

Electronic Supplementary Information for

Facile and economical synthesis of hierarchical carbon-coated magnetite nanocomposites and their applications to lithium ion battery anodes

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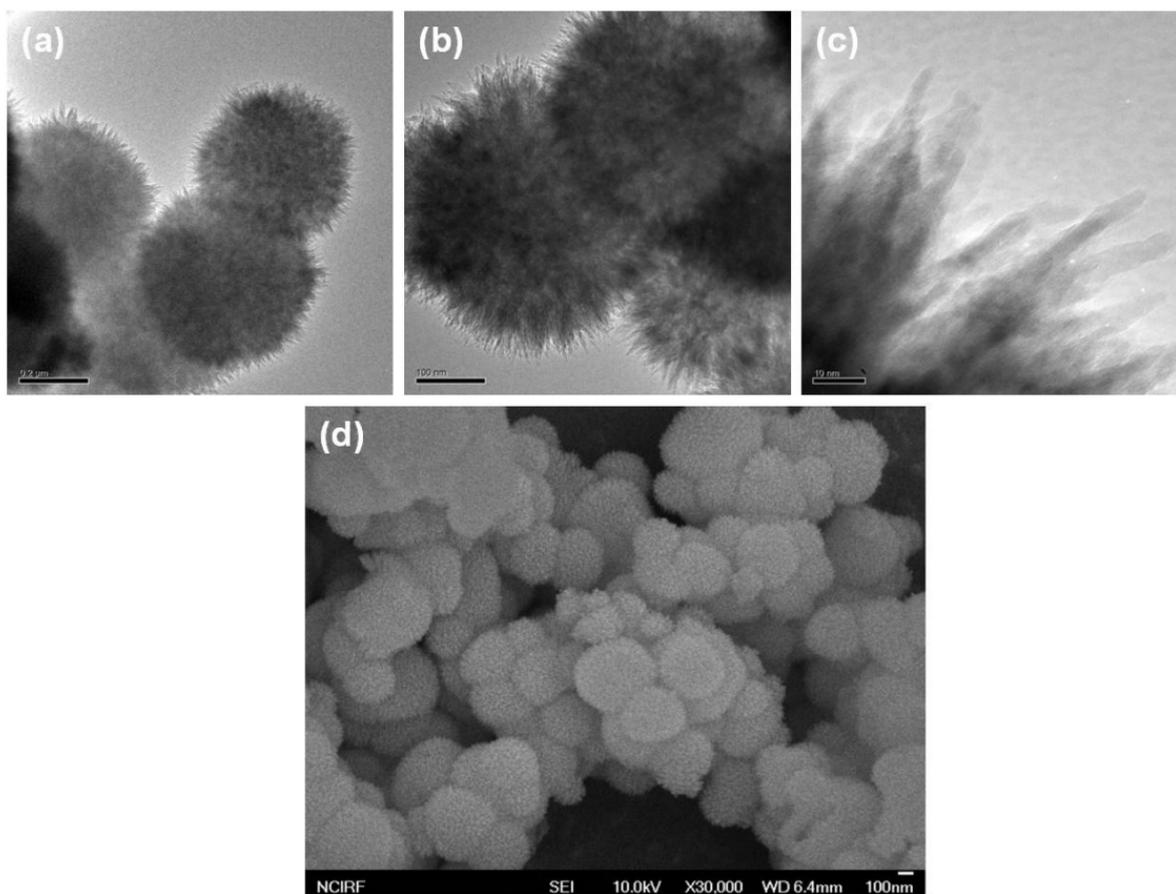


Figure S1. TEM (a-c) and SEM (d) images of sea urchin-like β -FeOOH.

