Supporting Information

Hierarchical porous carbon fibers for enhanced interfacial electron transfer of electroactive biofilm electrode

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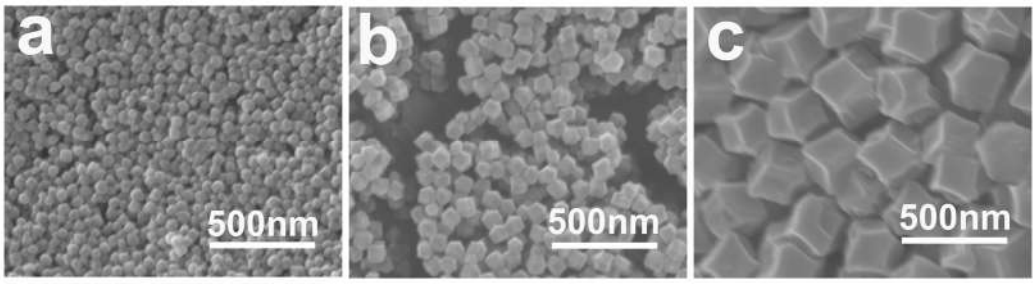

Figure S1. FESEM images of ZIF-8 nanoparticles of different sizes (a) 50 nm, (b) 100nm and (c) 200nm.

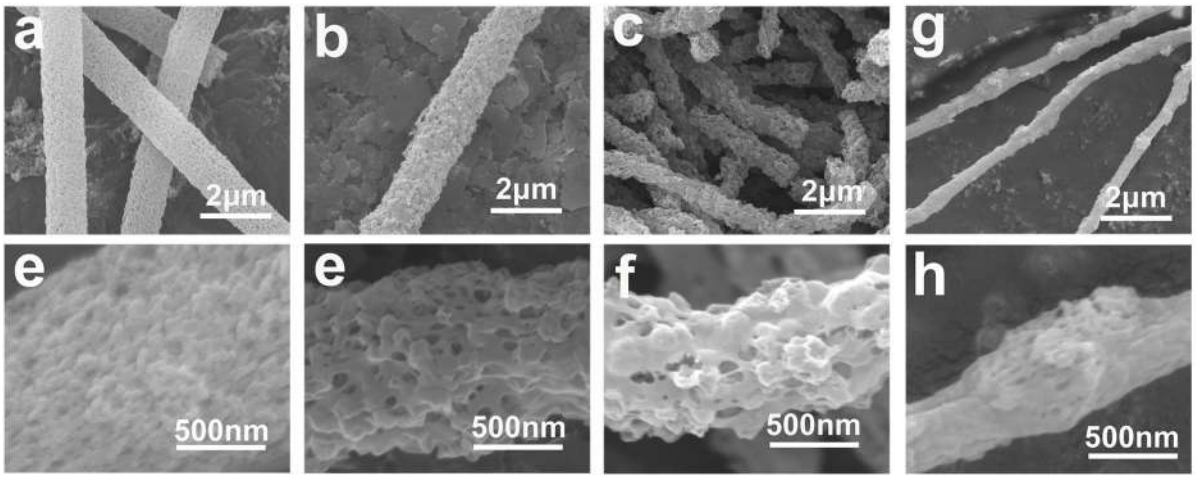

Figure S2. FESEM images of electrospun carbon fibers prepared by different nano templates. (a, d) ZnO nanoparticles of 50nm, (b, e) ZIF-8 nanoparticles of 100nm, (c, f) ZIF-8 nanoparticles of 200 nm.

