

Table S1: The *b*-values of the electrode samples

Sample	Apparent Density (g cm ⁻³)	Electrode density (g cm ⁻³)
B-800-15'	0.654	0.514
R-800-0h	0.542	0.466
R-800-1h	0.627	0.517
R-800-2h	0.663	0.524
R-800-3h	0.540	0.434
R-800-4h	0.500	0.379
R-750-6h	0.535	0.471
R-850-0.5h	0.673	0.471
R-900-1.5h	0.560	0.399
Commercial Activated carbon	0.654	0.330

Table S2: The *b*-values of the electrode samples

Sample	<i>b</i> -value
B-800-15'	0.72
R-800-0h	0.80
R-800-1h	0.78
R-800-2h	0.65
R-800-3h	0.71
R-800-4h	0.79
R-750-6h	0.73
R-850-0.5h	0.71
R-900-1.5h	0.70

Table S3: The calculated capacitance, energy density and power density of electrode samples

Electrode material	Specific capacitance (F g ⁻¹)	Current density (mA g ⁻¹)	Energy density (Wh kg ⁻¹)	Power density (W kg ⁻¹)	Areal capacitance (F cm ⁻²)	Areal energy density (mWh cm ⁻²)	Areal power density (mW cm ⁻²)
B-800-15'	42.1	1000	2.1	179.0	0.8	0.04	3.51
	127.3	10	6.4	2.4	2.65	0.12	0.05 μW cm ⁻²
R-800-0h	0.1	1000	6 mWh kg ⁻¹	75.6	2 mF cm ⁻²	0.1 μWh cm ⁻²	1.48
	11.1	10	0.6	1.4	0.2	0.01	0.03 μW cm ⁻²
R-800-1h	1.6	1000	79 mWh kg ⁻¹	129.2	30 mF cm ⁻²	2 μWh cm ⁻²	2.54
	25.0	10	1.3	2.1	0.5	0.02	0.04 μW cm ⁻²
R-800-2h	14.2	1000	0.7	133.5	0.3	0.01	2.62
	123.6	10	6.2	2.7	2.5	0.12	0.05 μW cm ⁻²
R-800-3h	70.9	1000	3.5	250.3	1.1	0.07	4.91
	115.2	10	5.8	2.6	1.9	0.11	0.05 μW cm ⁻²
R-800-4h	42.6	1000	2.1	190.5	0.6	0.04	3.74
	118.1	10	5.9	2.5	1.8	0.12	0.05 μW cm ⁻²
R-750-6h	28.3	1000	1.4	163.8	0.5	0.03	3.22
	117.2	10	5.9	2.7	1.9	0.11	0.05 μW cm ⁻²
R-850-0.5h	13.4	1000	0.7	132.7	0.3	0.01	2.60
	121.6	10	6.1	2.7	2.5	0.12	0.05 μW cm ⁻²
R-900-1.5h	56.2	1000	2.8	188.3	0.9	0.06	3.70
	156.7	10	7.8	2.7	2.6	0.15	0.05 μW cm ⁻²
R-800-3h 2 electrodes	37.0	1000	1.8	375.9	0.6	0.03	5.97
	86.0	10	4.3	2.2	1.4	0.07	0.03 μW cm ⁻²

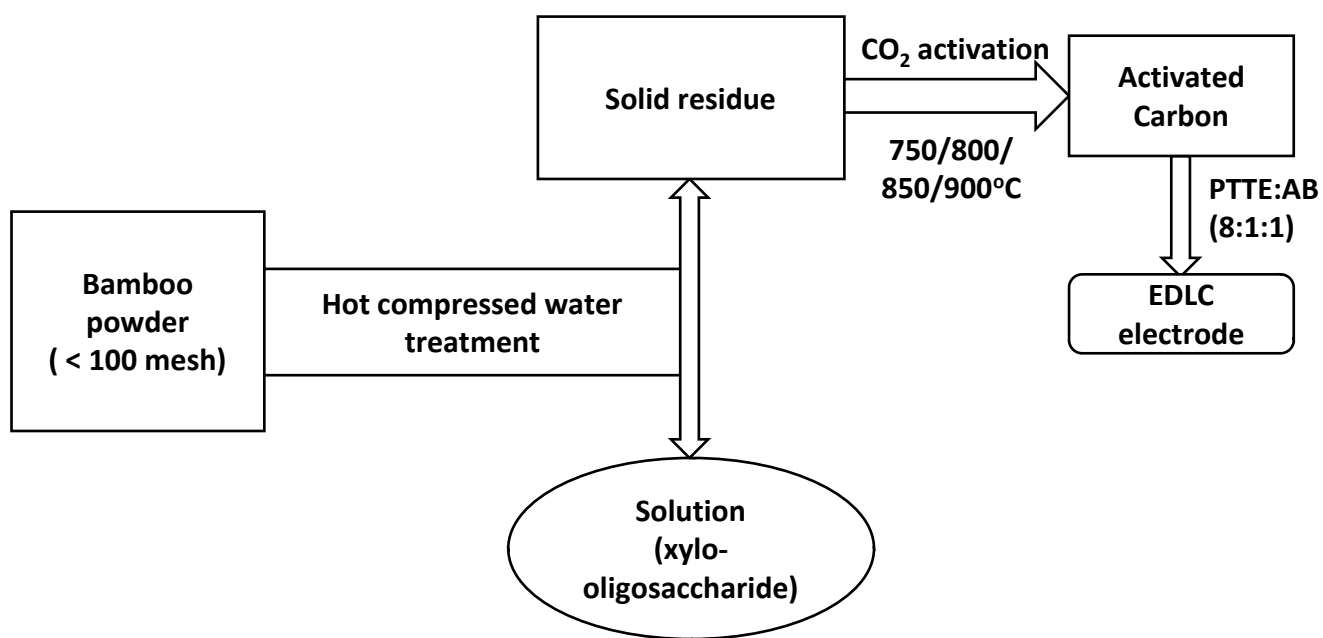


Fig. S1 The schematic of the preparation process for making an EDLC electrode.

