

Electronic supplementary information

From grass to battery anode: agricultural biomass, hemp-derived carbon for lithium storage

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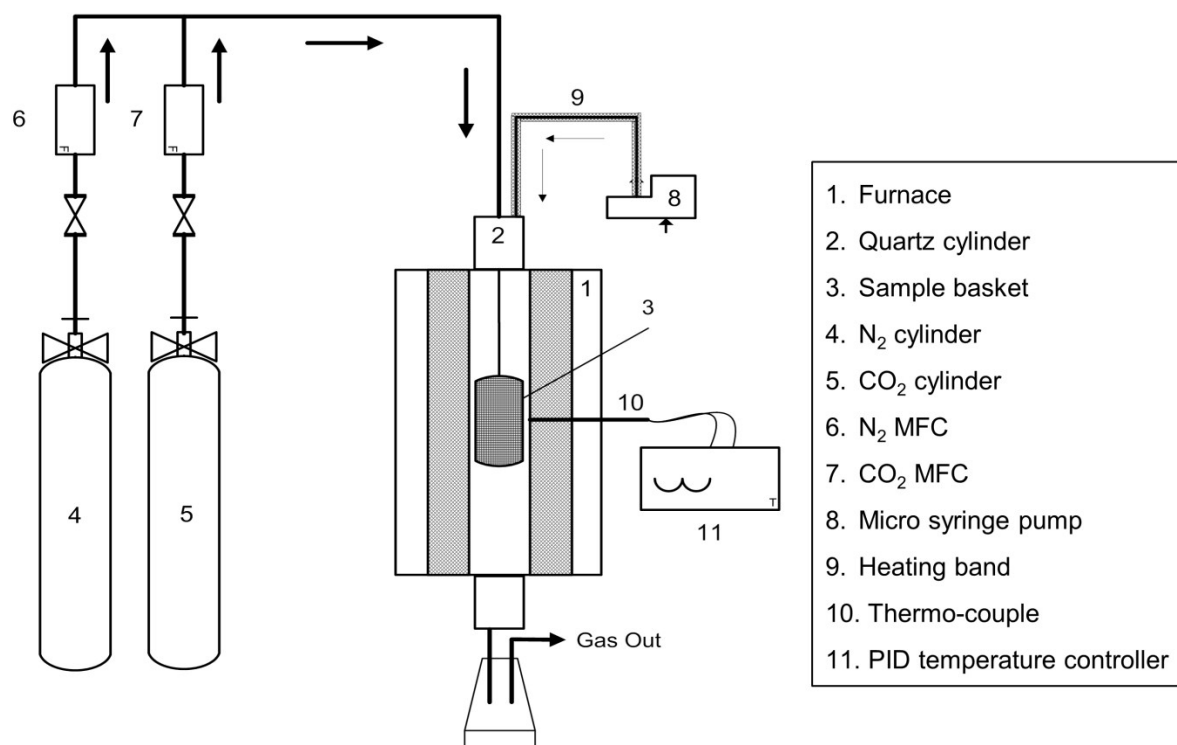


Fig. S1 Schematic diagram of tubular type pyrolysis reactor in this work.

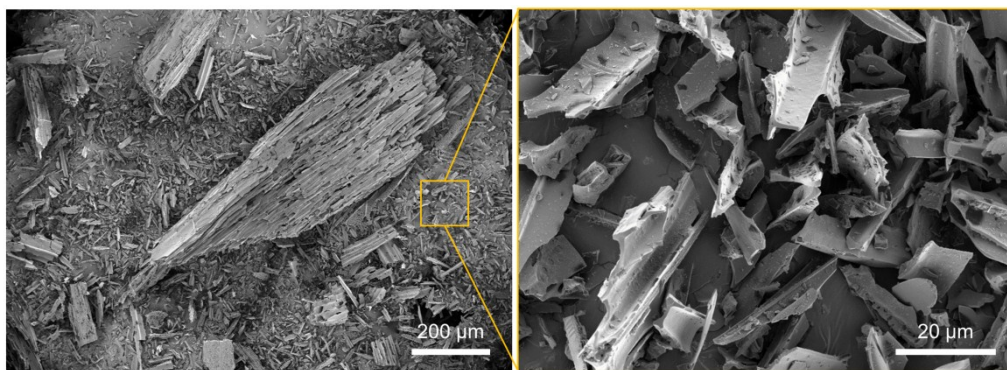


Fig. S2 SEM image of chip-shaped carbon and its small fragments.