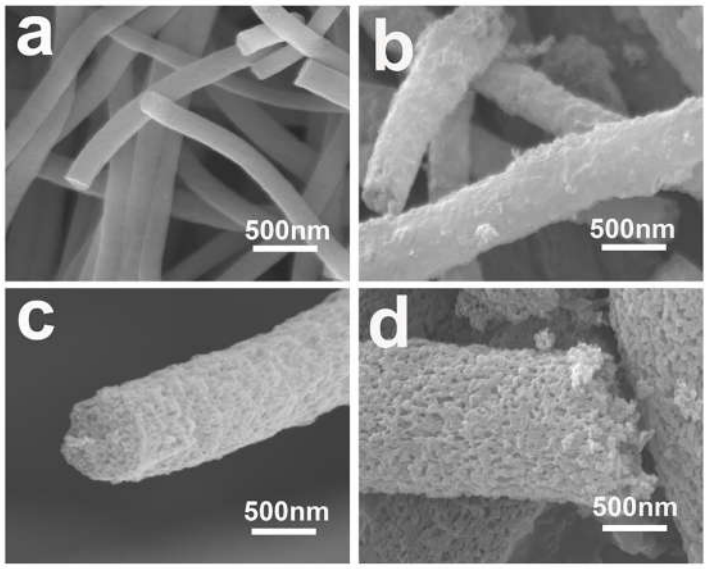

Figure S3. FESEM images of cross-section of carbon fibers (a) CPAN, (b) NPCF-1, (c) NPCF-2, (d) NPCF-3.

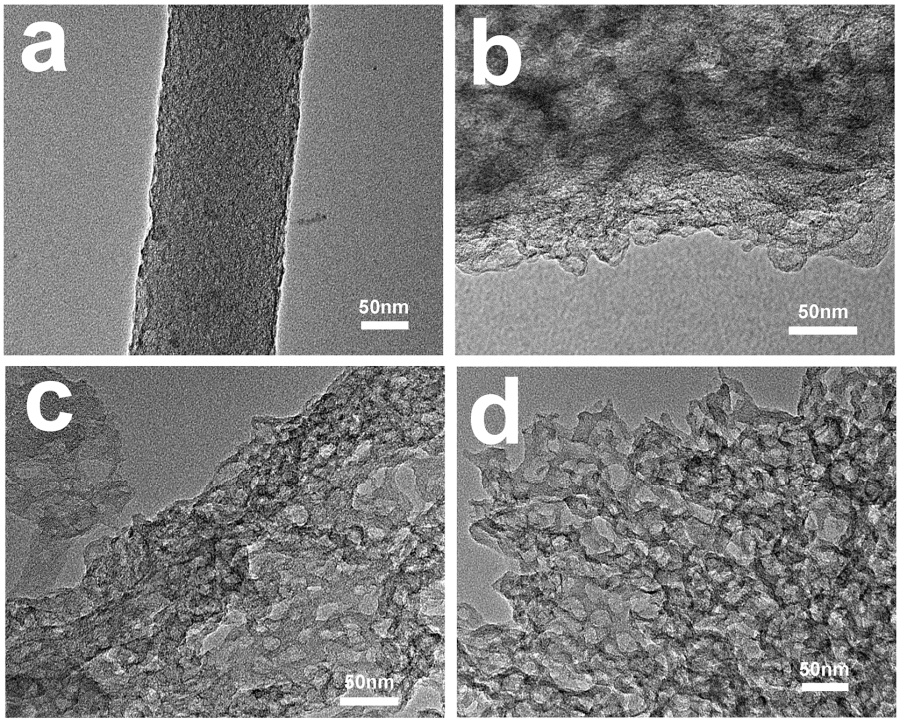

Figure S4. TEM images of carbon fibers (a) CPAN, (b) NPCF-1, (c) NPCF-2, (d) NPCF-3.