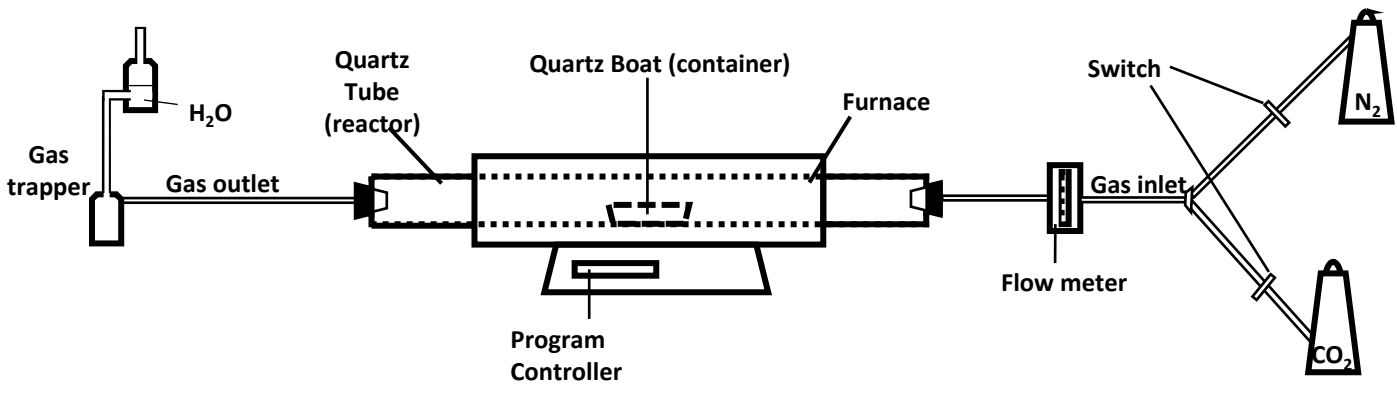


Fig. S2 Technical Equipment for the Carbonization and Activation Process.

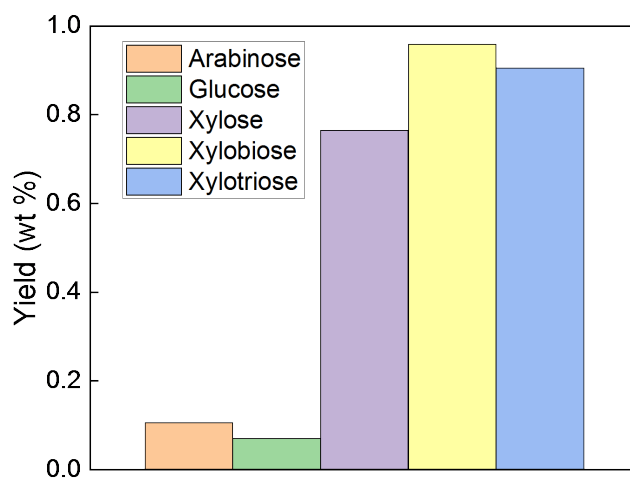


Fig. S3 Saccharides in the solution (xylo-oligosaccharide).

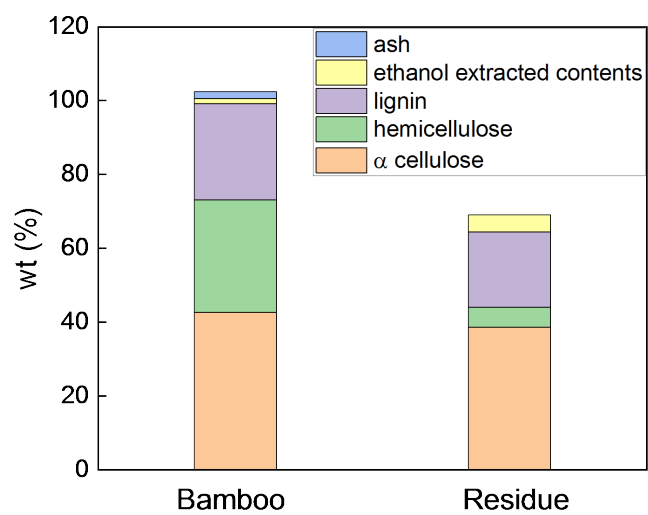


Fig. S4 Percent ingredient in bamboo and residue.