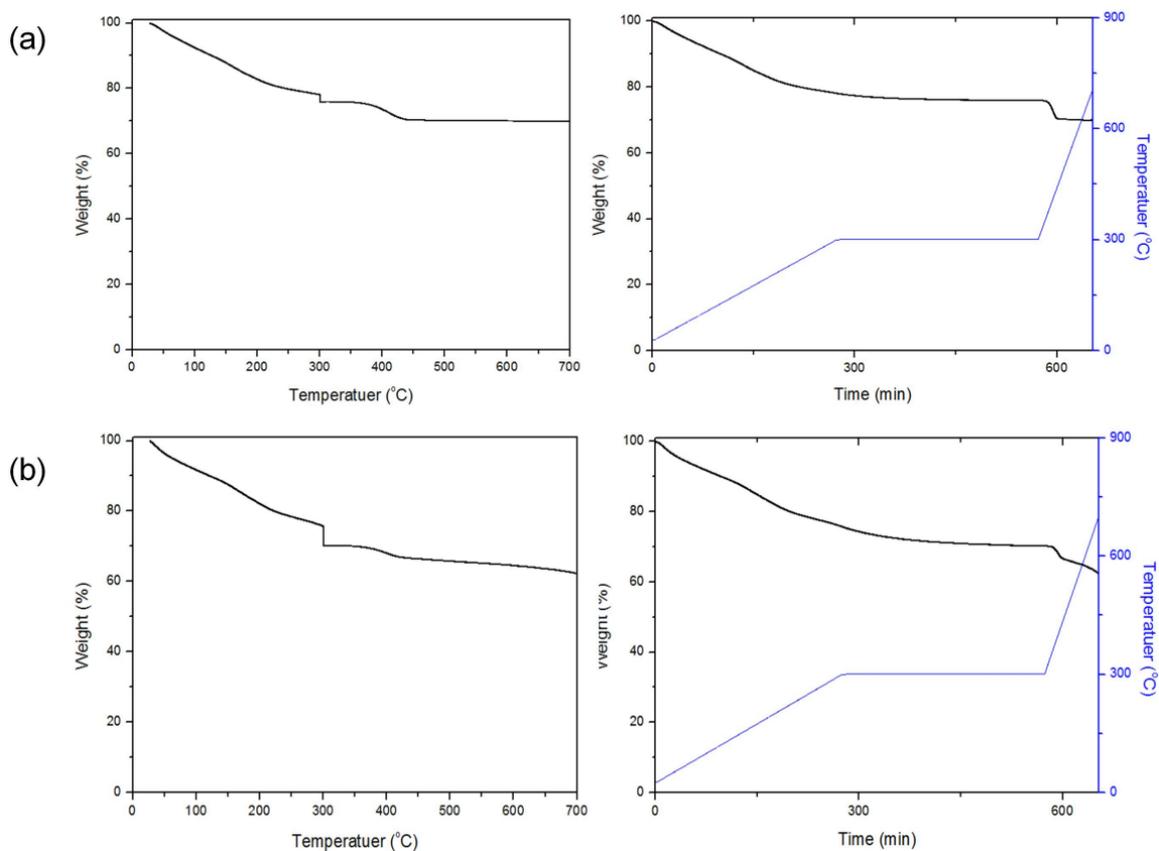


Figure S2. (a) TGA curves of sea urchin-like β -FeOOH particles. (b) TGA curves of polypyrrole-coated β -FeOOH particles.

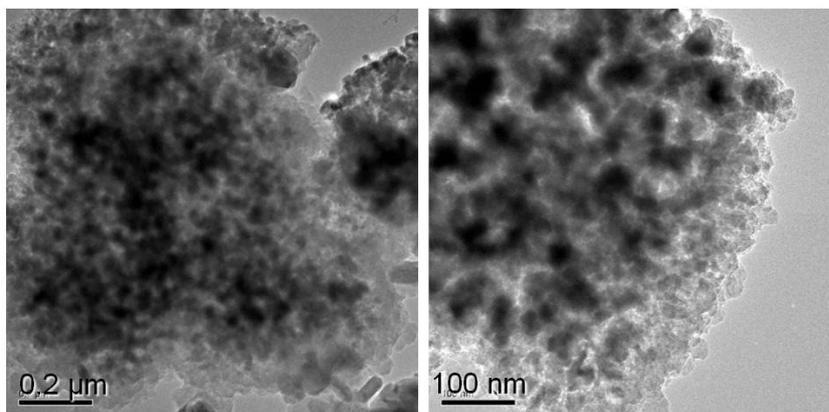


Figure S3. TEM images of polypyrrole coated β -FeOOH after calcination at 500 °C.