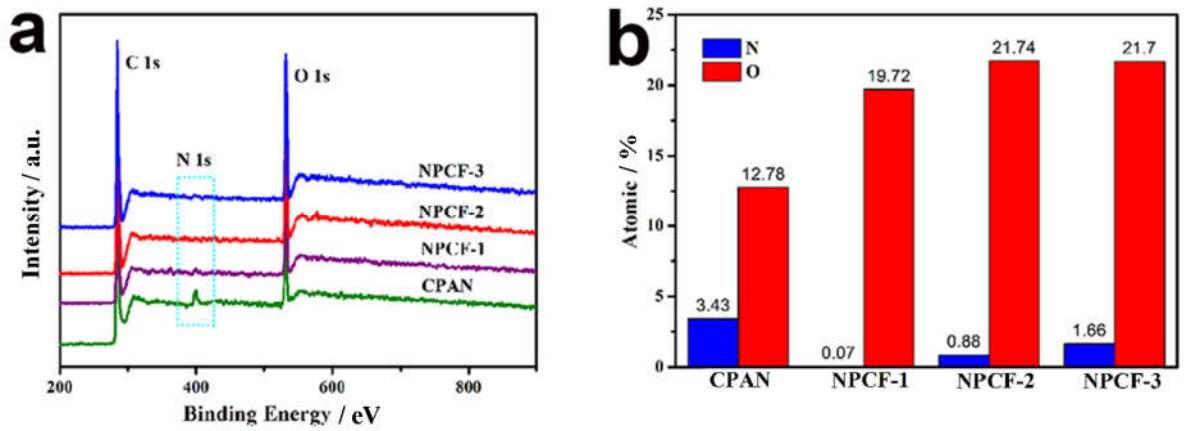

Figure S5. (a) XPS survey spectra, (b) the atomic percentage of N and O of CPAN, NPCF-1, NPCF-2 and NPCF-3.

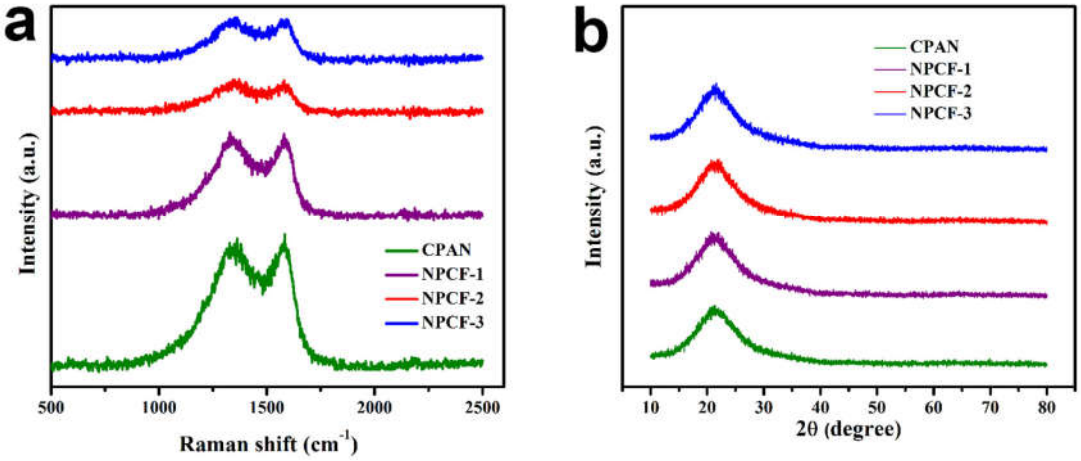

Figure S6. Raman spectra and XRD patterns of CPAN, NPCF-1, NPCF-2 and NPCF-3.

