Supplementary Information

Capacitive performance of porous carbon nanosheets derived from biomass cornstalk

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Table S1 Structure properties of aCS electrodes their capacitive performances in 6.0 M KOH electrolyte.

Electrodes	S_{BET} ($m^2\ g^{-1}$)	V_t ($cm^3\ g^{-1}$)[a]	V_{mic} ($cm^3\ g^{-1}$)[b]	I_D/I_G	Specific capacitance ($F\ g^{-1}$)[c]	Capacitance retention (%) (1–60 A g^{-1})
aCS	388	0.23	0.15	0.94	164	64
aCS-4	1533	0.82	0.59	1.01	279	78
aCS-5	1736	0.92	0.59	0.99	301	82
aCS-6	1331	0.72	0.51	0.99	248	85

[a] Total pore volume measured at relative pressure of 0.99.

[b] Micropore volume (pore size <2 nm) analyzed from NLDFT.

[c] Specific capacitance measured at current density of 1.0 A g^{-1} in three-electrode cell with 6.0 M KOH as an aqueous electrolyte.

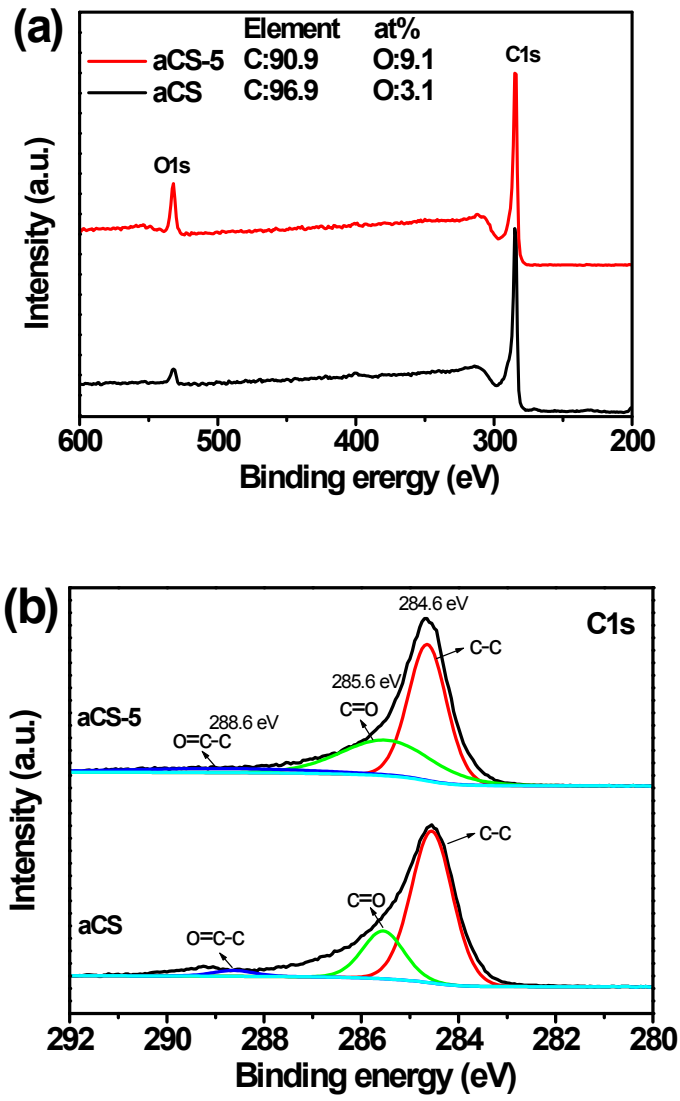

Fig. S1 (a) Survey XPS spectra and (b) high-resolution XPS spectra of C1 s of aCS and aCS-5.