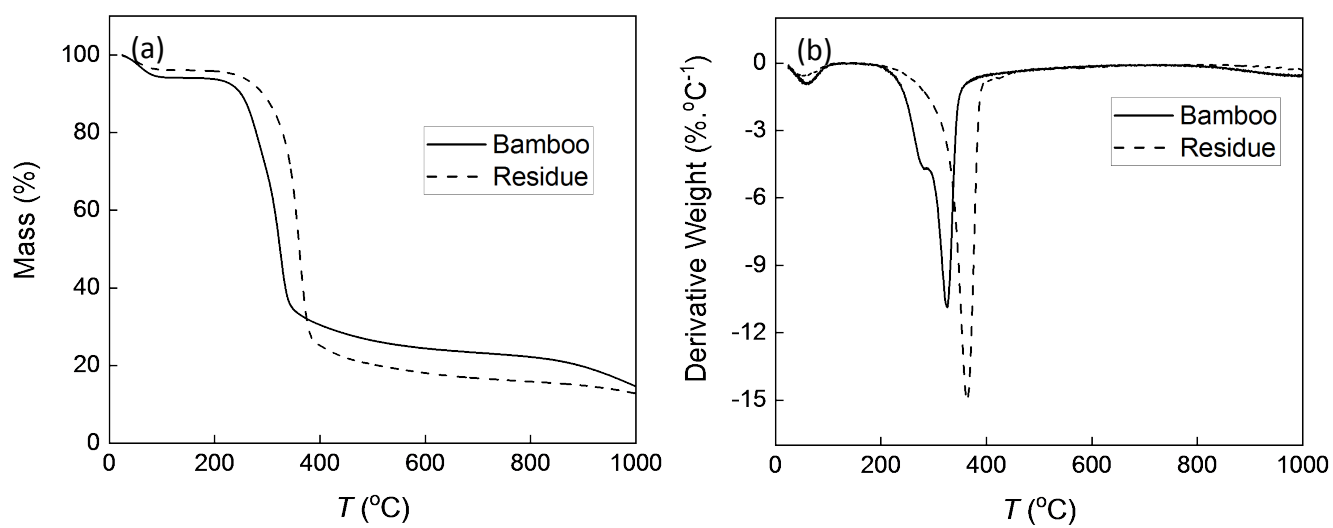


Fig. S5 (a) Thermal Gravimetric (TG) and **(b)** Derivative Thermogravimetric (DTG) analysis of the bamboo and residue.

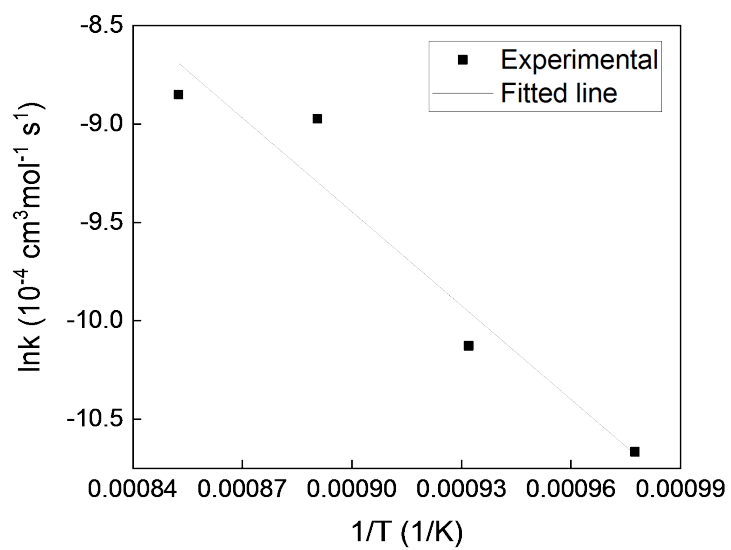


Fig. S6 The Arrhenius plot based on the reaction rates of the solid residue at the different temperatures.

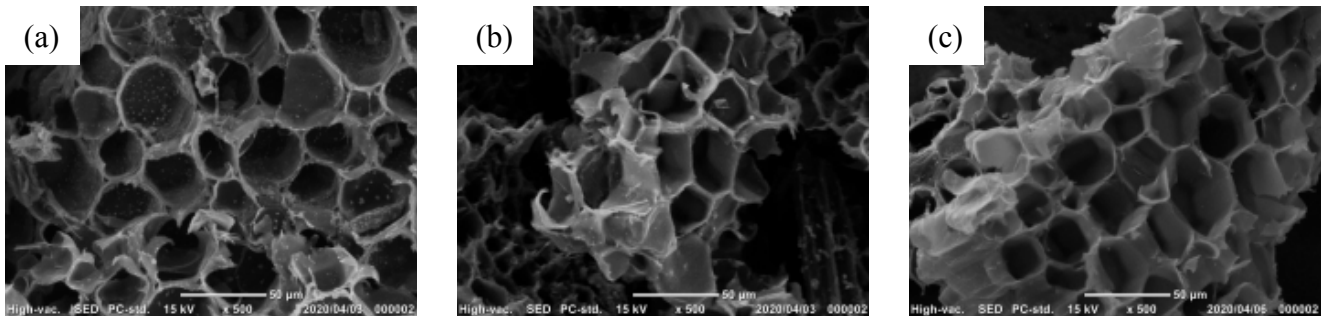


Fig. S7 SEM images of the bamboo samples after CO₂ activation process **(a)** 0'; **(b)** 15'; **(c)** 30'.

