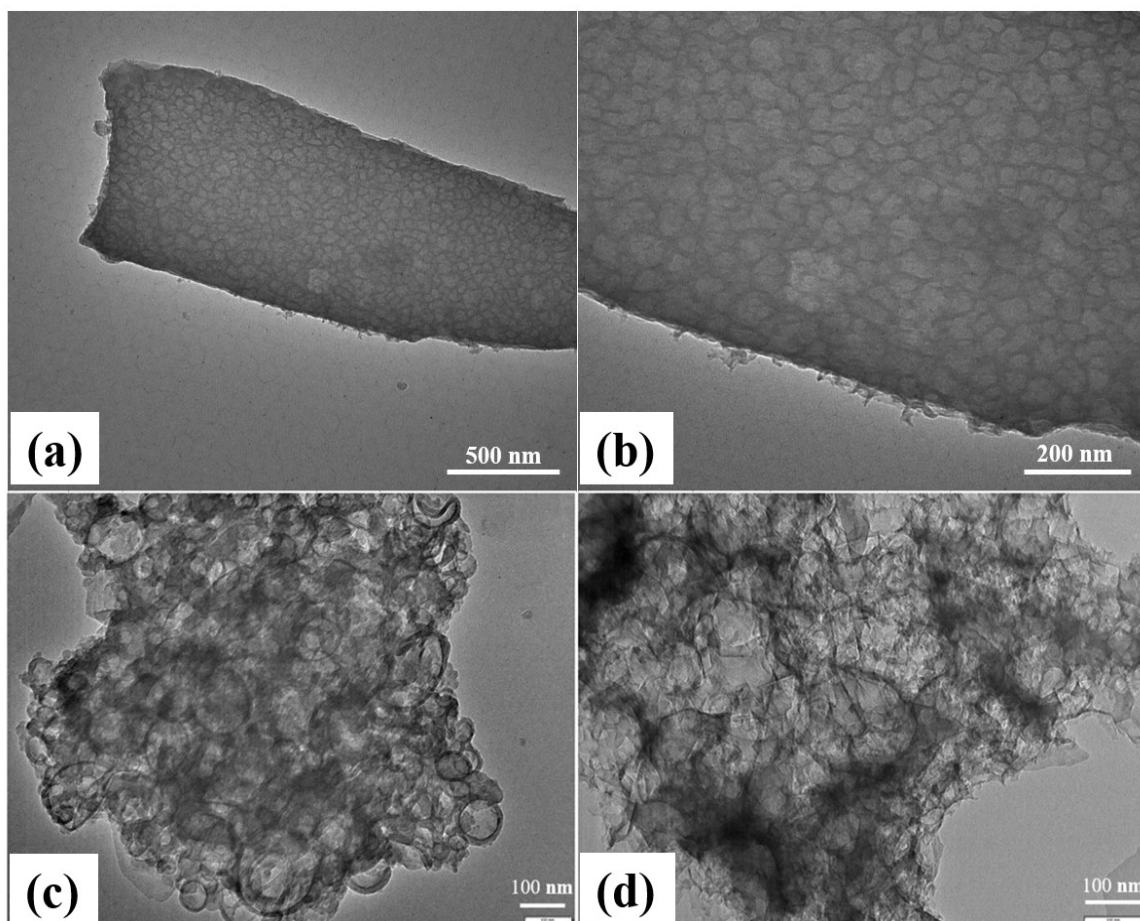


## Supporting Information

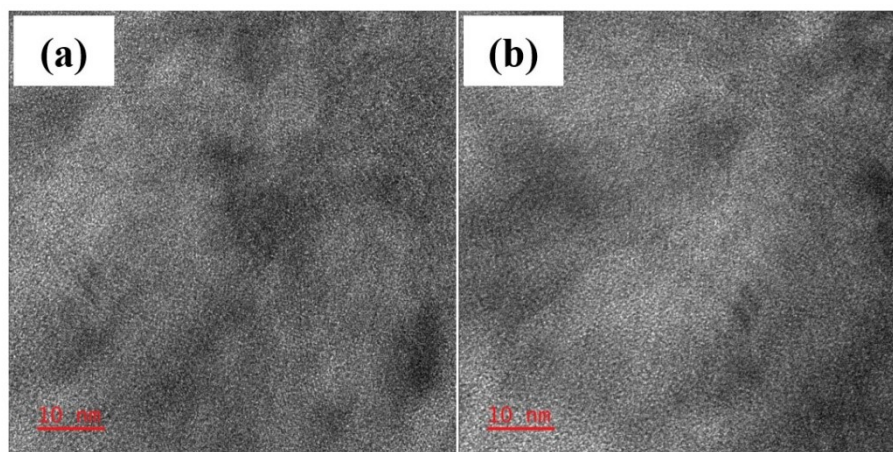
### **High Performance and Long-cycling Bi-functional Carbon Electrodes Derived from Phyllanthus emblica (Amla) for Potassium ion Batteries and Supercapacitors**

