

## Supporting information

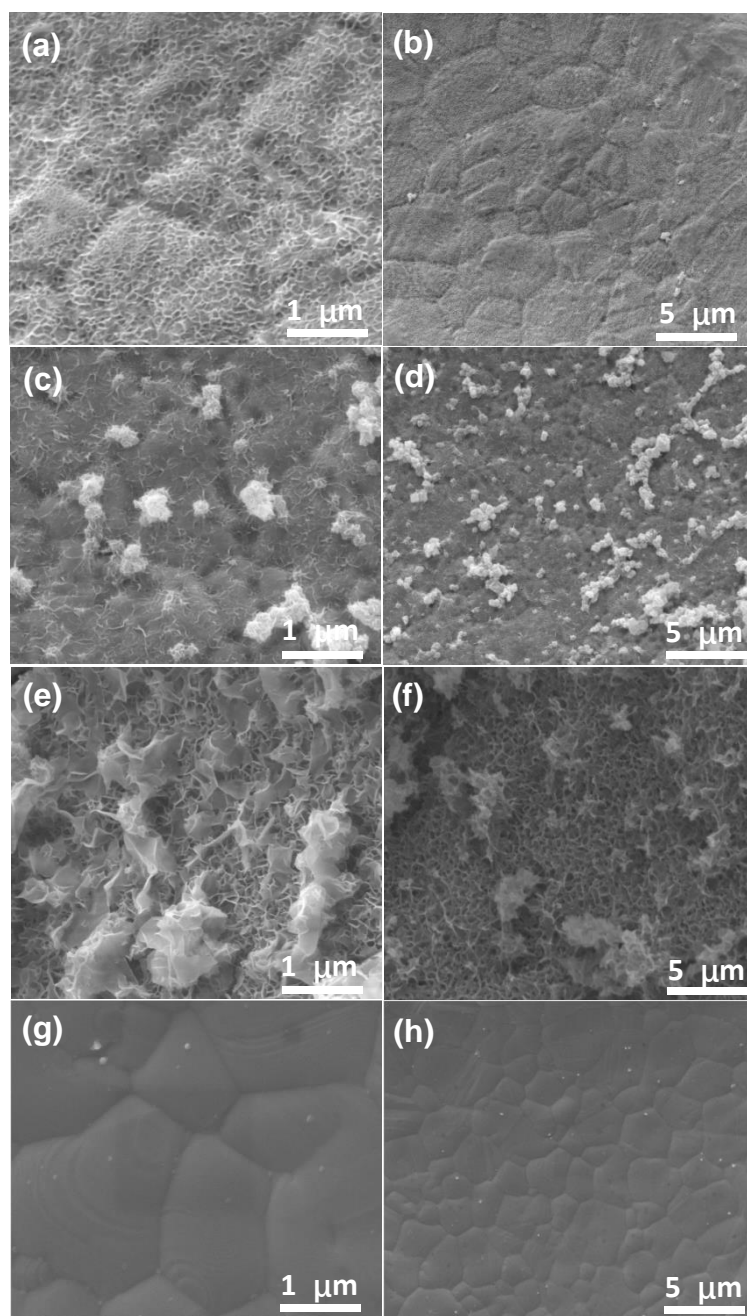


Figure S1. SEM images of (a,b) Fe(BPDC)-1, (c,d) Fe(BPDC)-2, (e,f) Fe(BPDC)-3, (g,h) sample without iron source.

