

Supporting information

Promising activated carbon derived from sugarcane tip as electrode material for high-performance supercapacitors

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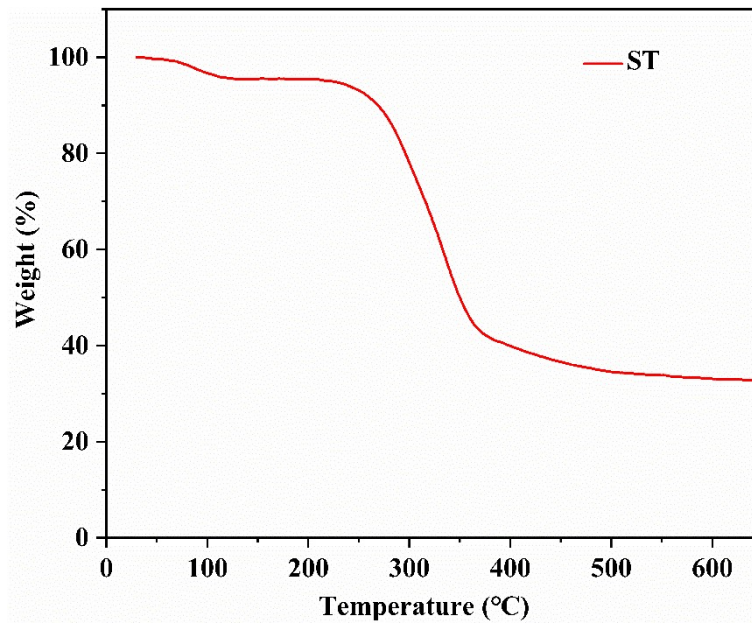


Fig. S1. The TGA curves of ST

The weight loss process of ST was analyzed by TGA (Fig. S1). The weight loss process of the ST curve below 100 °C can be attributed to the release of the physically adsorbed water. A steady weight loss of ST between 200 °C to 500 °C are majorly due to the combustion of the ST. The curve becomes flatten after 500 °C , indicating the formation of a carbon skeleton, so it is feasible to set the pre-carbonization temperature to 500 °C.

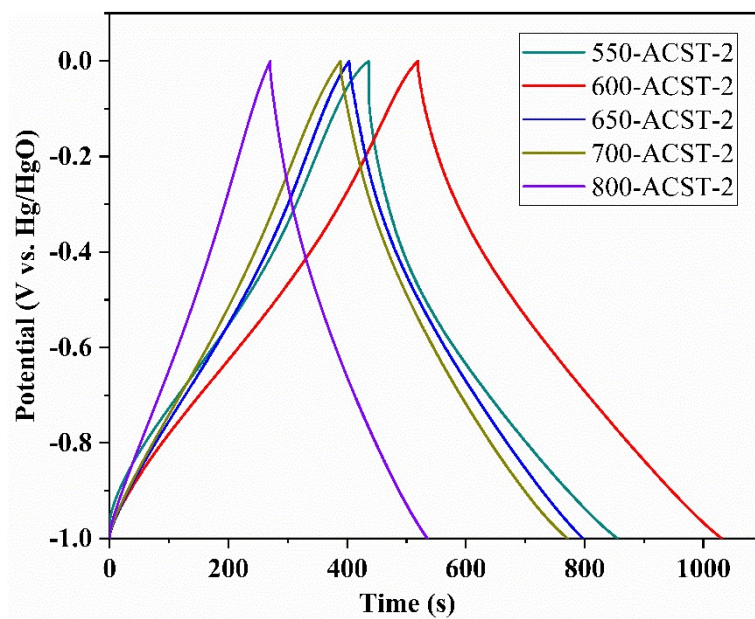


Fig. S2. GCD curves the as-obtained ST samples at 0.5 A g^{-1} under different activation temperatures

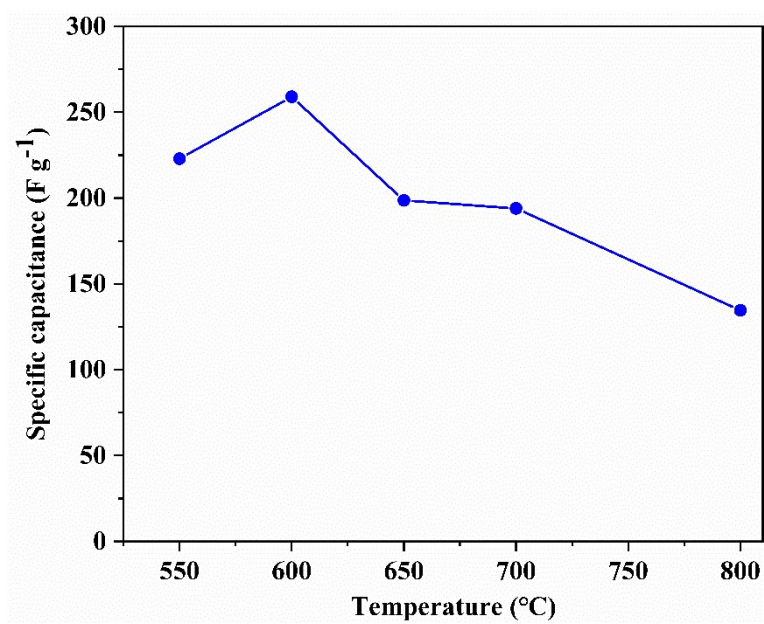


Fig. S3. Specific capacitances of the as-obtained ST samples at 0.5 A g⁻¹ under different activation temperatures

