

Supplementary data

**N-doped pinecone-based carbon with hierarchical porous pie-like structure: A long-cycle-life anode material for potassium-ion batteries**

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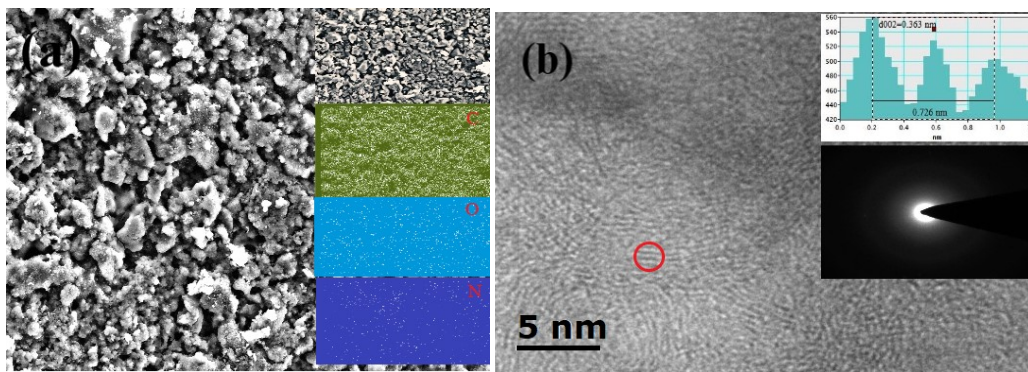


Figure S1. (a) element mapping of PC and (b) high-resolution TEM images of PC

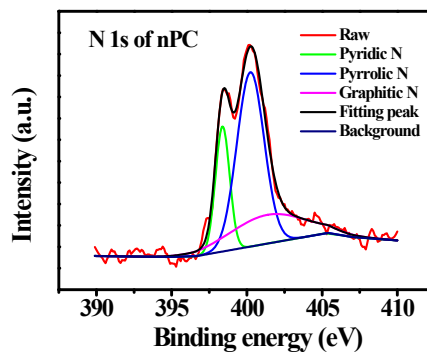


Figure S2. High-resolution N 1s spectra of NPC.

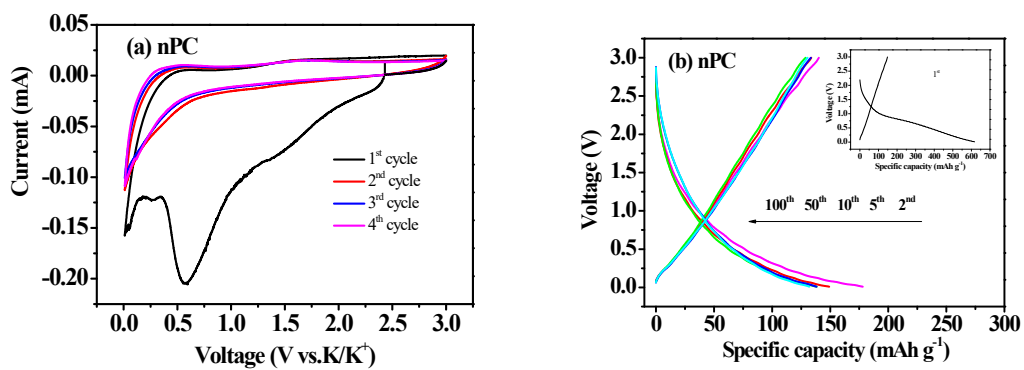


Figure S3. Electrochemical performance of nitrogen-doped without  $\text{ZnCl}_2$  (nPC) pinecone-based carbon: (a) cyclic-voltammetry curves at  $0.1 \text{ mV s}^{-1}$  (b) galvanostatic charge/discharge profiles of first cycle at  $50 \text{ mA g}^{-1}$

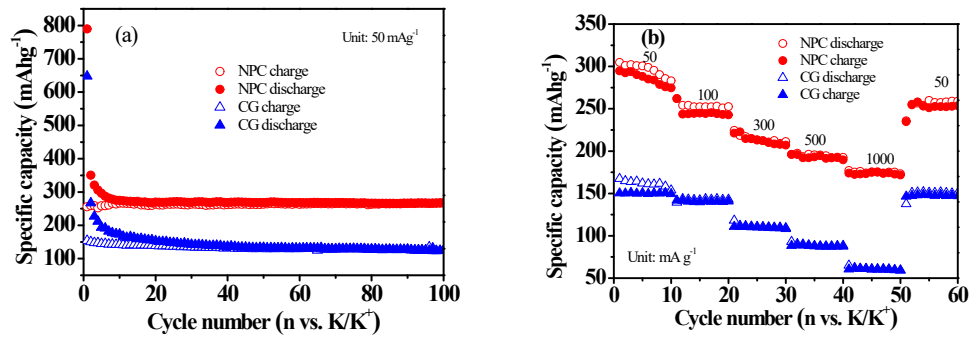


Figure S4. Electrochemical performances of commercial graphite (CG) and nitrogen-doped pinecone-based carbon (NPC): (a) cycle stability at 50 mA g<sup>-1</sup>; (b) rate performance.

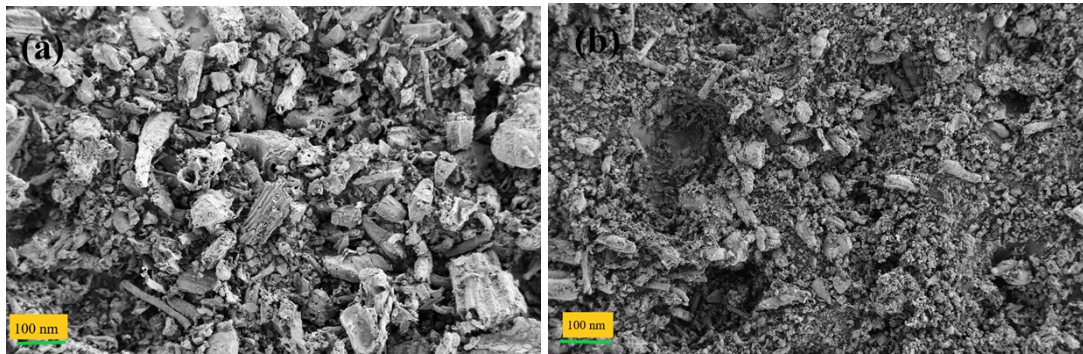


Figure S5. (a) SEM images of nPC in the fresh state and (b) in the 1000<sup>th</sup> cycle.