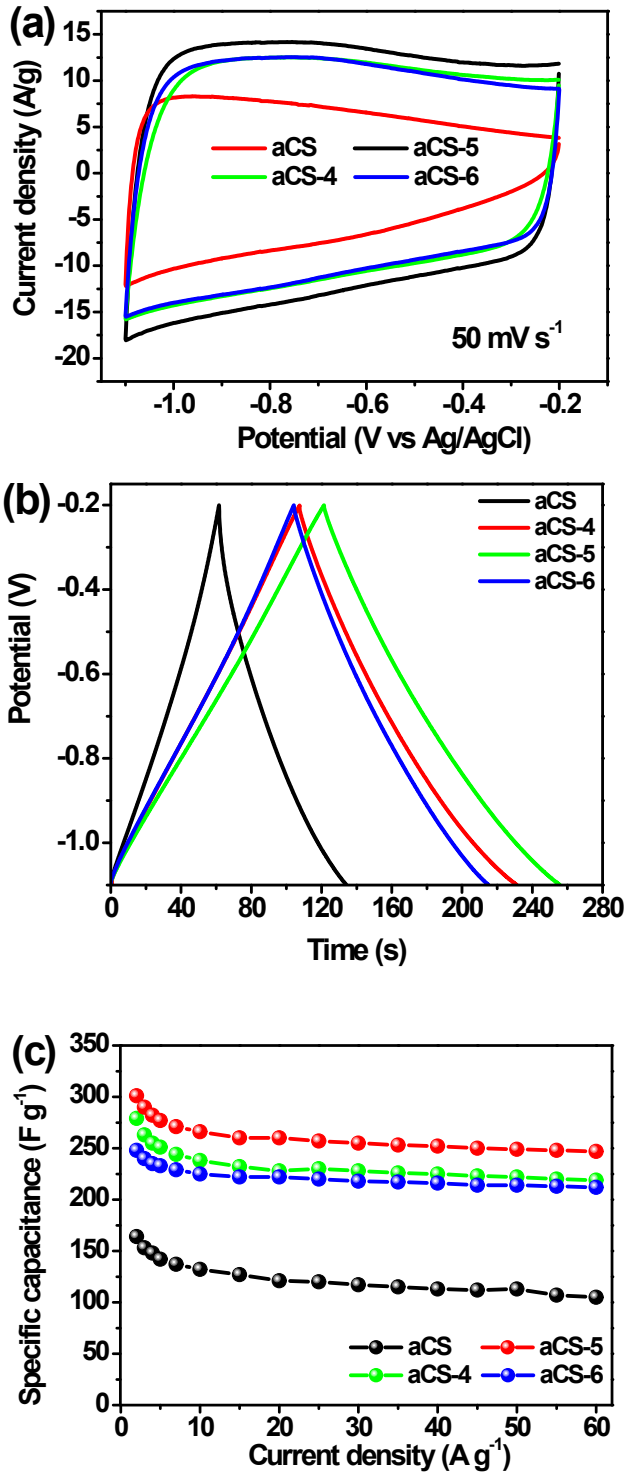

Fig. S2 (a) CV, (b) galvanostatic charge-discharge at 2.0 A g^{-1}, and (c) capacitance retention of aCs and aCs-*x* electrodes at different current densities. Data obtained from three-electrode cell.

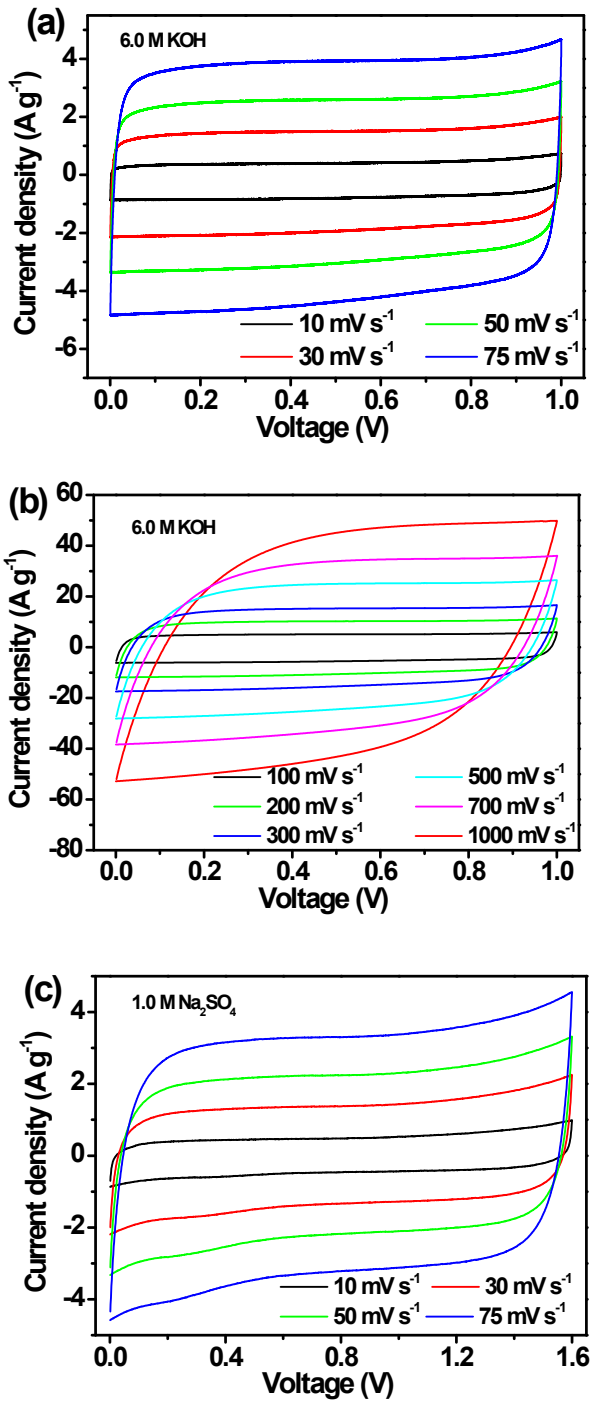

Fig. S3 CV profiles of aCS-5-based capacitor over a wide range of scan rates in 6.0 M KOH (a, b) and 1.0 M Na_2SO_4 aqueous electrolyte (c). Data obtained from two-electrode cell.

