

Electronic Supplementary Information (ESI)

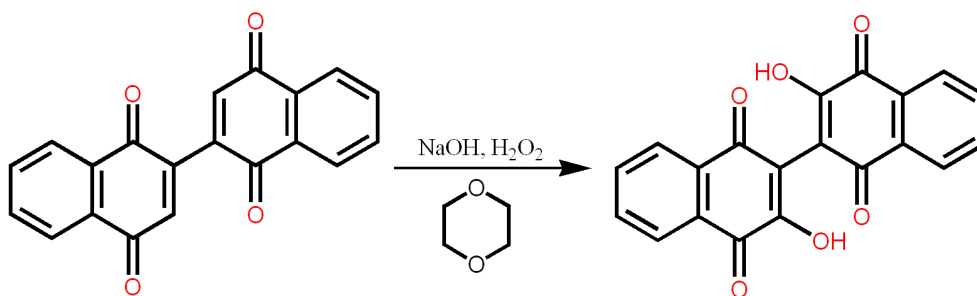
2,2'-bis(3-hydroxy-1,4-naphthoquinone)/CMK-3 nanocomposite as cathode material for lithium-ion batteries

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Scheme. S1 synthetic route of H₂bhnq

Elemental analysis shows that the synthesized H₂bhnq consists of 70.24% C and 2.36% H, corresponding to its calculated values: 69.37% C and 2.91% H. IR (KBr) 3349 and 3289 cm⁻¹ (OH), 1671, 1643, 1631 cm⁻¹ (C=O); ¹H NMR (DMSO-d₆) 7.89 (4H, m, 6- 7-, 6'- and 7'-H), 8.01 (2H, dd, 8- and 8'-H), 8.10 (2H, d, 5- and 5'-H) 11.53 (2H, brs, 3- and 3'-OH); ¹³C NMR (DMSO-d₆) 115.4, 125.9, 126.0, 130.1, 131.9, 133.5, 134.9, 156.3, 180.8, 182.2.

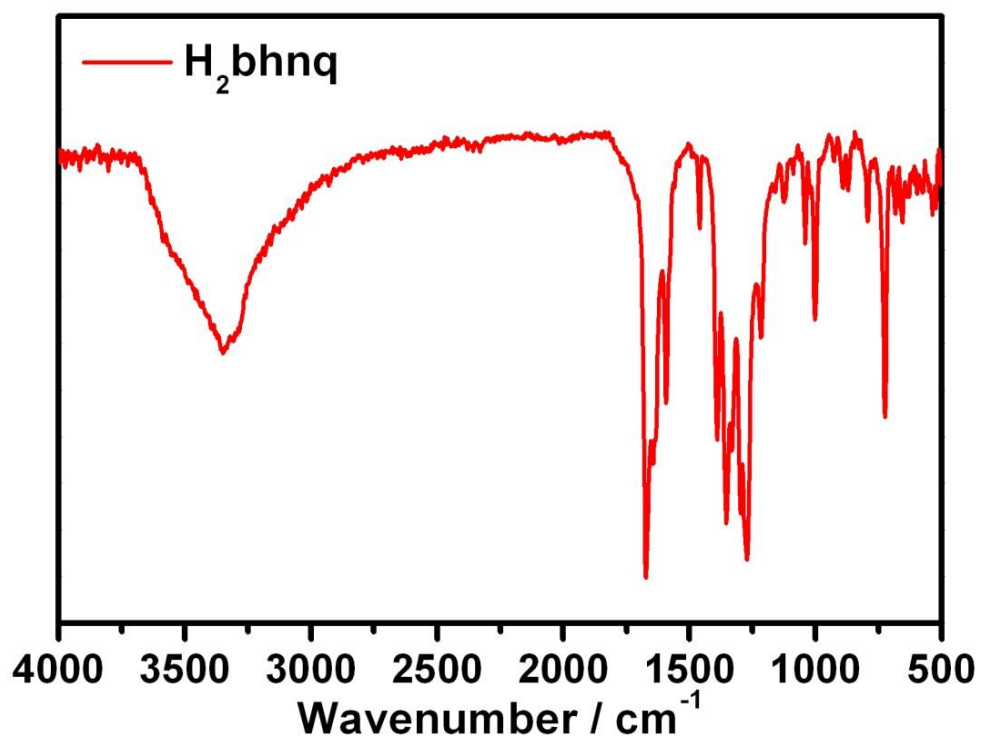


Fig. S1 The FT-IR spectra of H₂bhnq (KBr pellets)

