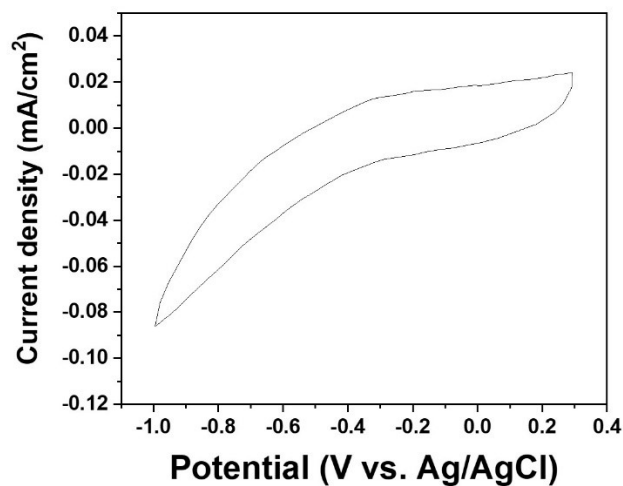


Fig. S3. CV curve of dicyclohexano-18-crown-6 ether.

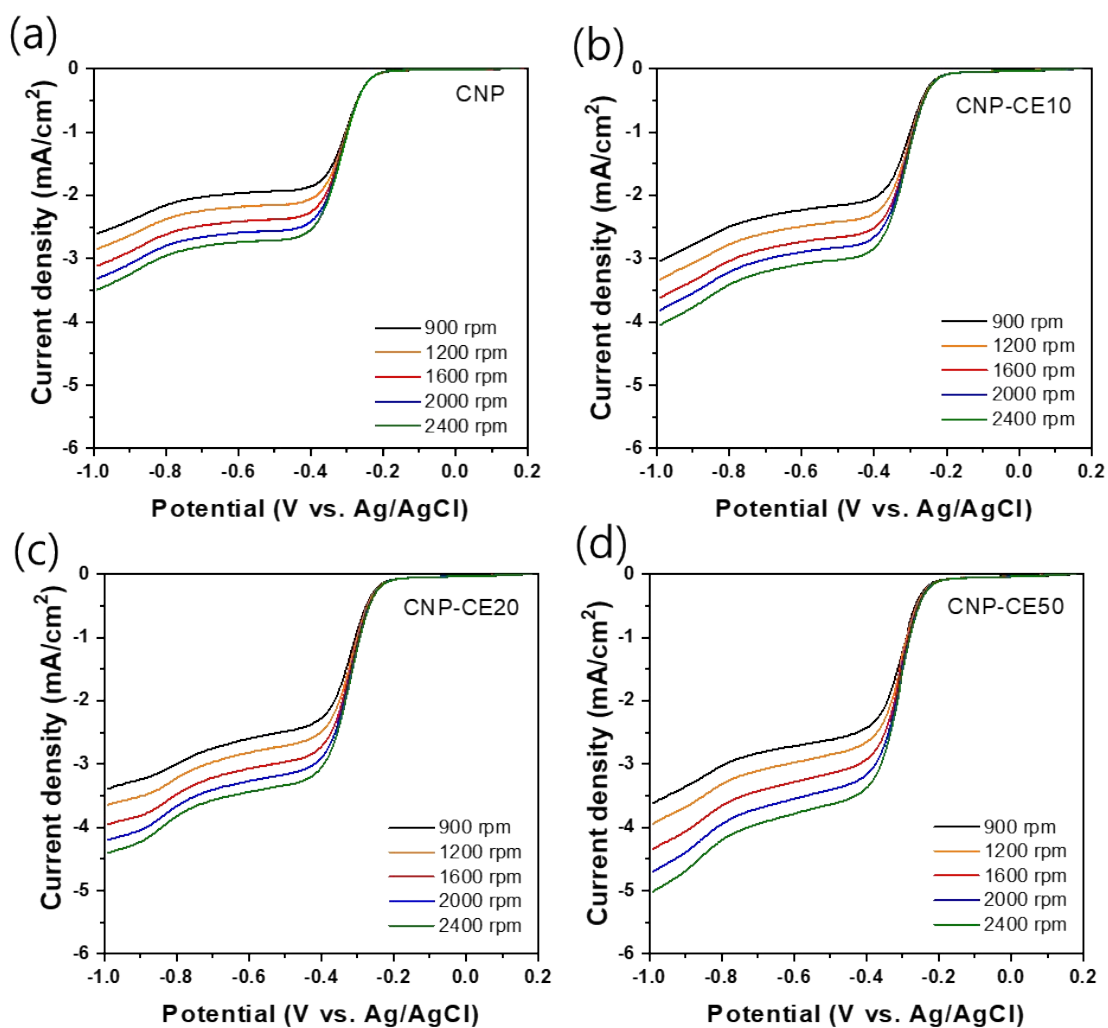


Fig. S4. Linear sweep voltammograms of CNP and CNP-CEs for (a) CNP, (b) CNP-CE-10, (c) CNP-CE-20, and (d) CNP-CE-50 at a scan rate of 10 mV/s in the O₂ saturated 0.1 M KOH.

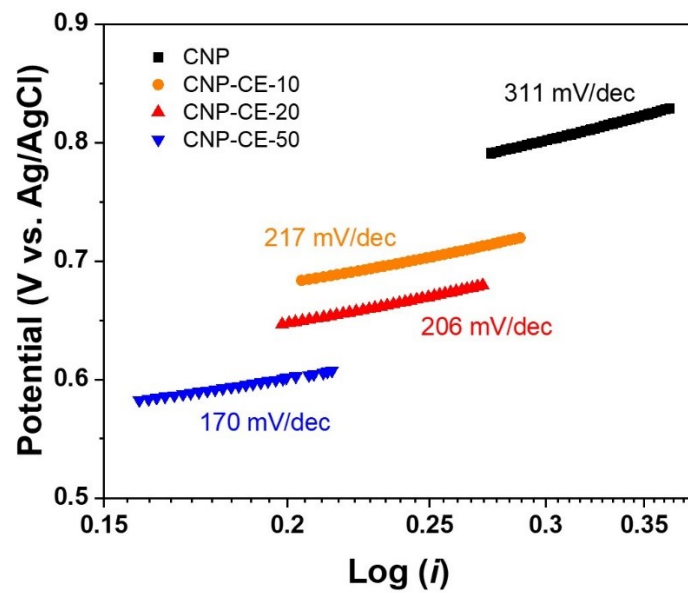


Fig. S5. Tafel slope of CNP and CNP-CEs in the O_2 saturated 0.1 M KOH for OER.