Electronic Supplementary Information (ESI) for-

Scalable production of reduced graphene oxide via biowaste valorisation: An efficient oxygen reduction reaction towards metal-free electrocatalysis

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1) **Results of Linear Sweep Voltammetry**

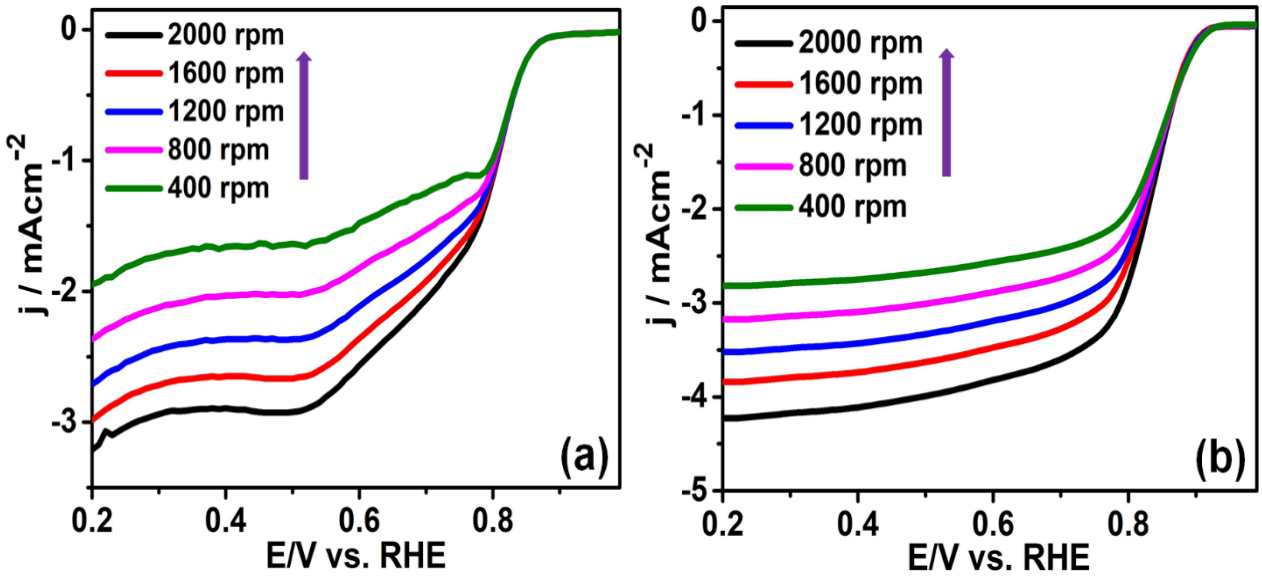

Fig. S1. LSV curves of (a) CS-rGO (b) Pt/C catalysts at different rotating speeds from 400 to 2000 rpm.

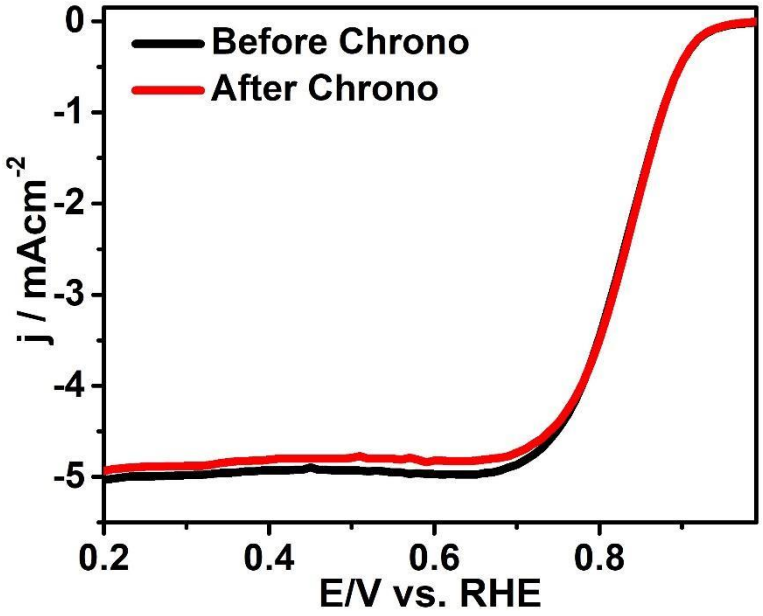

Fig. S2. LSV plots (at 2000 rpm) before and after chronoamperometry studies with NCS-rGO.