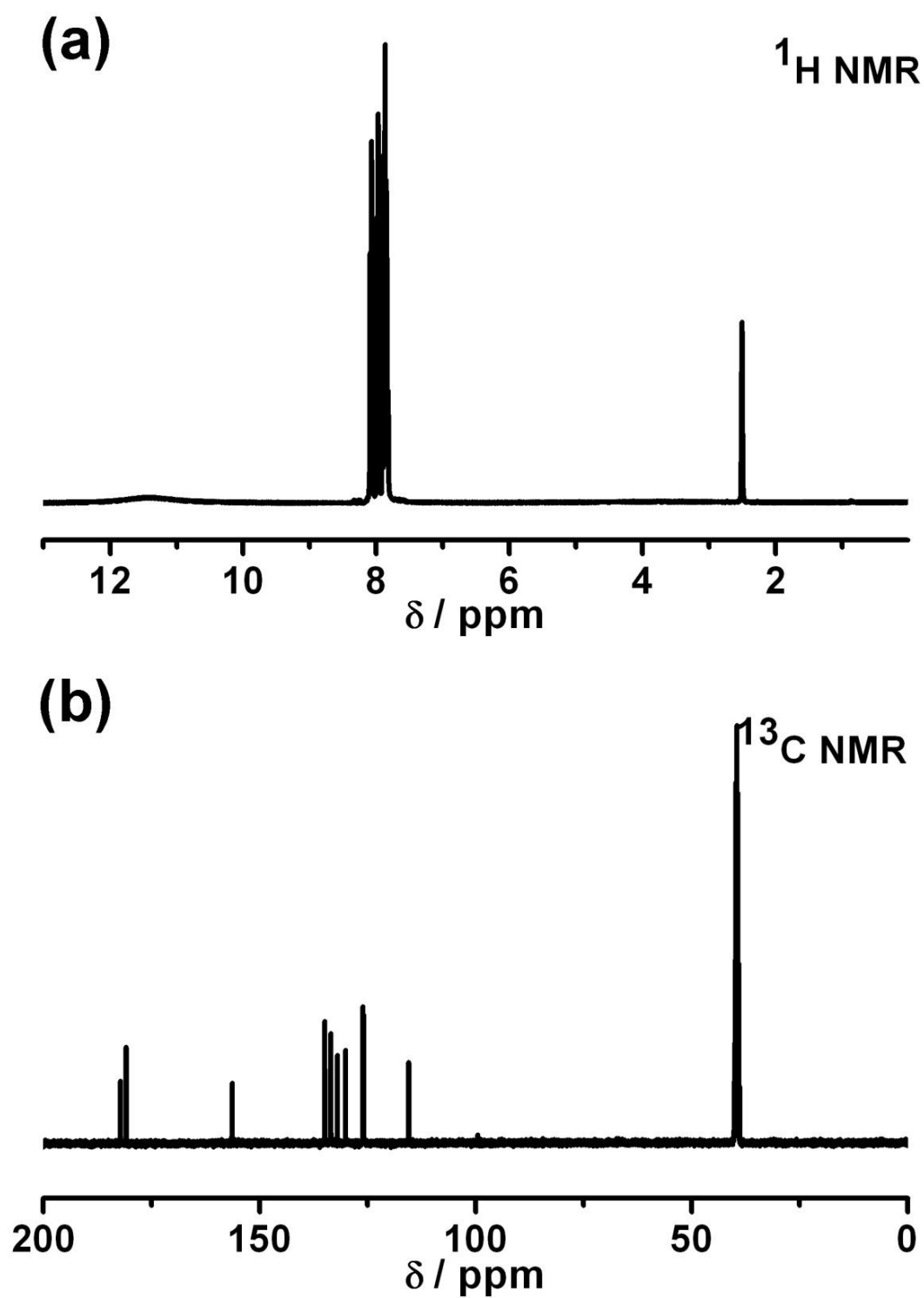


Fig. S2 ^1H and ^{13}C NMR of H_2bhnq

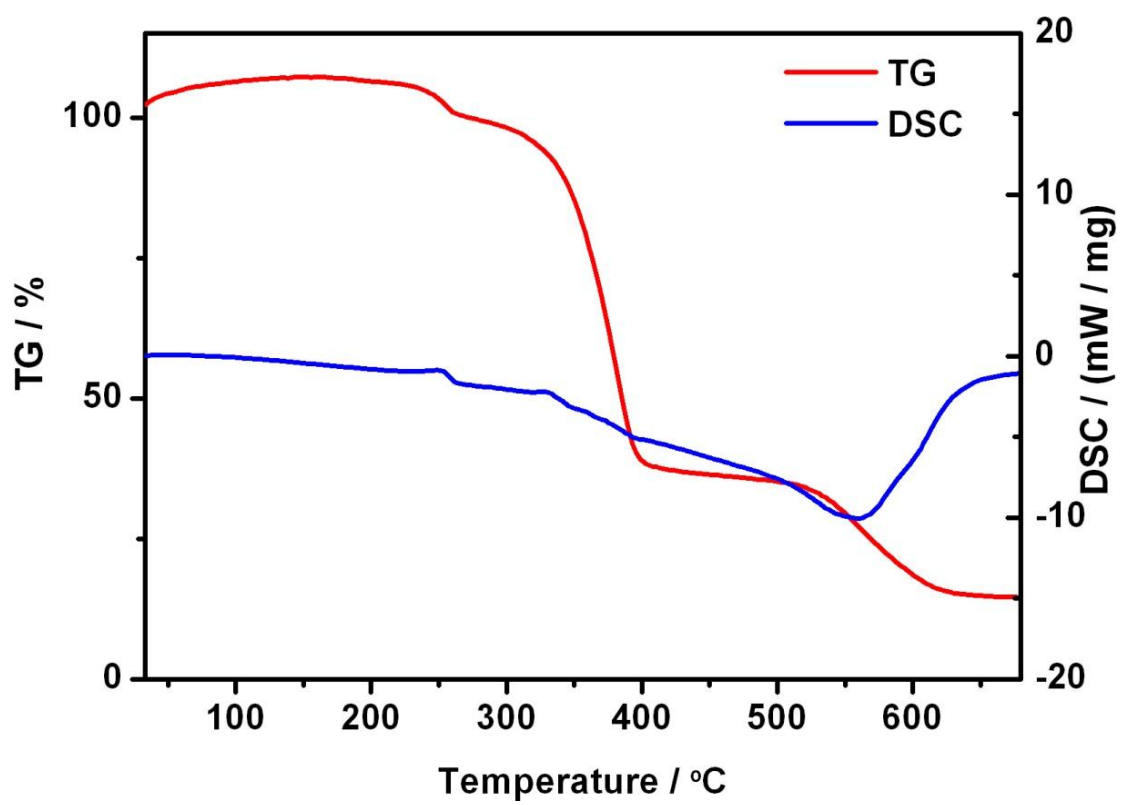


Fig. S3 TG-DSC curves of H₂bhnq

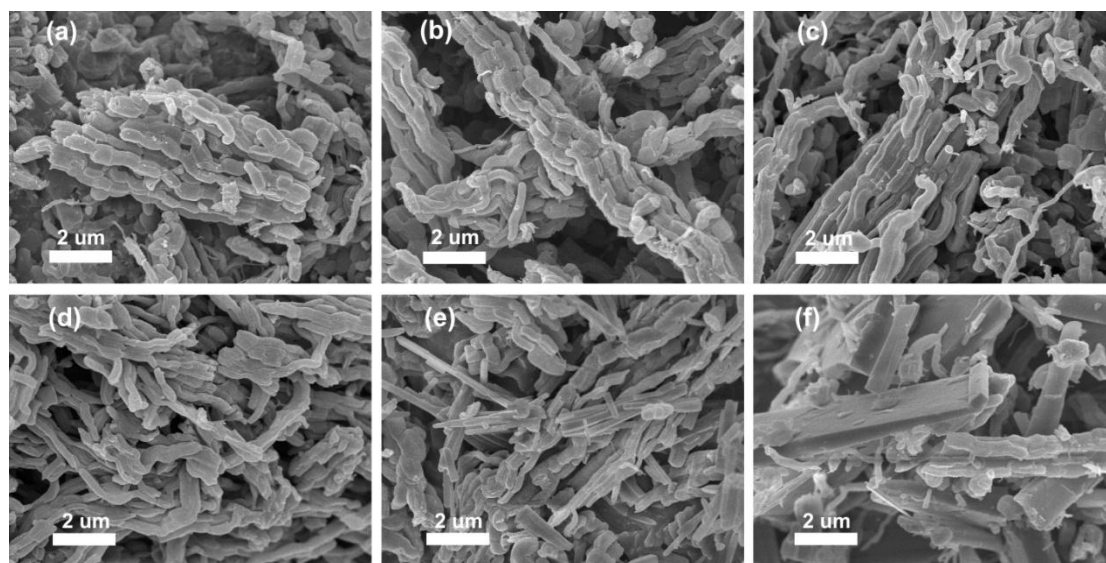