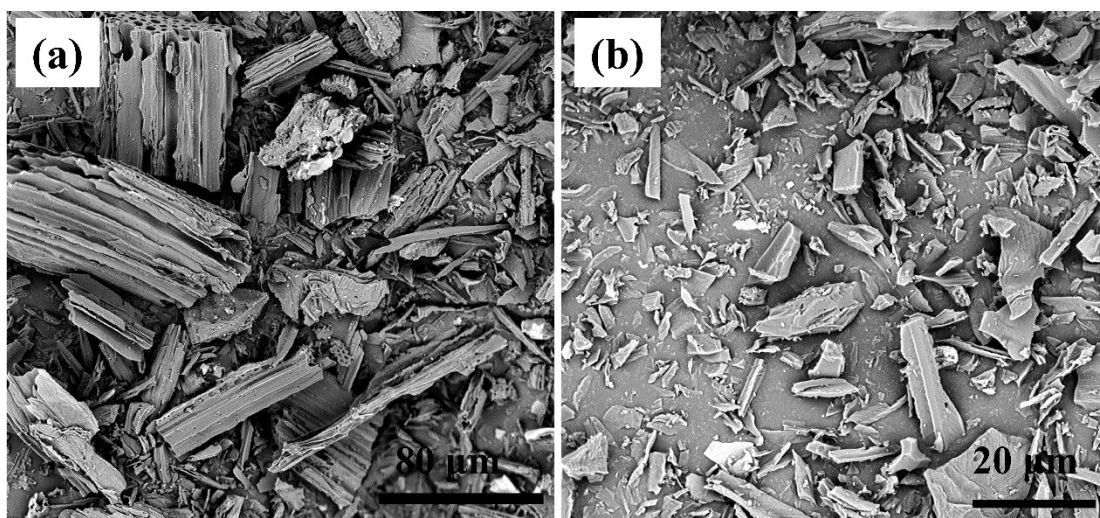


Fig. S4. SEM image of CST(a) and ACST-2(b)

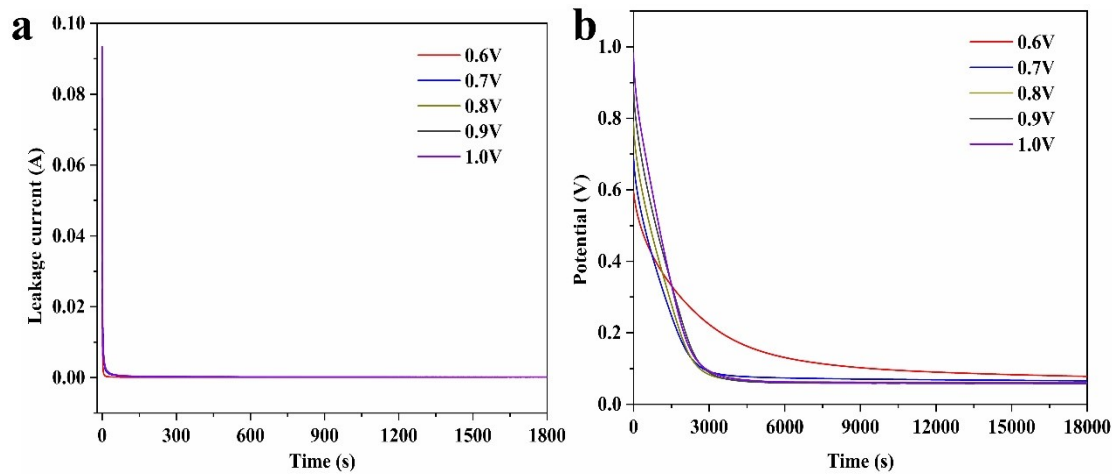


Fig. S5. Leakage current curves of the ACST-2//ACST-2 symmetric supercapacitor device at different potential (0.6-1V) and kept 1800s (a) and self-discharge curves of the device (b)

As shown in Fig.S5(a), the leakage current dropped significantly in the beginning and then gradually became smaller and more stable. Fig.S5(b) further shows the time courses of the open-circuit voltage, it undergoes rapid self-discharge course in a very short time.