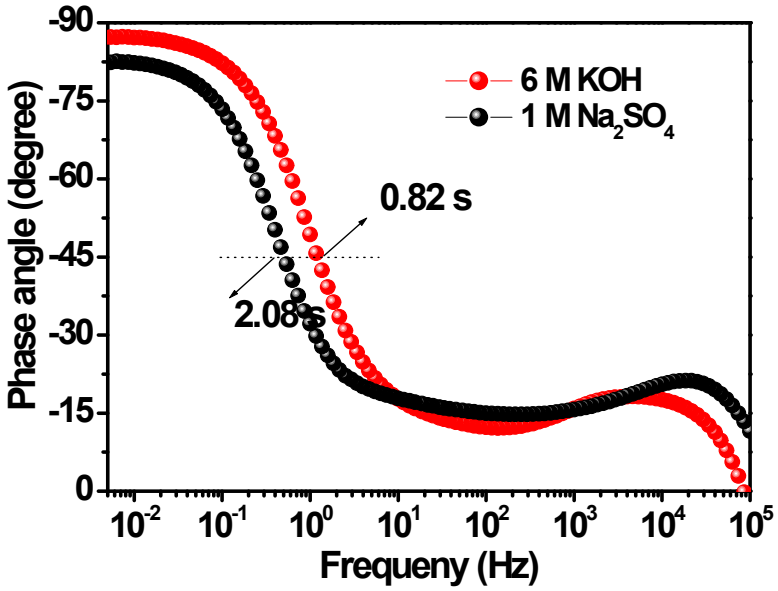

Fig. S4 Bode plots of phase angle verses frequency of aCS-5 capacitor in 6.0 M KOH and 1.0 M Na_2SO_4 aqueous electrolyte.

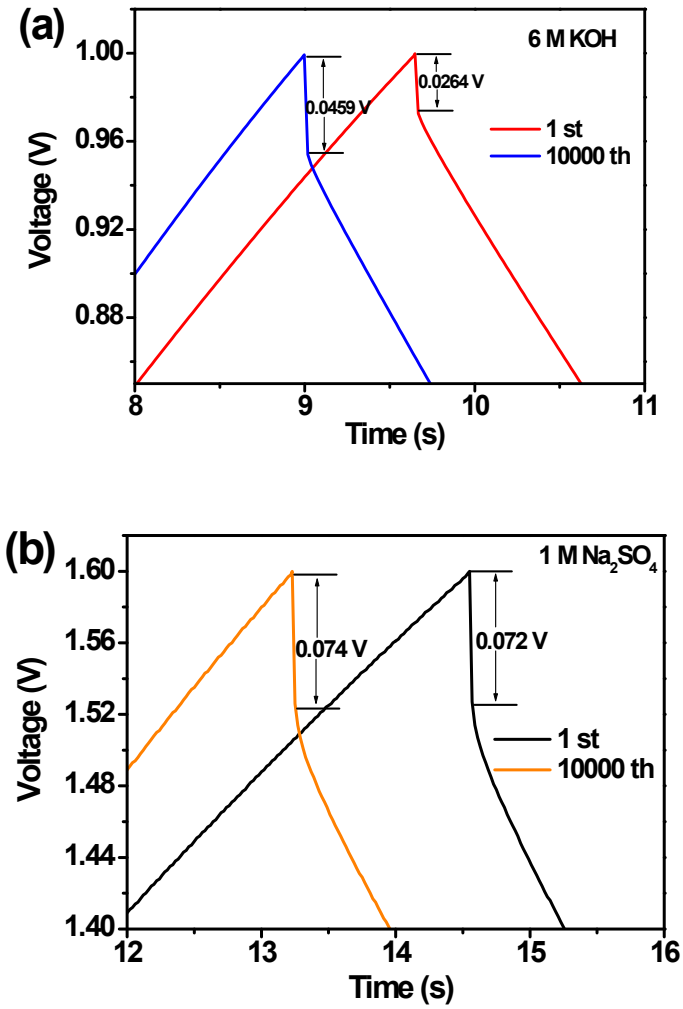

Fig. S5 Voltage drop (IR drop) of the galvanostatic charge-discharge curves of the 1st and 10000th cycles for aCS-5-based capacitor in 6.0 M KOH (a) and 1.0 M Na_2SO_4 electrolyte (b).