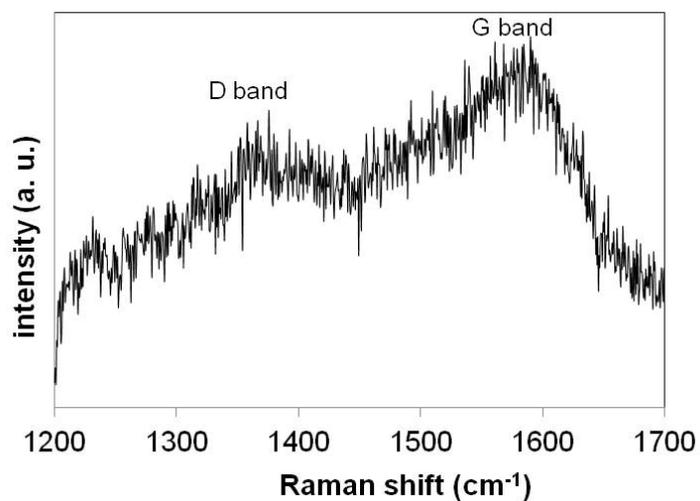


Figure S4. Raman spectrum of the sea urchin-like C-Fe₃O₄ nanocomposite.

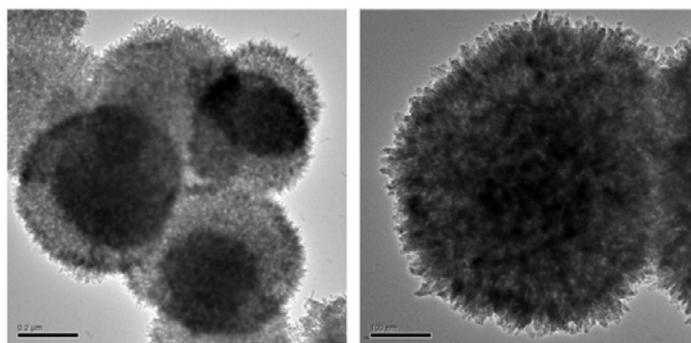


Figure S5. TEM images of the sea urchin-like Fe₃O₄ particles without carbon shell.

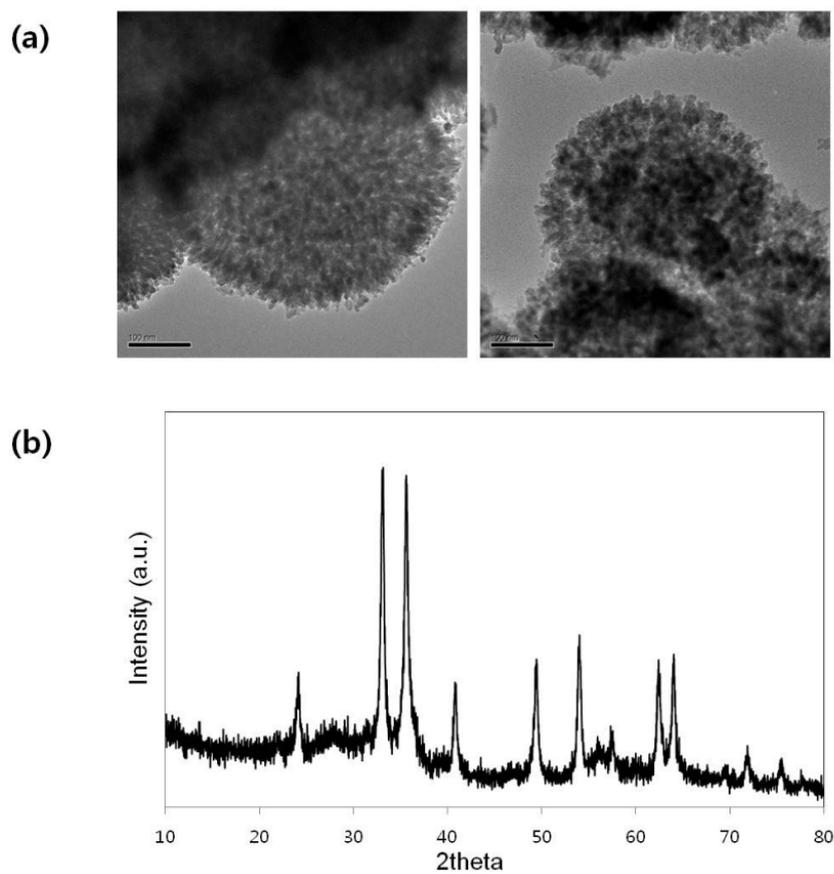


Figure S6. TEM images (a), and XRD (b) of the sea urchin-like α - Fe_2O_3 particles.