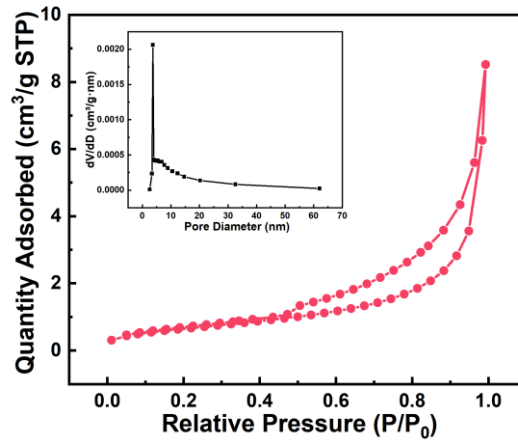


Figure S2. BET analysis of the Fe(BPDC)-3

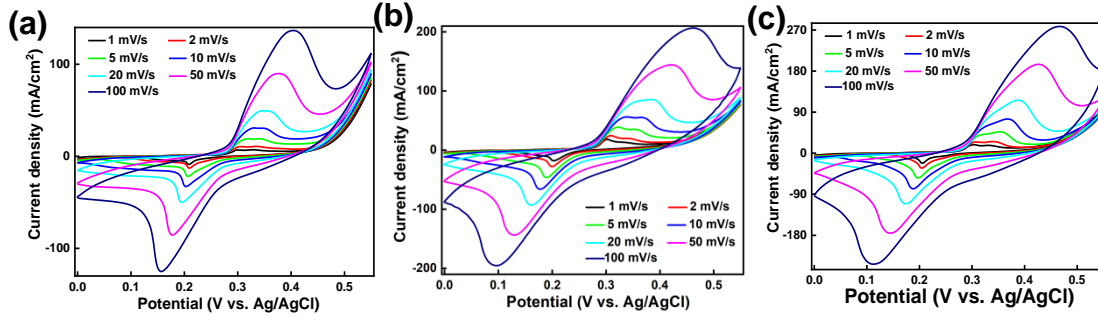


Figure S3. CV curves of (a) Fe(BPDC)-1, (b) Fe(BPDC)-2, (c) Fe(BPDC)-3 electrode.

Materials	electrolyte	Potential window	specific capacity	cycle performance	Year[Reference]
Fe(TATB)(Tipa)(H <sub>2</sub> O) (FeSC)	6 M KOH	0-0.5 V	409.2 C/g at 1 A/g		2021[50]
Fe-MOF/Ni(OH) <sub>2</sub>	3 M KOH	0-0.7 V	188 mAh/g at 1 A/g		2021[51]
Ni-Co-Fe-S (NFCs-NS)	6M KOH	0-0.6 V	1156 C/g at 2 A/g	92.9% (10000)	2020[52]
Fe-Co-S/NF	1 M KOH	0-0.6 V	2695 F/g at 1 A/g	84% (1000)	2019[53]
u-hl- MOF/NRSs	3 M KOH	0-0.6 V	13.14 F/cm <sup>2</sup> at 2 mA/cm <sup>2</sup> ,	96.5% (10000)	2020[54]
Ni-MOF@NCS/NF	2 M KOH	0-0.6 V	8.7C/cm <sup>2</sup> at 1 mA/cm <sup>2</sup>	89.7% (5000)	2021[55]
Fe(BPDC)	3 M KOH	0-0.55 V	17.54 F/cm <sup>2</sup> at 1mV/s	127% (10000)	This work

Table S1 Comparison of Fe(BPDC)-3 with published MOFs cathode

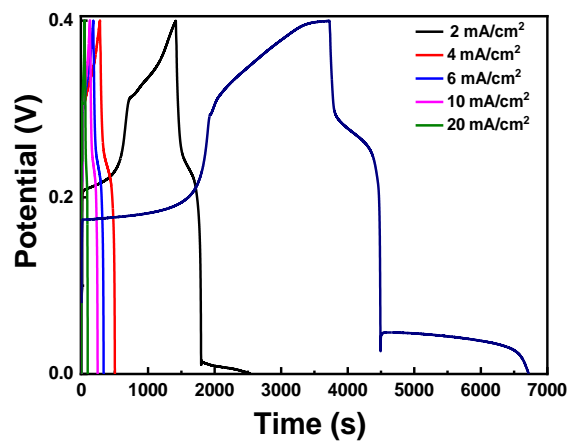


Figure S4. GCD curves at different current densities of Fe(BPDC)-3.

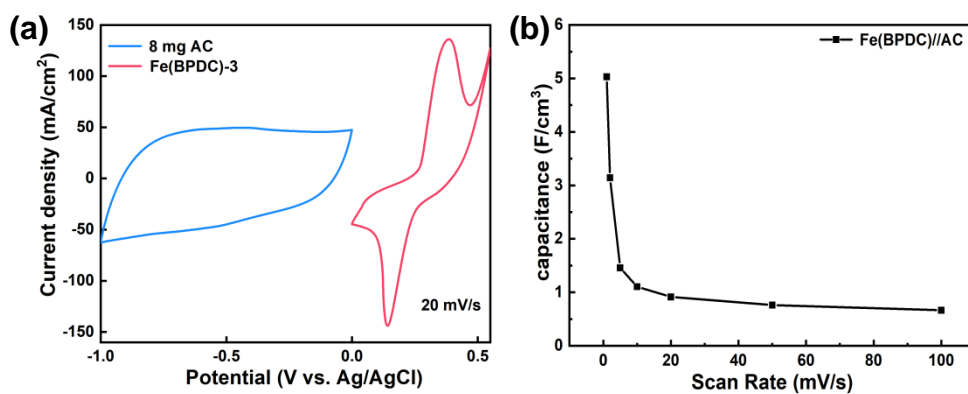


Figure S5. (a) Comparison of CV curves at 20mV/s of Fe(BPDC)-3 and AC. (b) Capacitance of Fe(BPDC)//AC.