Chandra Sekhar Bongu <sup>1\*</sup>, Arthi Gopalakrishnan <sup>1</sup>, and Chandra Shekhar Sharma <sup>1</sup>

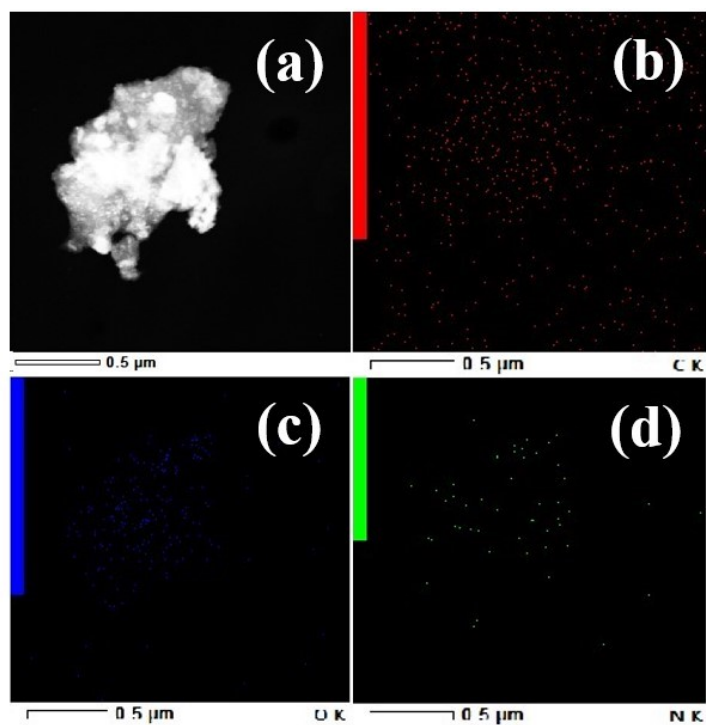
<sup>1</sup> Creative & Advanced Research Based on Nanomaterials (CARBON) Laboratory,  
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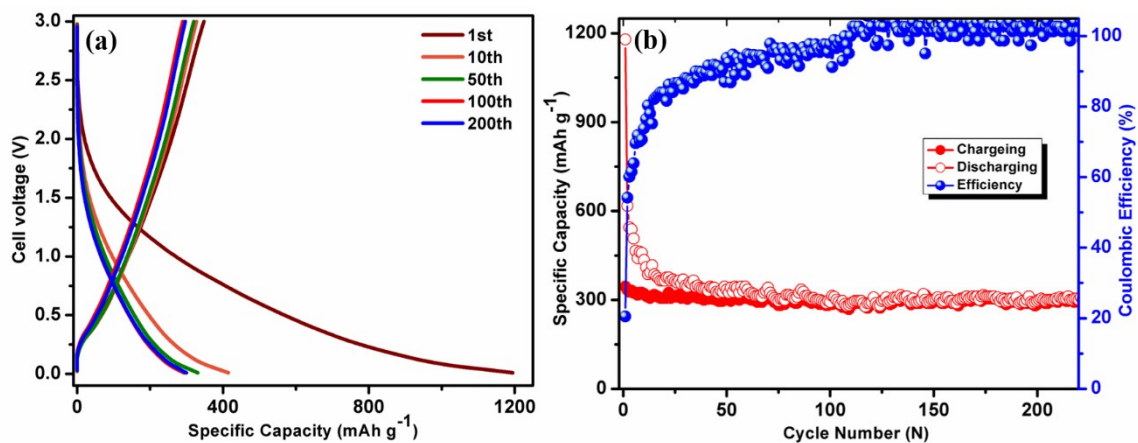
**Figure S1:** TEM images of AAC.