2) Computational study

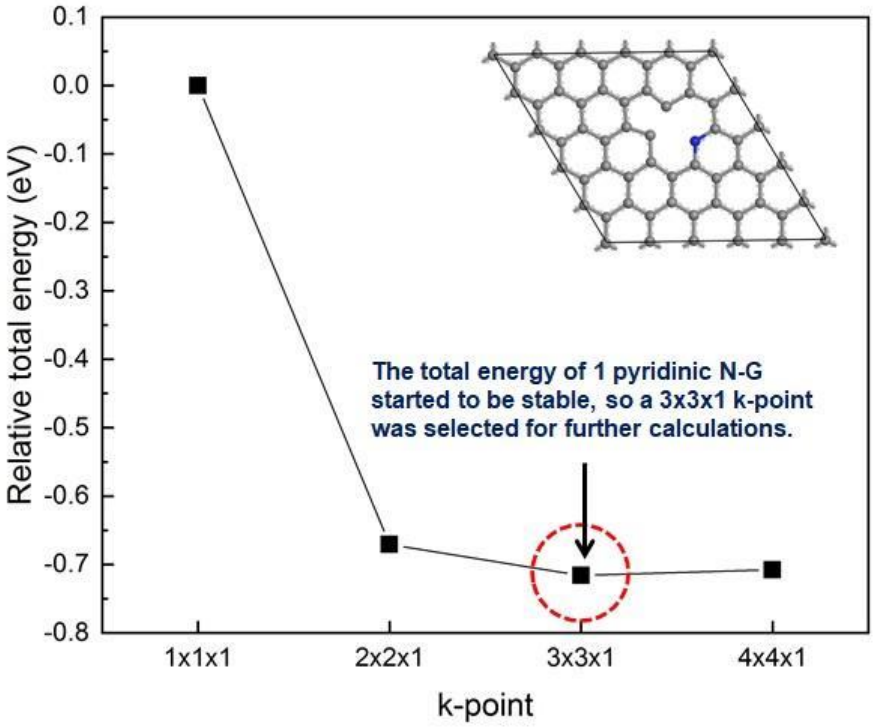

Fig. S3. Relative total energy of 1pyridinic N-G calculated by the PBE/DNP method at different k-points.

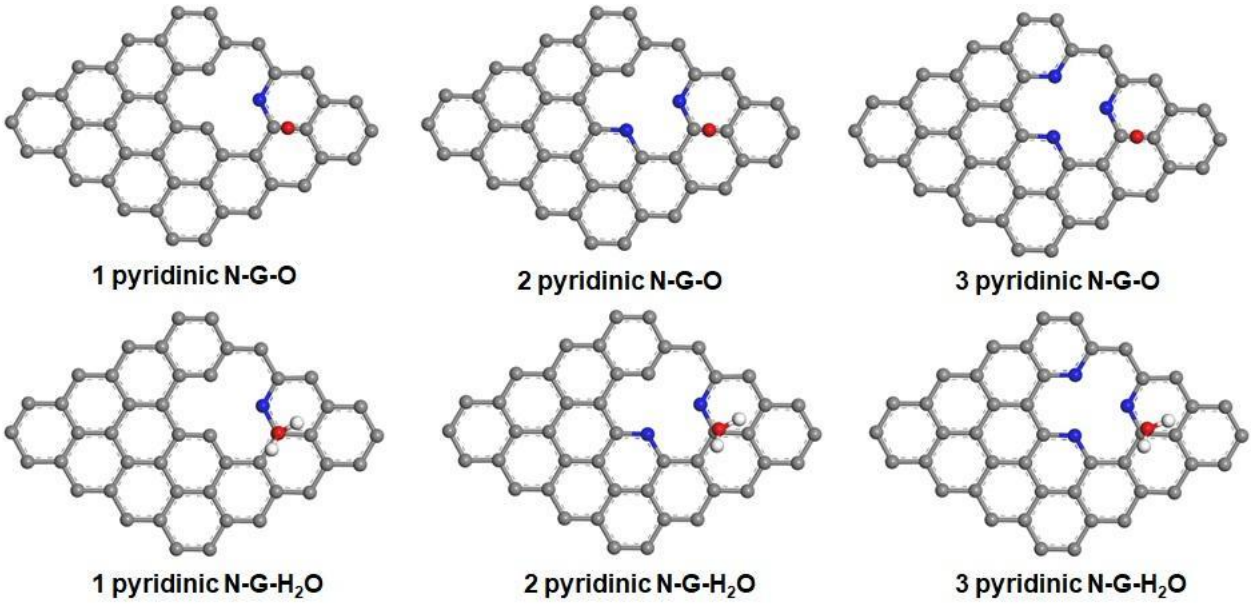

Fig. S4. Optimized geometries of the adsorption complexes composed of Q pyridinic N-G (Q = 1–3) and O or H_2O.