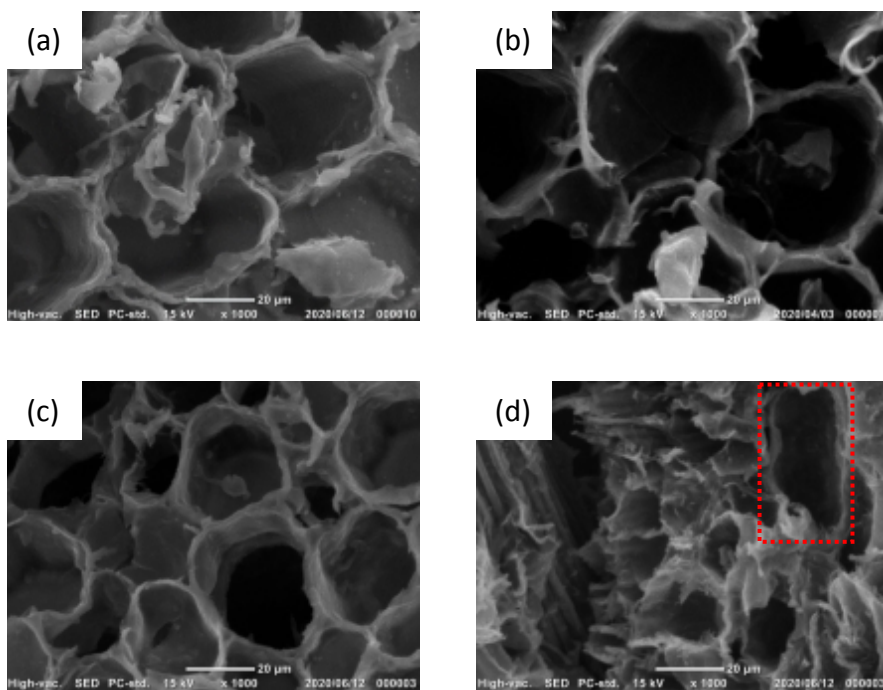


Fig. S8 SEM images of the solid residue samples after carbonization process at different temperatures **(a)** 750°C; **(b)** 800°C; **(c)** 850°C; **(d)** 900°C.

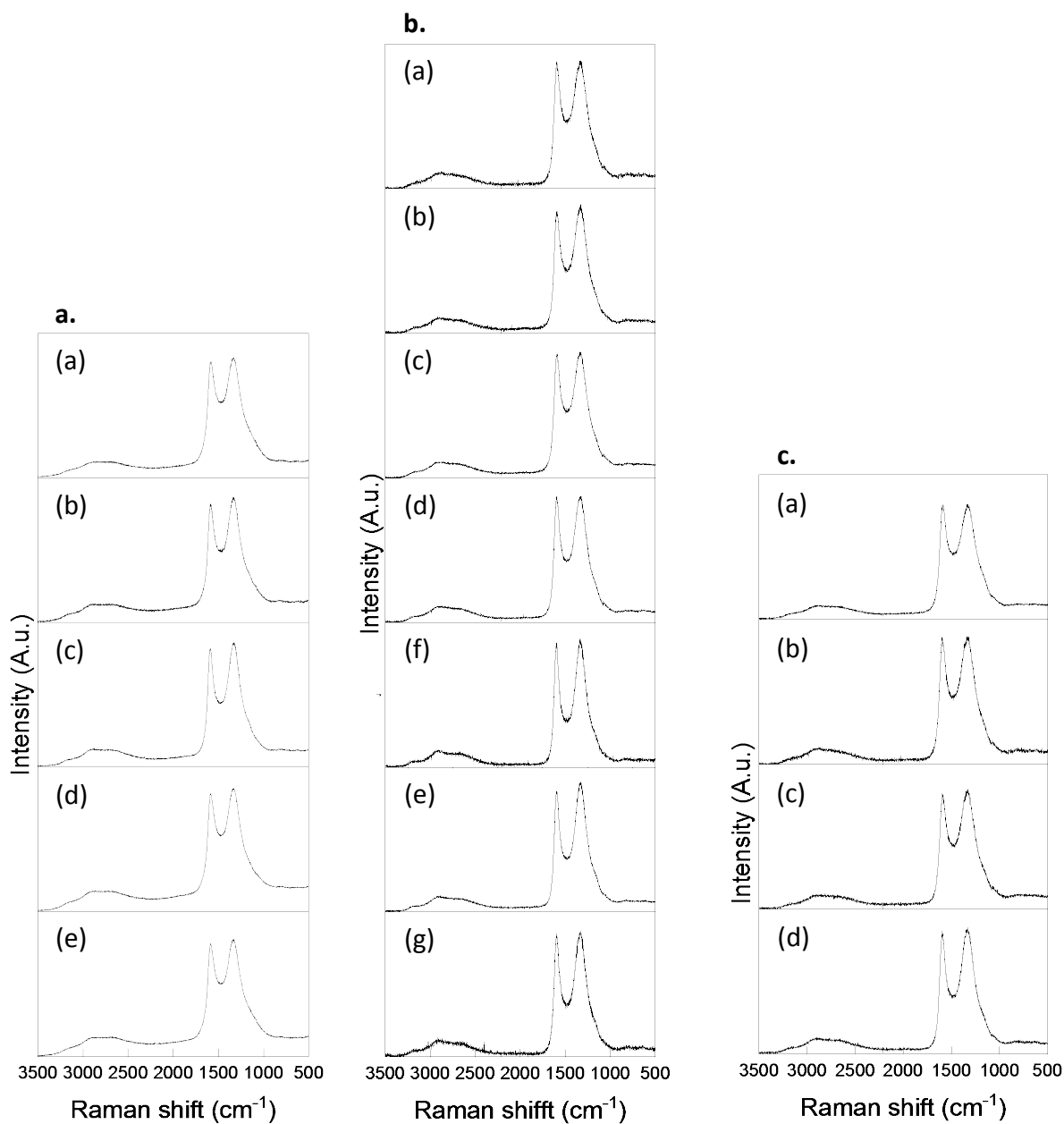


Fig. S9 Raman spectra of **a.** the activated samples produced from bamboo at 800°C for (a) 0 minute, (b) 10 minutes, (c) 15 minutes, (d) 20 minutes, (e) 30 minutes; **b.** the activated samples produced from the solid residue at 800°C for (a) 0h, (b) 1h, (c) 2h, (d) 3h, (e) 4h, (f) 5h, (g) 6h; **c.** the carbonized samples produced from the solid residue at different temperatures (a) 750°C, (b) 800°C, (c) 850°C, (d) 900°C.