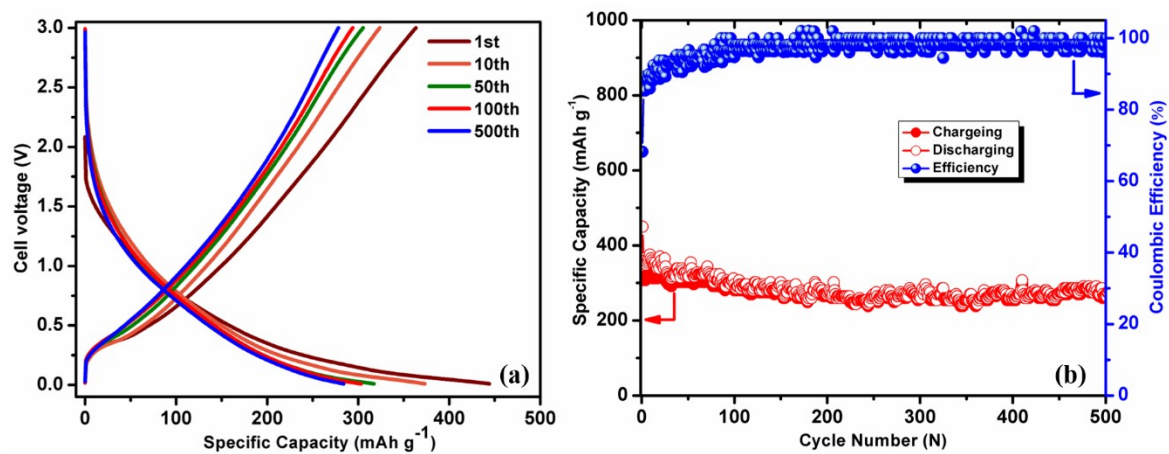
**Figure S2:** HRTEM images of AAC.



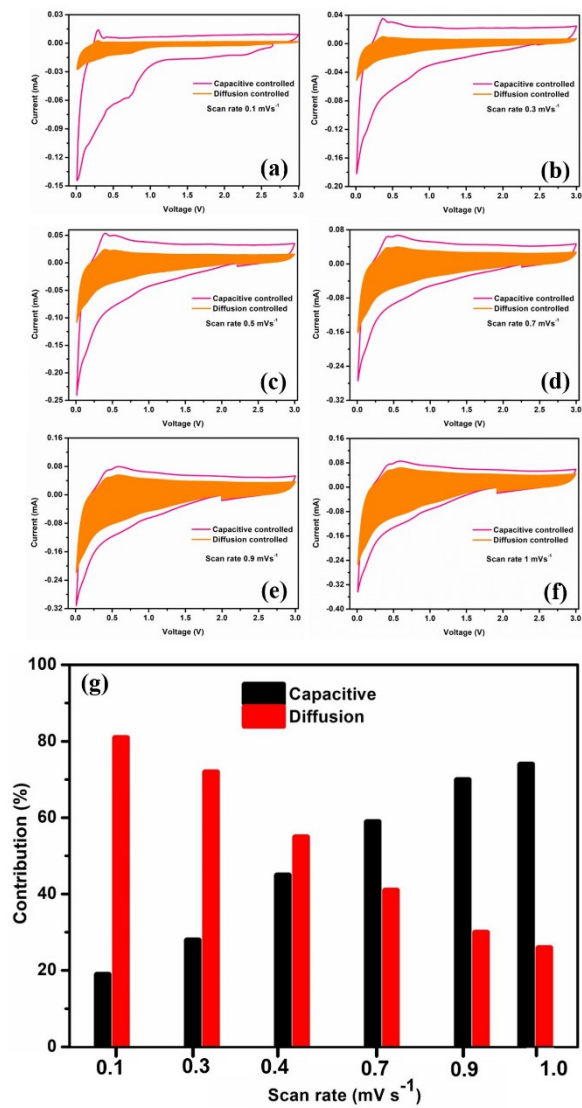
**Figure S3.** (a) SEM image and elemental mapping of AAC (b) Carbon, (c) Oxygen and (d) Nitrogen.



**Figure S4.** (a) Selected charge-discharge profiles and (b) long-term cycling performance of amla derived carbon at  $100 \text{ mA g}^{-1}$ .



**Figure S5.** (a) Selected charge-discharge profiles and (b) long-term cycling performance of amla derived carbon at 200 mA g<sup>-1</sup>.



**Figure S6.** Separation of capacitance and diffusion capacity from the CV and the contribution ratios of capacitance and diffusion capacity with the different sweeping rate changing from 0.1–1.0 mV s<sup>-1</sup> for AAC ((a) 0.1 mV s<sup>-1</sup>, (b) 0.3 mV s<sup>-1</sup>, (c) 0.5 mV s<sup>-1</sup>, (d) 0.7 mV s<sup>-1</sup>, (e) 0.9 mV s<sup>-1</sup>, and (f) 1.0 mV s<sup>-1</sup>) and (g), respectively.