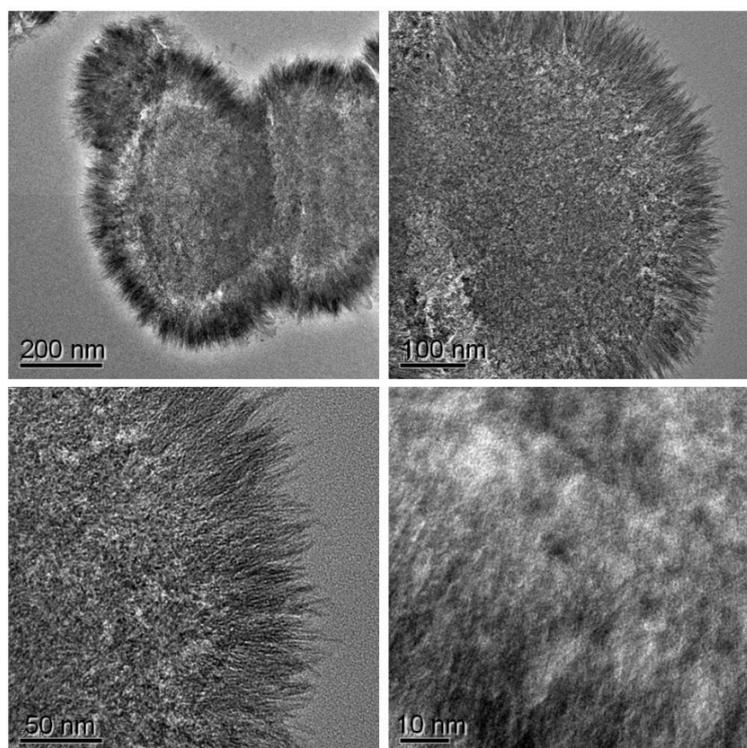


Figure S7. TEM images of sectioned sea urchin-like β - FeOOH .

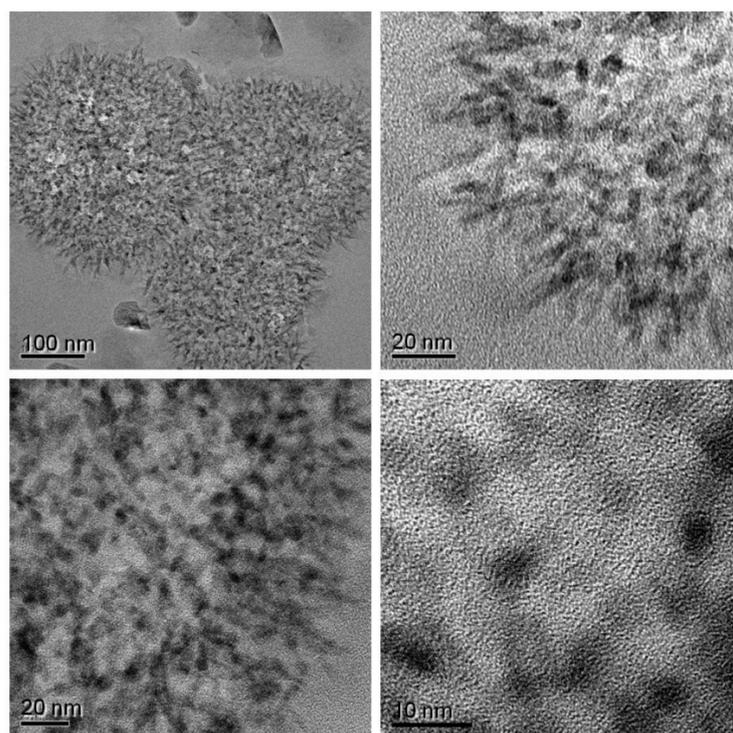


Figure S8. TEM images of sectioned C-Fe₃O₄ nanocomposites



Figure S9. Photograph of C-Fe₃O₄ nanocomposite synthesized in large-scale, showing 3.42 g of the product.