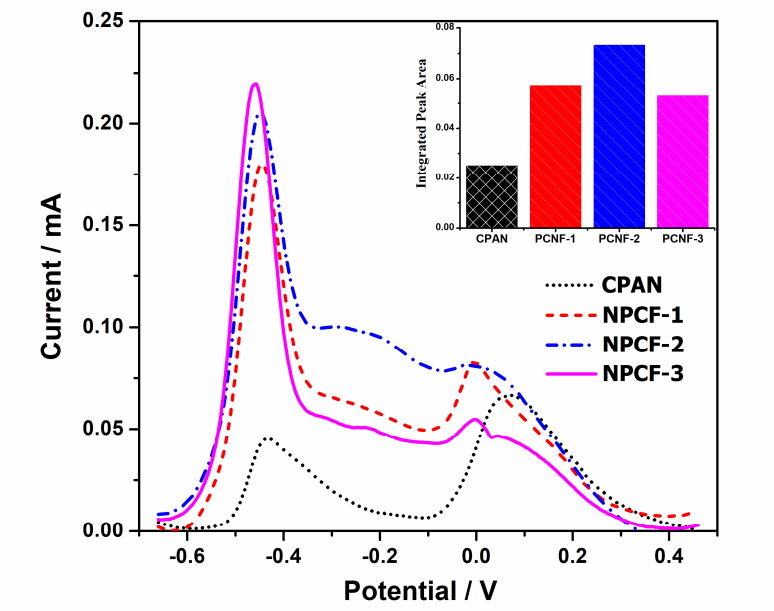

Figure S7. DPV curves of different anodes in the

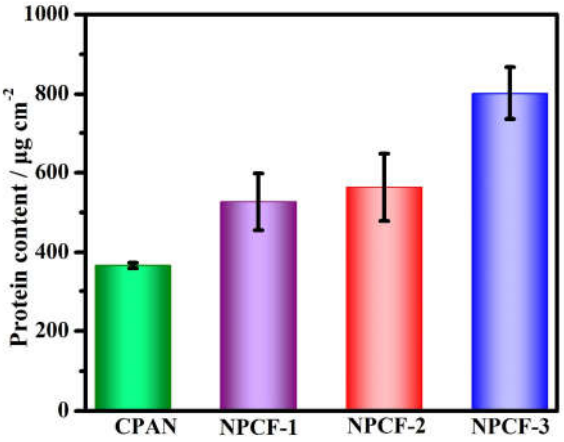

Figure S8. Total protein content of the biofilm on CPAN, NPCF-1, NPCF-2 and NPCF-3.

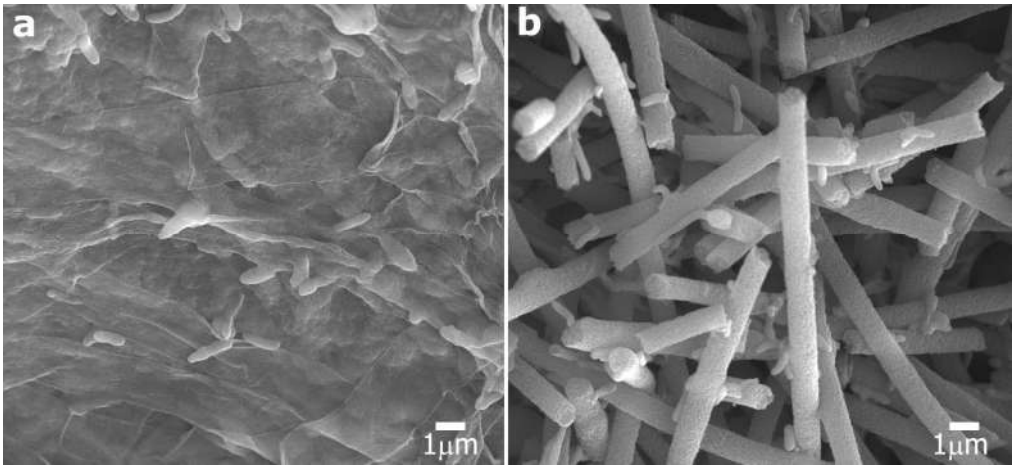

Figure S9. (a) The biofilm covered on NPCF-3 anode; (b) morphology of the area without biofilm coverage for NPCF-3 anode.

Figure S10. Dual-chamber MFC device

Table S1 Summary of the diameter, bulk density, I_D/I_G ratio and power density of different carbon fiber materials.

Samples	Diameter (nm)	Apprent density (mg mL^{-1})	I_D/I_G	Power density in CN32 MFC (mW m^{-2})
CPAN	230	66.64	1.012	277±26
NPCF-1	420	15.40	1.012	780±57
NPCF-2	740	11.12	1.008	997±61
NPCF-3	1150	5.84	1.004	902±36
carbon cloth	~10000	363	-	101±5