Supporting information for

Facile Preparation of Hydrated Vanadium Pentoxide Nanobelts Based Bulky Paper as Flexible Binder-free Cathodes for High-performance Lithium Ion batteries

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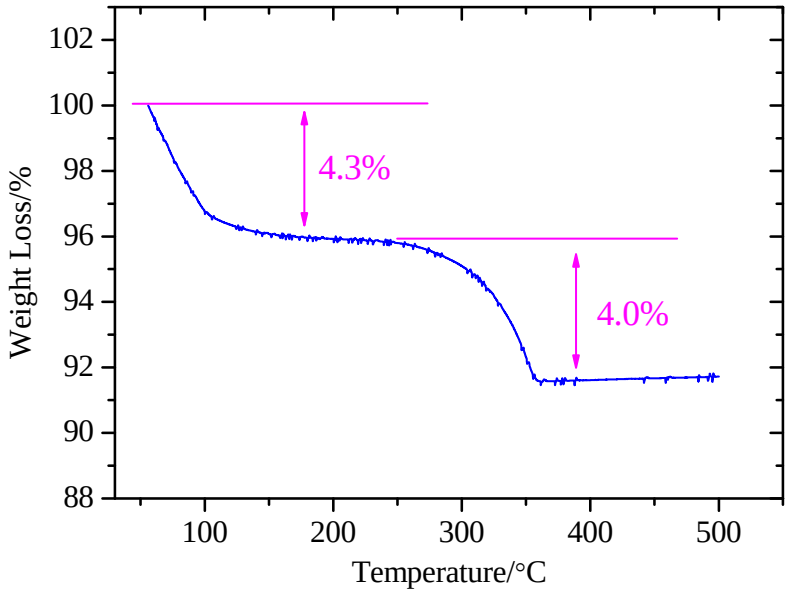

Figure S1. Weight loss curve with respect to temperature (°C) for the as-prepared product in the presence of 1.5 mM $NH_4H_2PO_4$.

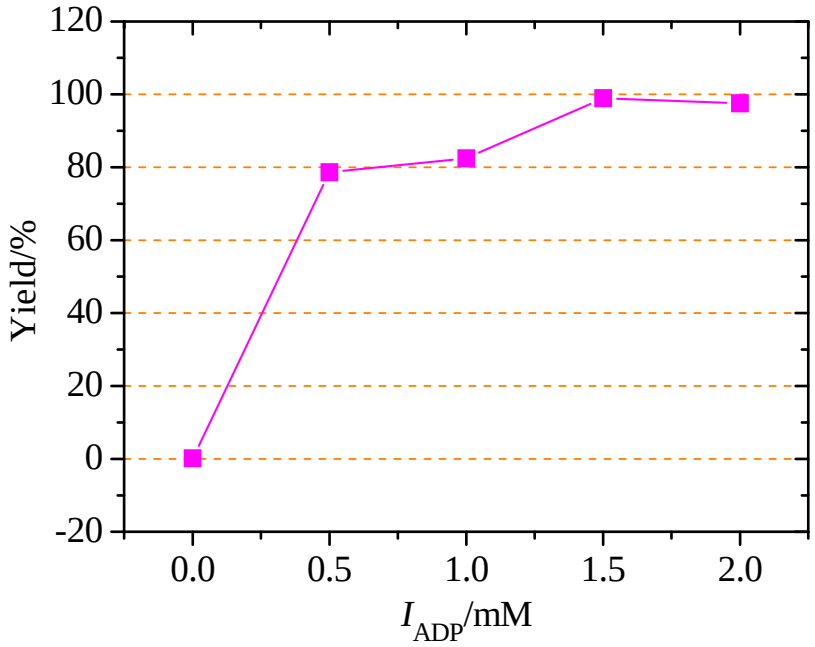

Figure S2. A relationship of yields of dried products to different ADP concentrations (I_{ADP}), ignoring the weight loss during the water and ethanol washing processes.