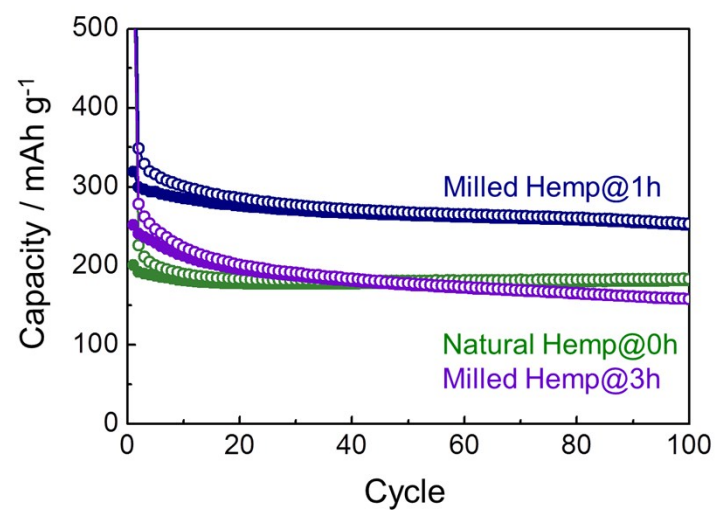


Fig. S3 Cycle performance of natural hemp and milled hemp with ball-milling time of 1 h and 3 h at 400 mA g⁻¹ during 100 cycles.

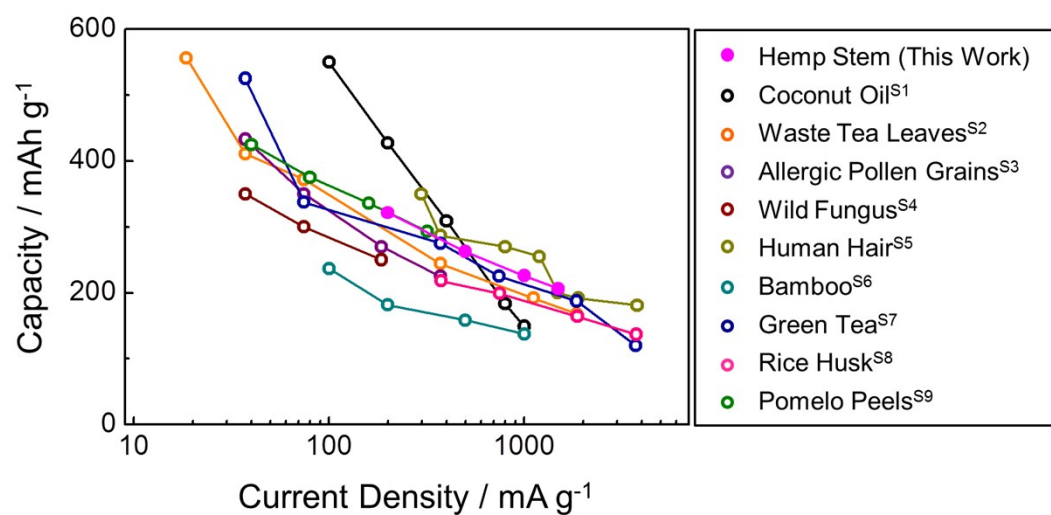


Fig. S4 Comparison of capacity at different current densities for the milled hemp with other biomass-derived carbon anodes reported in recent years.