Fig. S4 SEM images of (a) CMK-3, (b) H₂bhnq/CMK-3 composite with 25wt.% H₂bhnq, (c) H₂bhnq/CMK-3 composite with 33wt.% H₂bhnq, (d) H₂bhnq/CMK-3 composite with 50wt.% H₂bhnq, (e) H₂bhnq/CMK-3 composite with 66wt.% H₂bhnq, (f) H₂bhnq/CMK-3 composite with 75wt.% H₂bhnq

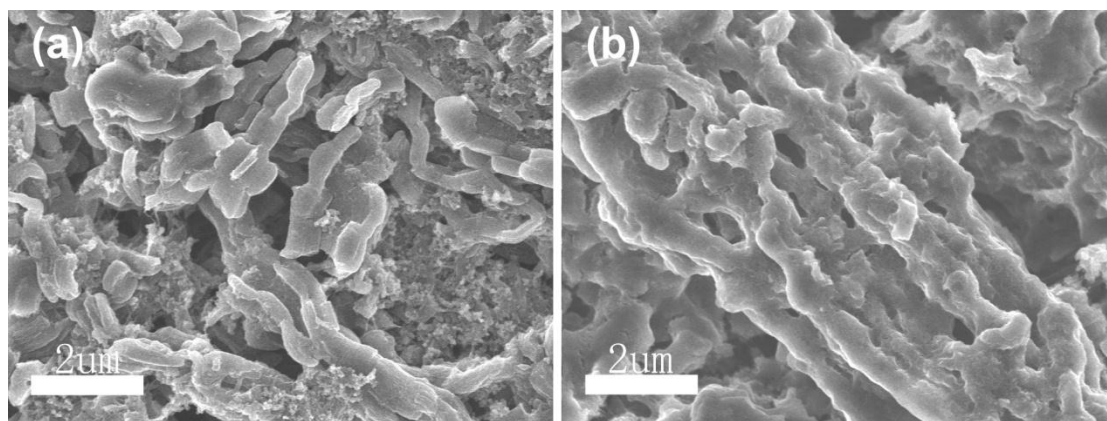


Fig. S5 SEM images of 50-H₂bhnq/CMK-3 before and after 50 cycles