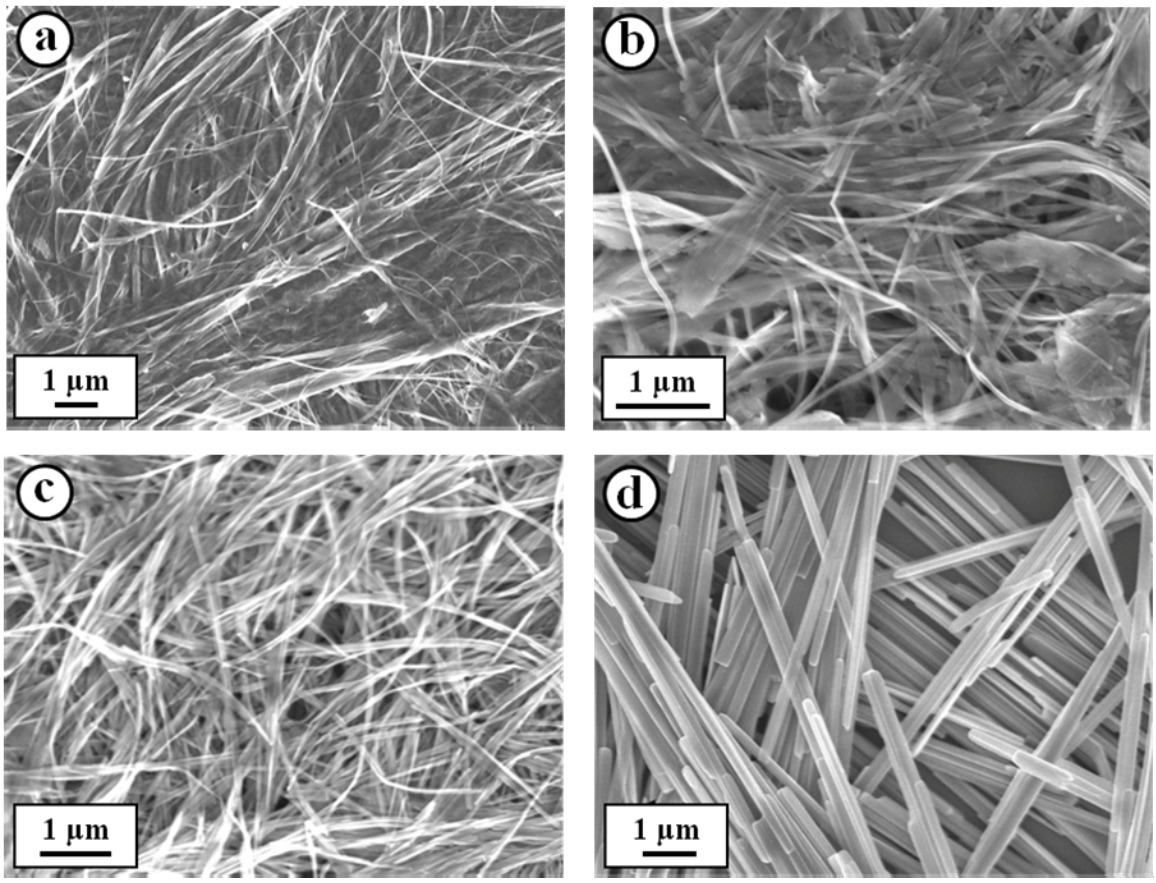

Figure S3. FESEM images of products synthesized by hydrothermal reactions at 180 ^{o}C for 48 h with different ADP concentrations. (a) 0.0 mM, (b) 0.5 mM, (c) 1.0 mM and (d) 2.0 mM.