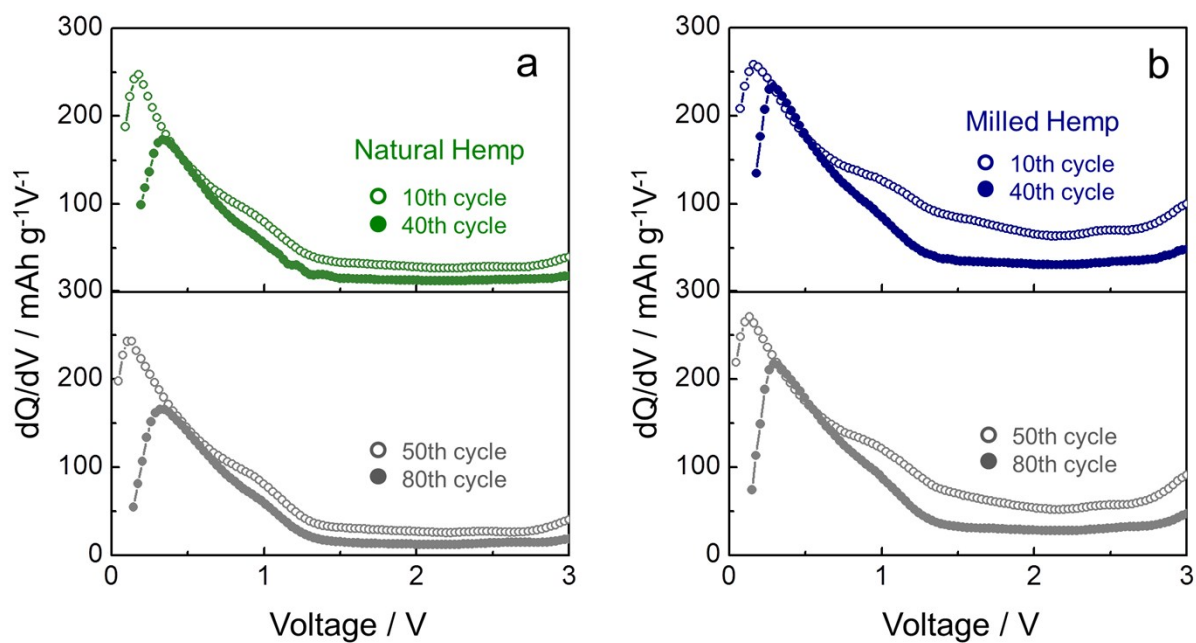


Fig. S5 Comparison of differential capacity profiles upon delithiation process for (a) natural hemp and (b) milled hemp after the selected cycles.

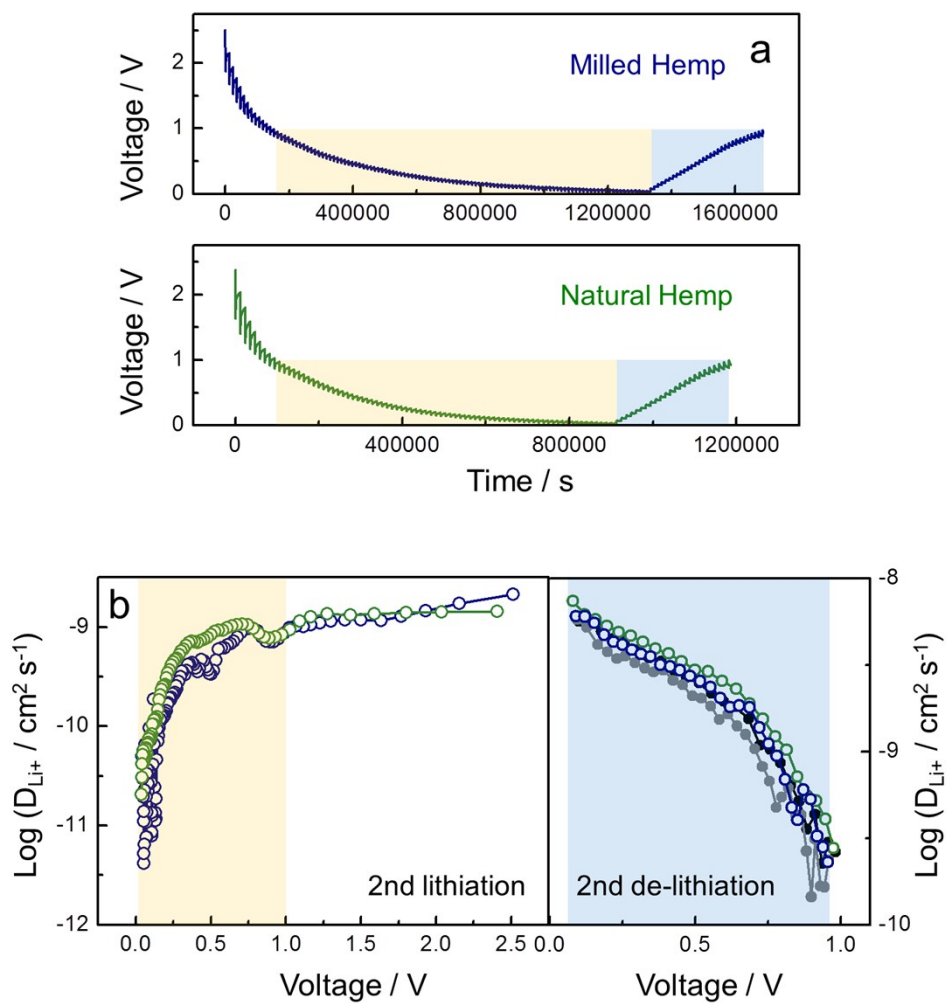


Fig. S6 (a) The 2nd GITT curves of natural hemp and milled hemp as a function of time. (b) Li⁺ diffusion coefficients (D_{Li^+}) calculated from GITT profile during the 2nd discharge and charge process. The Li⁺ diffusion coefficients of black and grey colors are marked for the natural hemp and milled hemp upon the 1st de-lithiation, respectively.

Table S1 Inorganic compositions of the hemp stem after carbonization process.

Inorganic compositions / ppm				
Ca	P	Mg	K	Na
6708.52	3121.55	1283.04	46069.54	710.47

Supplementary references

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