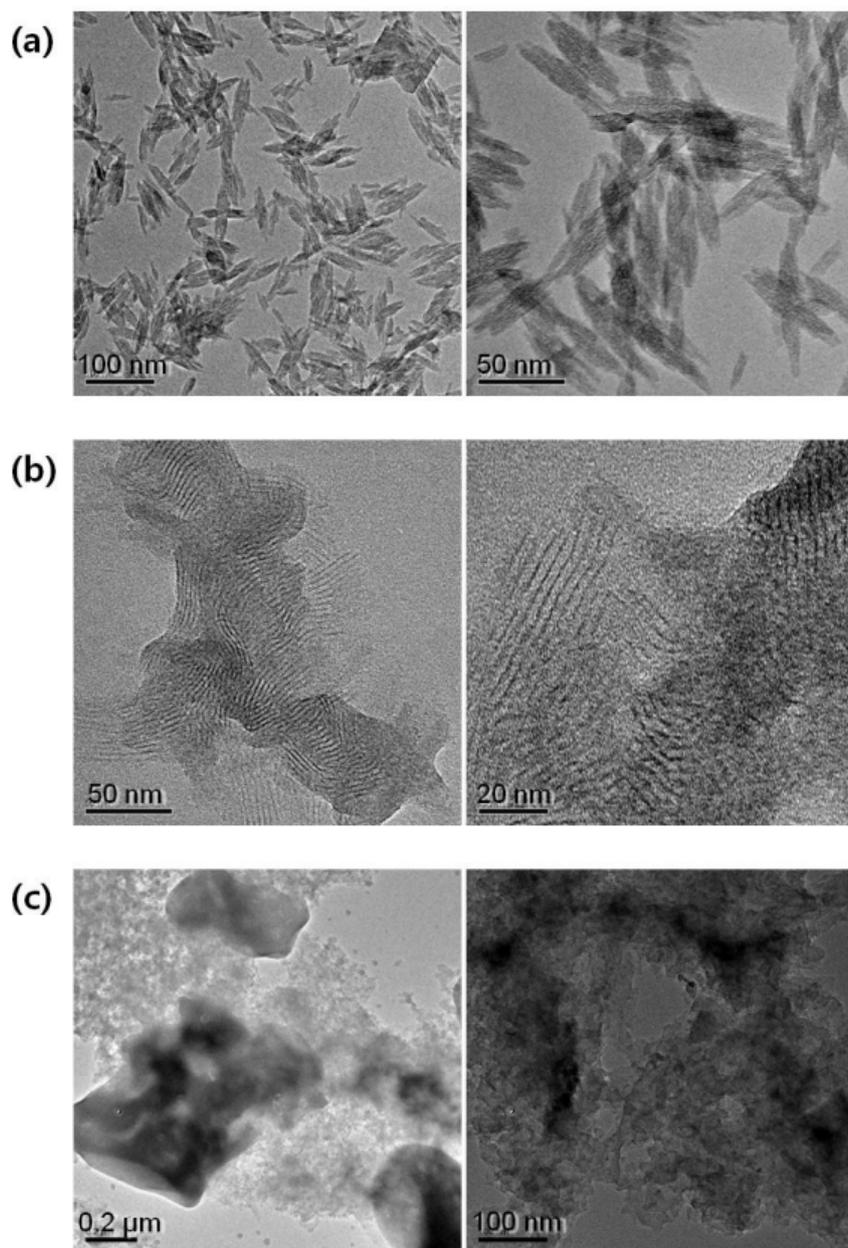


Figure S10. TEM images of (a) β -FeOOH rods which were synthesized in the absence of SDS, (b) lamellar structure that was obtained when pure water was used as a solvent, and (c) the product obtained after calcining the product in (b).