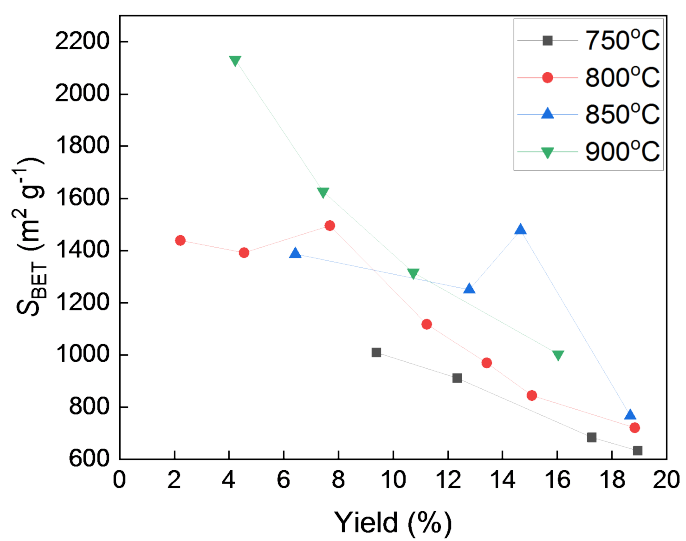


Fig. S10 The BET specific area of the activated samples derived from the solid residue at different temperatures according to the yield.

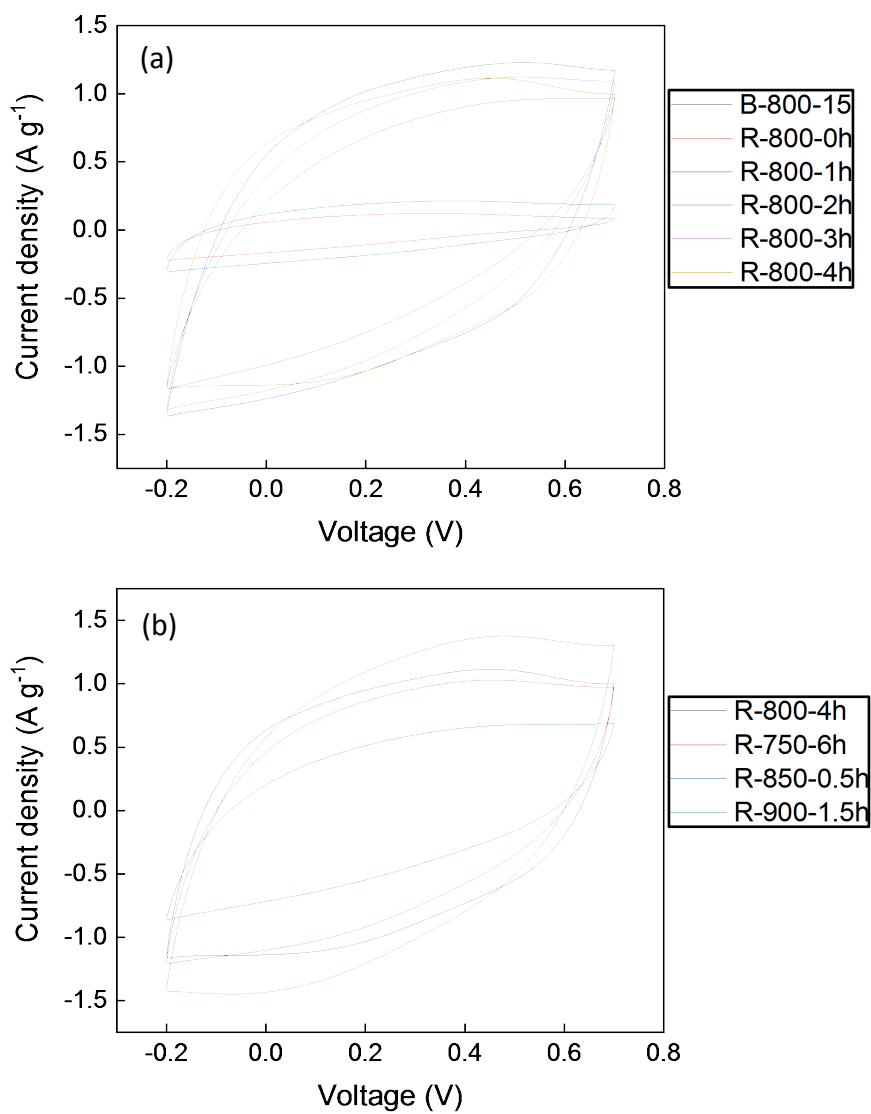


Fig. S11 The CV curves measured at 10mV s^{-1} of the samples **(a)** produced at 800°C ; **(b)** at different temperatures.

