Electronic Supplementary Material (ESI) for RSC Advances.

Microwave-assisted synthesis of nitrogen-doped activated carbon as oxygen reduction catalyst in microbial fuel cells

Haiman Wang[a], Da Li[a], Jia Liu[a*], Luchang Liu[b], Xiangtong Zhou[a], Youpeng Qu[a,c], Jie Zhang[a], Yujie Feng[a*]

[a]State Key Laboratory of Urban Water Resource and Environment, Harbin Institute of Technology. No 73 Huanghe Road, Nangang District, Harbin 150090, China
[b]School of Environment, Liao Ning University. No.66 Chongshan Road, Huanggu District, Shenyang 110000, China
[c]School of Life Science and Technology, Harbin Institute of Technology. No. 2 Yikuang Street, Nangang District, Harbin 150080, China

*Corresponding Author:
E-mail:yujief@hit.edu.cn; phone: (+86)451-86287017
Fax: (+86) 451-86287017;
* Co-Corresponding Author:
E-mail:jia14921@163.com

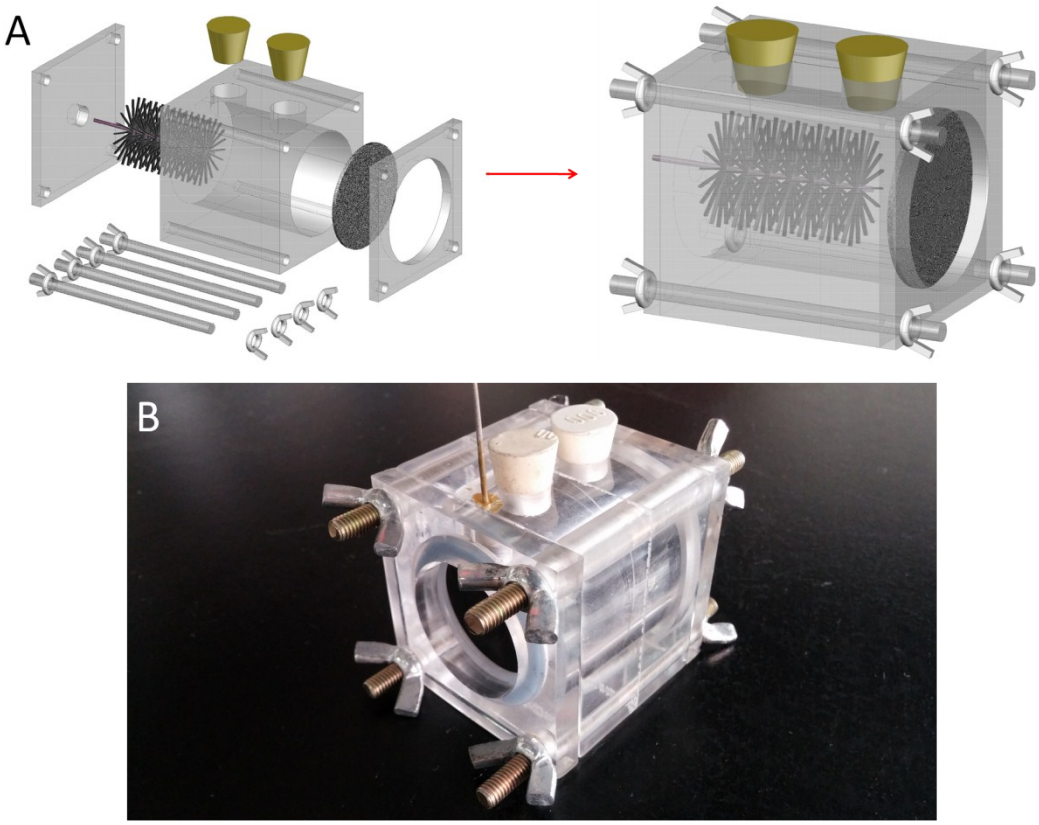

Fig. S1 (A) Schematic diagram, and (B) photo of the single-chamber, air-cathode MFC