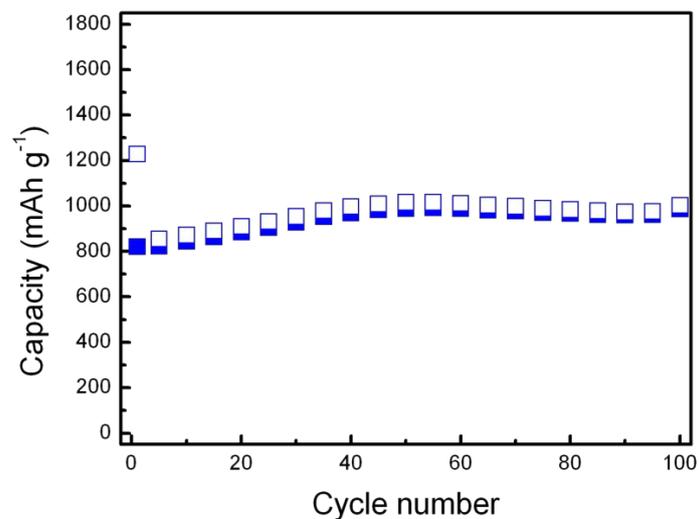


Figure S11. Cycling performance of sea urchin-like C-Fe₃O₄ nanocomposite up to 100 cycles.

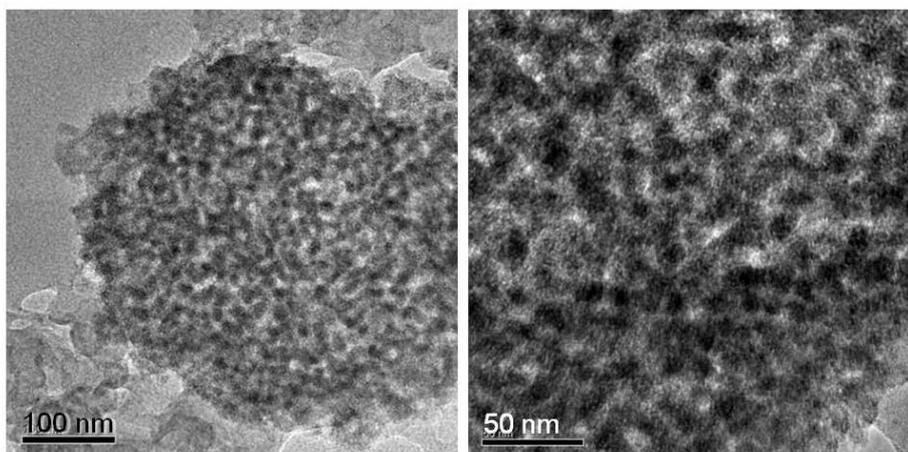


Figure S12. TEM images of sectioned C-Fe₃O₄ nanocomposite particles after 10 charge/discharge

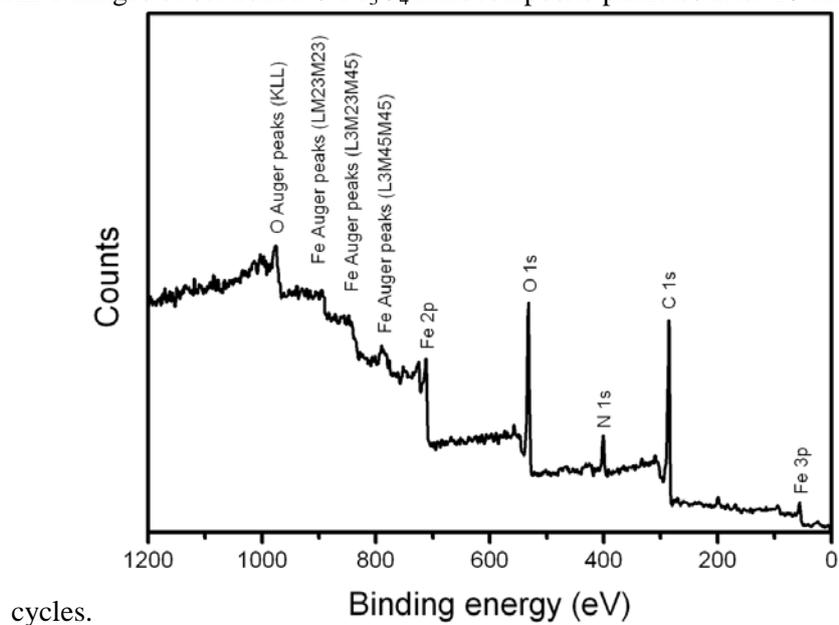


Figure S13. XPS survey spectrum of the sea urchin-like C-Fe₃O₄ nanocomposites.