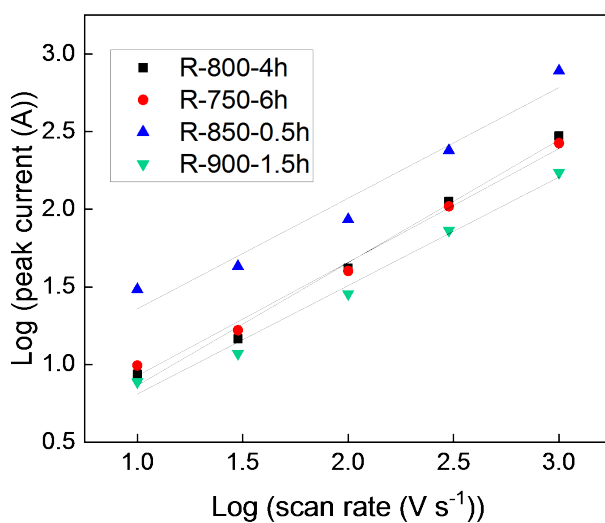
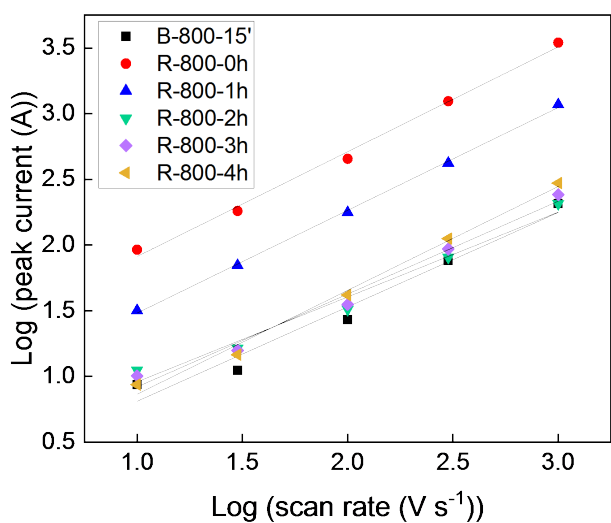


Fig. S12 The log (*i*) versus log (*v*) plots **(a)** of the samples produced at 800°C; **(b)** of the solid residues activated at different temperatures

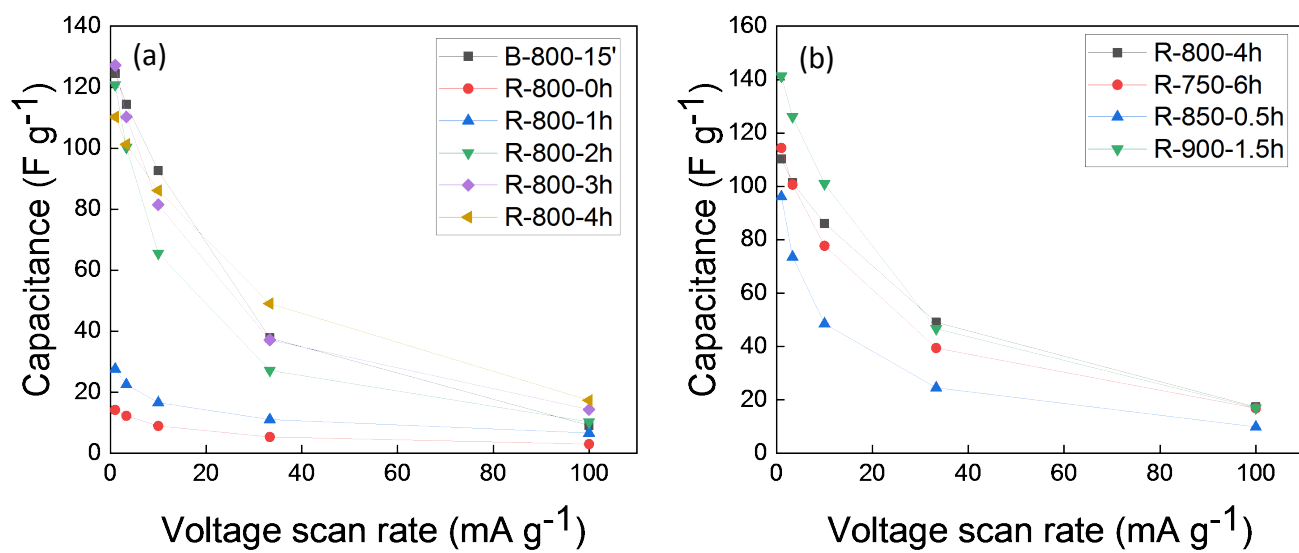


Fig. S13 The capacitance values calculated from CV curves **(a)** of the samples produced at 800°C;

