catalysts

Cost-effective and facile preparation of Fe_2O_3 nanoparticles decorated N doped mesoporous carbon materials: transforming mulberry leaf into highly active electrocatalyst for the oxygen reduction reaction

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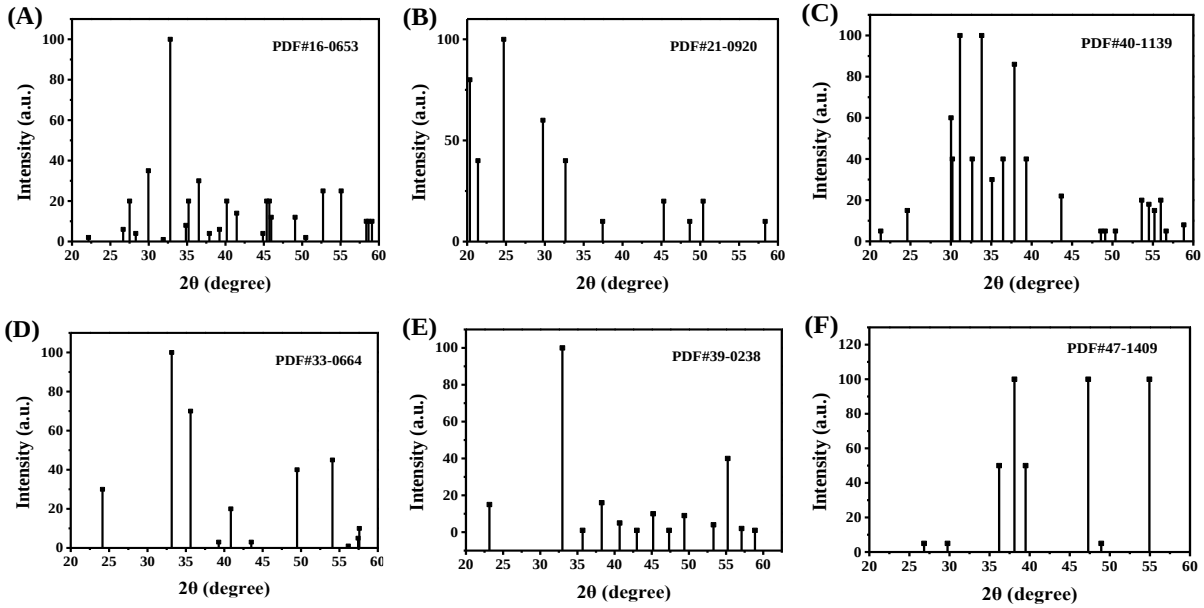

Figure S1. All the Powder Diffraction Files (PDF) of Fe_2O_3 from Joint Committee on Powder Diffraction Standards, PDF#16-0653 (**A**), PDF#21-0920, (**B**) PDF#40-1139 (**C**), PDF#33-0664 (**D**), PDF#39-0238 (**E**), PDF#47-1409 (**F**).

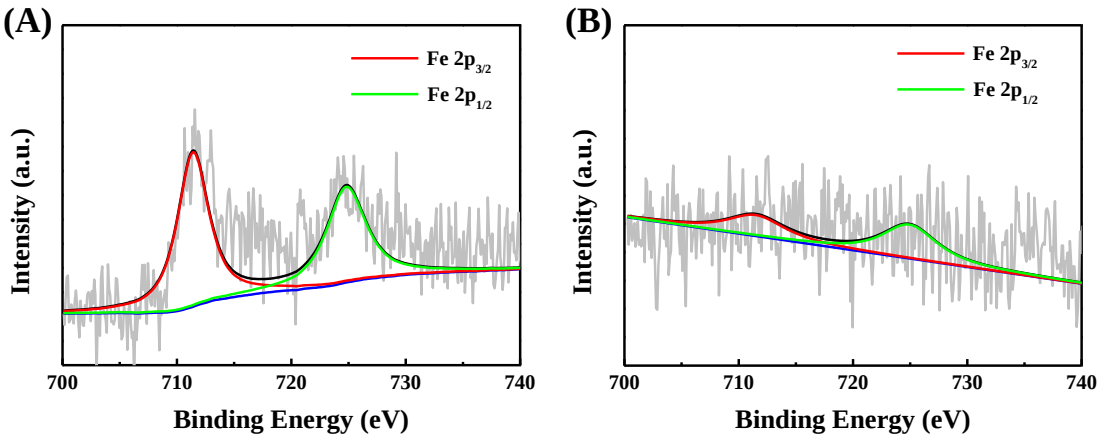

Figure S2. The high-resolution Fe 2p XPS spectra of Fe_2O_3/N-PCs-800(**A**) and Fe_2O_3/N-PCs-900(**B**).