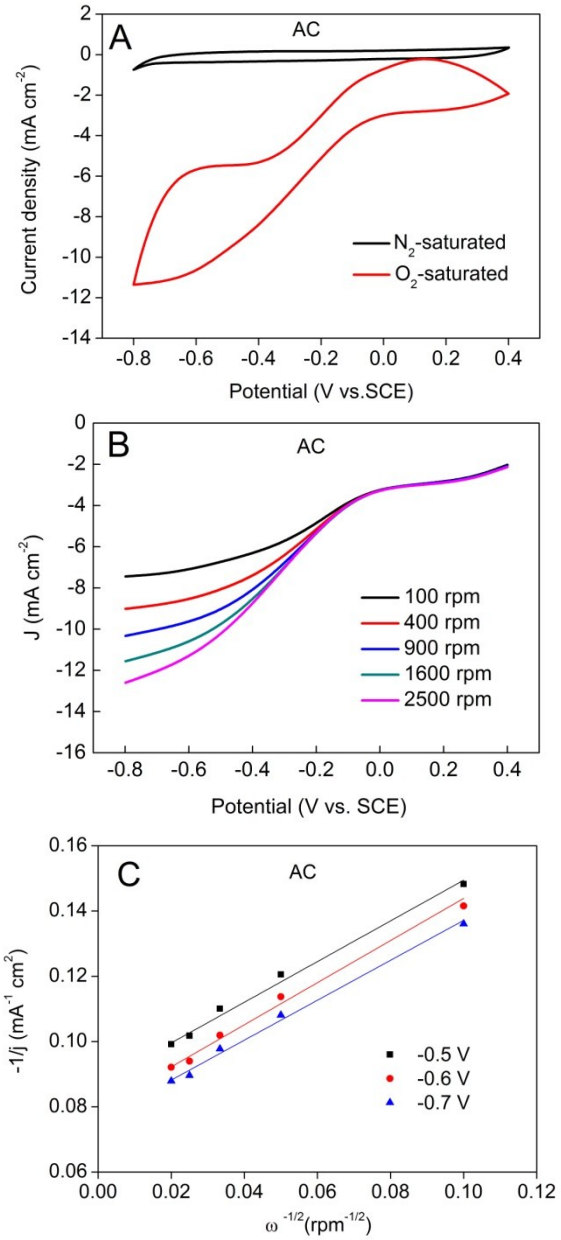

Fig. S2 (A) CVs for AC catalyst in N_2-saturated and O_2-saturated neutral PBS (B) LSVs for AC catalyst in O_2- saturated neutral PBS at different rotating rates (C) Koutecky–Levich plots for AC catalyst at different electrode potentials

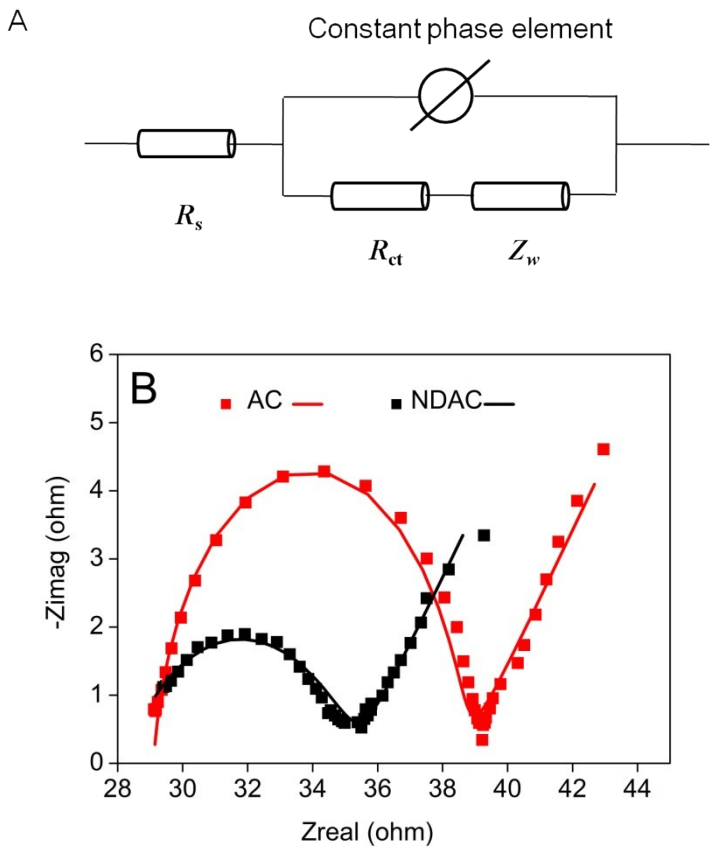

Fig. S3 (A) Equivalent circuit for the simulation of electrochemical impedance spectroscopy (EIS) (R_s: solution resistance; R_{ct}: charge transfer resistance; Q: constant-phase element; Z_w: diffusion resistance) (B) Nyquist plots of EIS for DNAC and AC cathodes over a frequency range of 100 kHz to 1 mHz with the amplitude of 10 mV