(b) of the solid residues activated at different temperatures

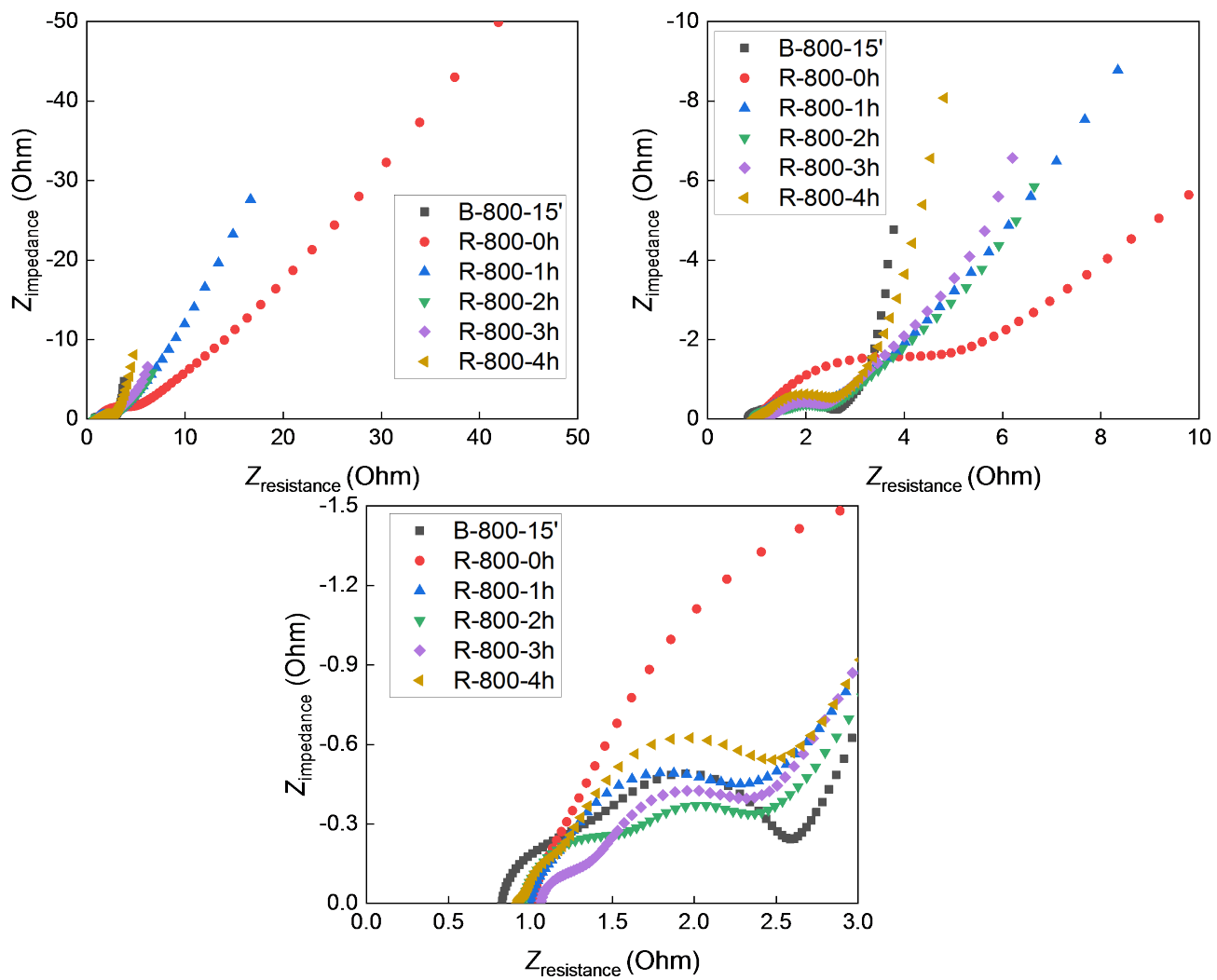


Fig. S14 Nyquist plots of the obtained ELDC electrodes from activated carbon produced at 800°C

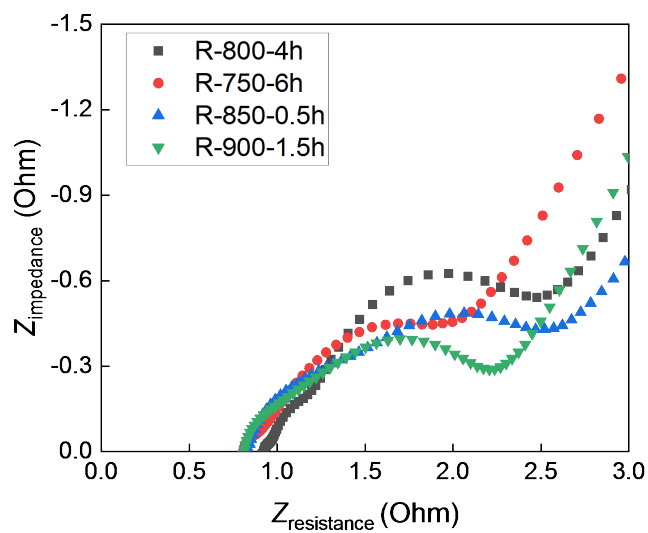
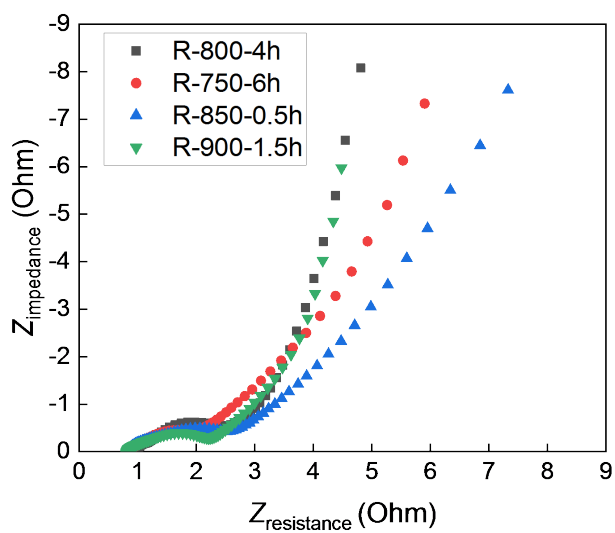


Fig. S15 Nyquist plots of the obtain ELDC electrodes produced at different temperatures