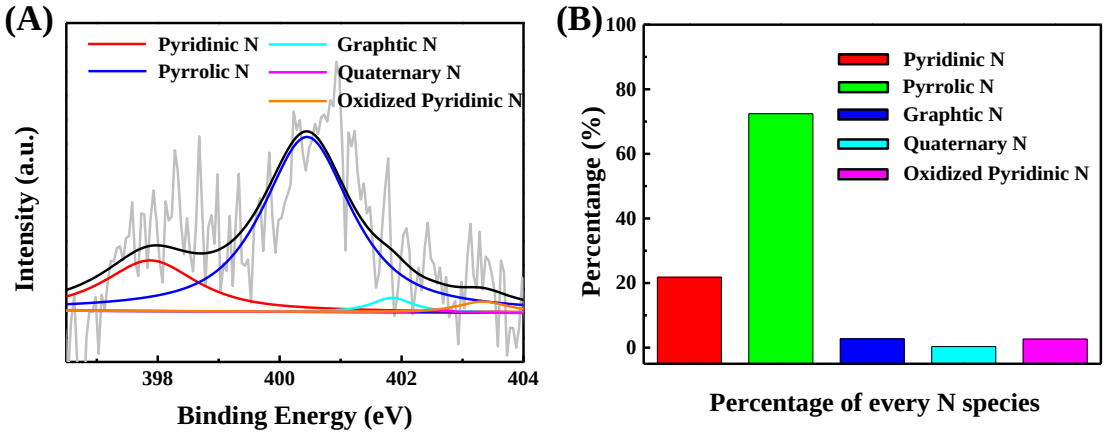

Figure S3. (**A**) N1s XPS spectra for the N-PCs-850 without Fe. (**B**) The percentage of five kinds of N species in N-PCs-850 without Fe.