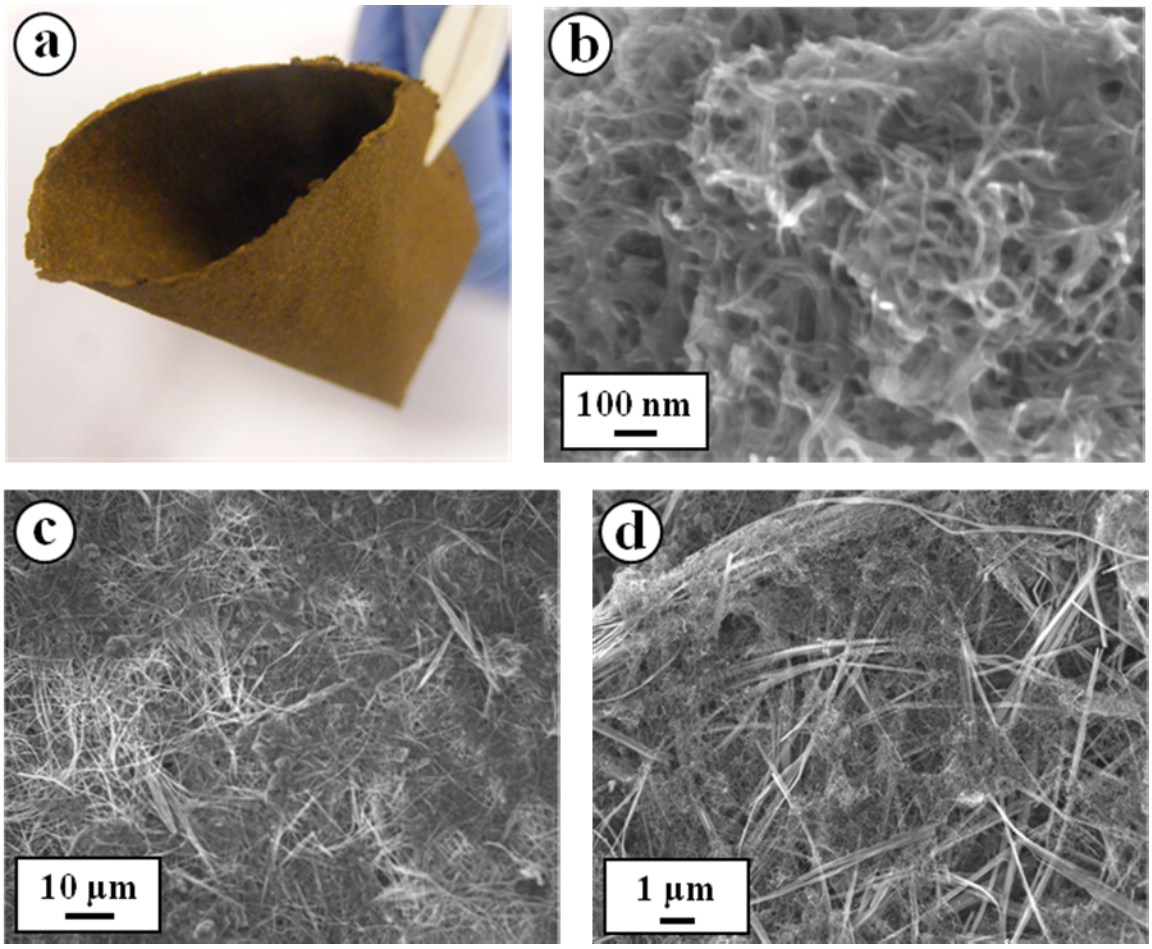

Figure S4. (a) Digital photograph of a free-standing HVO bulky paper with 25 wt% acid-treated MWCNTs as conductive additives to improve cathode's electrical conductivity. (b) FESEM image of acid-treated MWCNTs, revealing a network of entangled CNTs with diameters of around 20-30 nm and lengths up to the micrometer scale. Low- (c) and high-resolution (d) FESEM images of above bulky paper, indicating a uniform mixture of the MWCNTs and HVO nanobelts.

Table S1. A comparison of our C-rate results to other reported V_2O_5 based electrodes. All data are the 2nd discharge capacities.

Samples / Current density	Ours	Ref. 29	Ref. 31	Ref. 32	Ref. 33	Ref. 34
735 mA g^{-1}		92 mAh g^{-1}				
1000 mA g^{-1}	183 mAh g^{-1}				192 mAh g^{-1}	
2000 mA g^{-1}	163 mAh g^{-1}					
2060 mA g^{-1}			117 mAh g^{-1}			
2352 mA g^{-1}				148 mAh g^{-1}		200 mAh g^{-1}