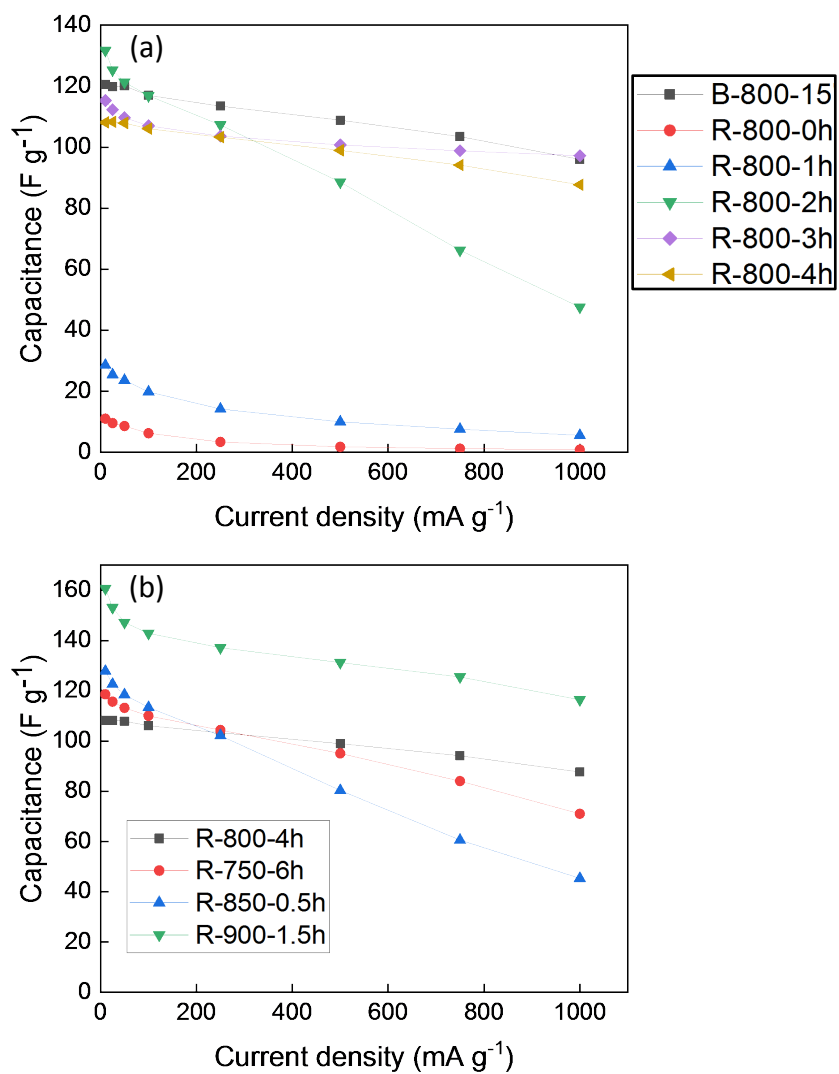


Fig. S16 The capacitance values calculated from charge process of the samples.

(a) the samples produced at 800°C;

(b) the solid residues activated at different temperatures.

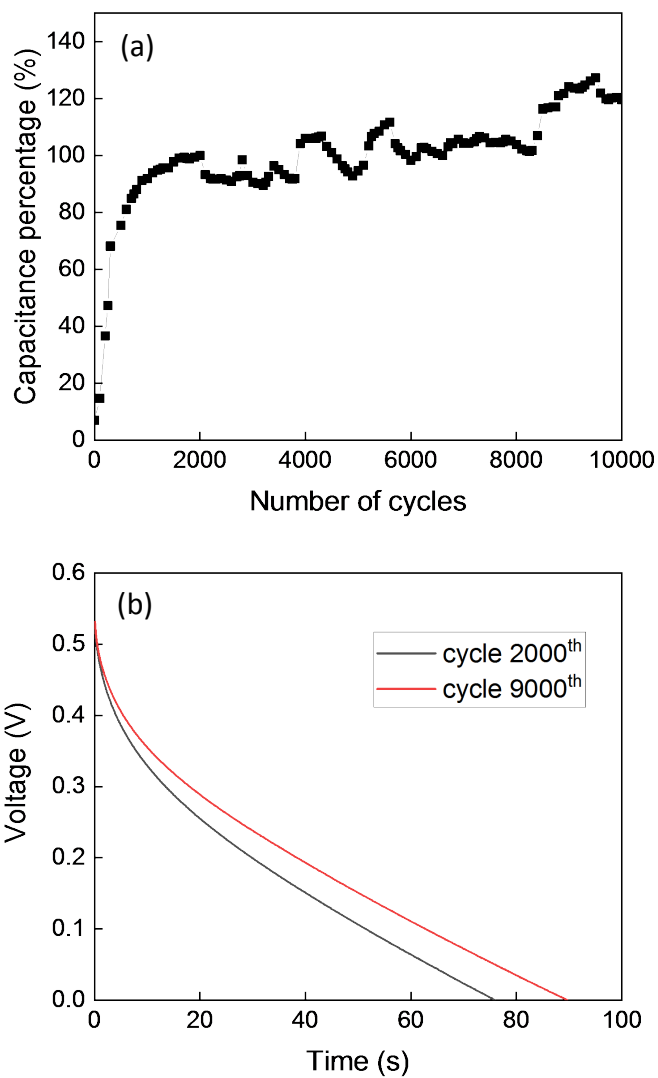


Fig. S17 a) The capacitance percentage of the electrode made from the solid residue activated for 3 hours at 800°C; **b)** The discharge profiles of this electrode at the 2000th and 9000th cycles