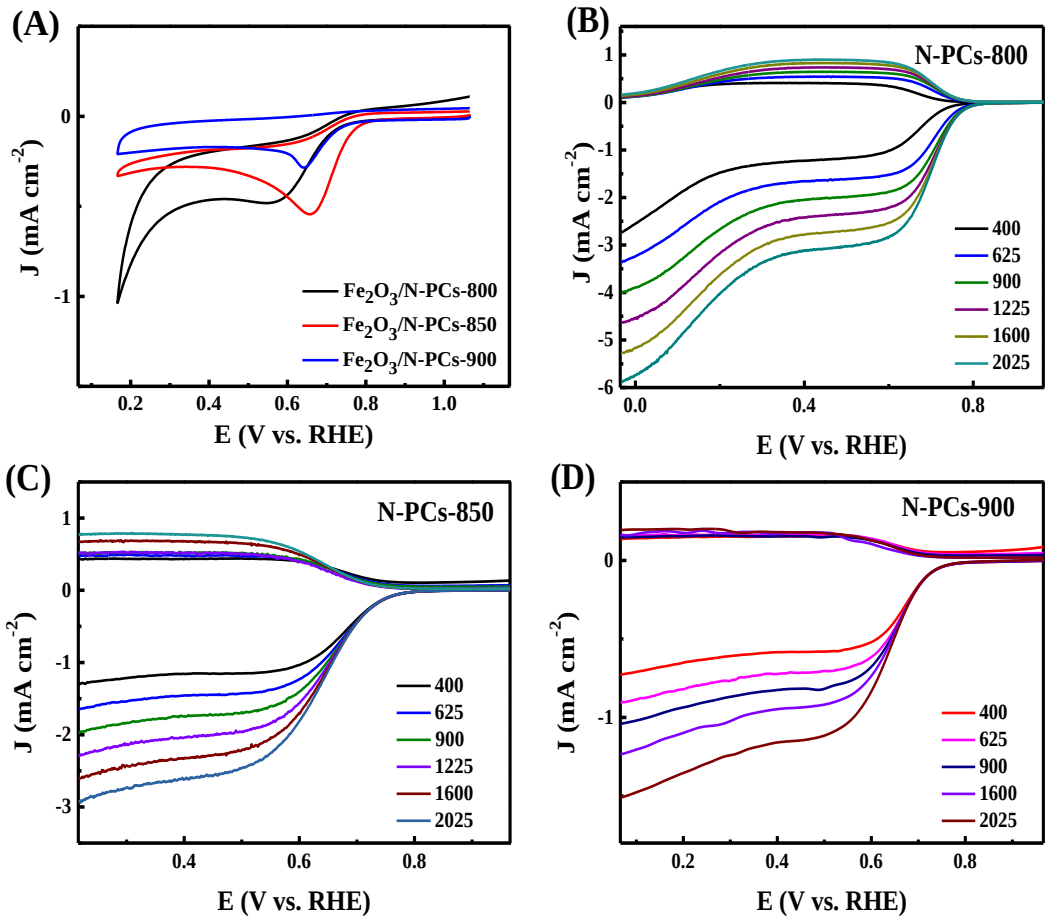

Figure S4. (**A**) Cyclic voltammograms of Fe_2O_3/N-PCs samples modified GC electrodes in an O_2-saturated 0.1 M KOH at a scan rate of 10 mV s^{-1} and LSVs of N-PCs-800 (**B**) N-PCs-850 (C), N-PCs-900 (D) on RRDE in 0.1 M KOH with various rotation rates at a scan rate of 5 mV s^{-1}.

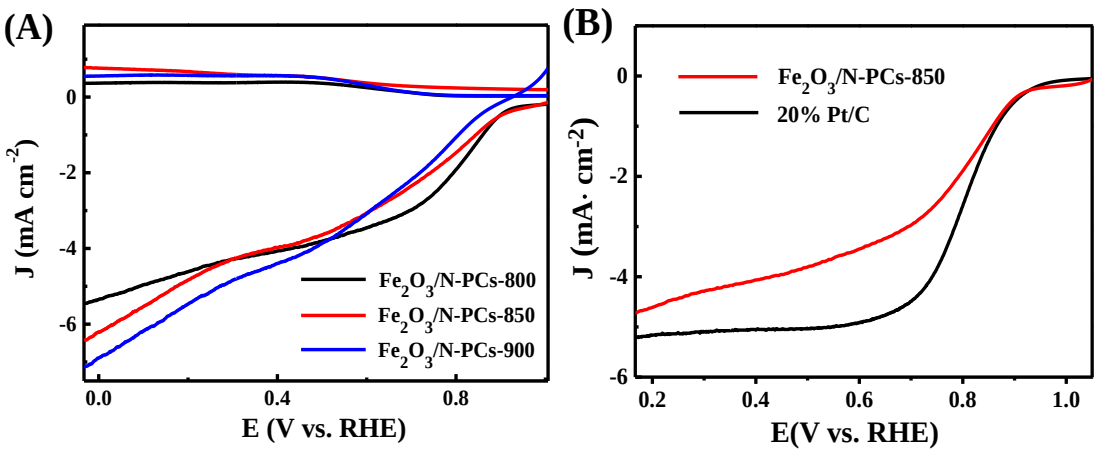

Figure S5. (**A**) The LSV curves of the three kinds of designed catalysts at 1600 rpm derived from the RRDE measurements. (**B**) Both 20% Pt/C and Fe_2O_3/N-PCs-850 LSV curves derived from the RDE measurements at 1600 rpm.

Table S1 C, N, Fe and O element ratios in Fe_2O_3/N-PCs-800, Fe_2O_3/N-PCs-850, and Fe_2O_3/N-PCs-900 from EDX analysis.

Wt%	Fe_2O_3/N-PCs-800	Fe_2O_3/N-PCs-850	Fe_2O_3/N-PCs-900
C	56.78	70.81	83.14
N	4.08	1.99	------
Fe	7.24	9.83	4.26
O	31.90	17.37	12.60