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Capacitive properties of carbon nanofibers derived from blends of cellulose acetate and polyacrylonitrile

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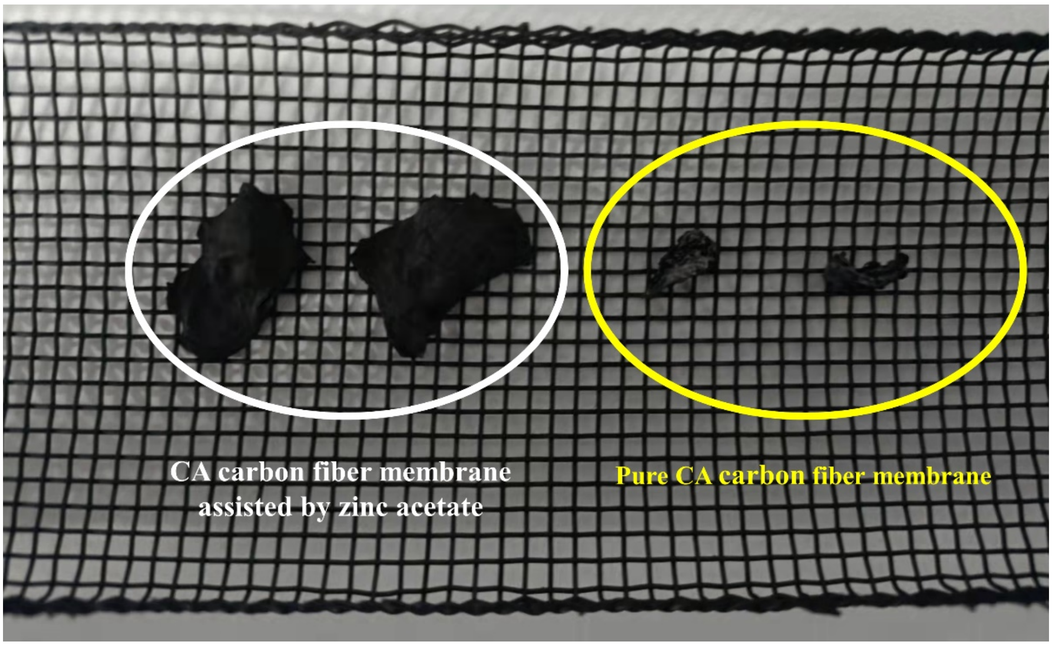

Fig. S1 CA carbon fiber membrane assisted by zinc acetate and pure CA carbon fiber membrane.

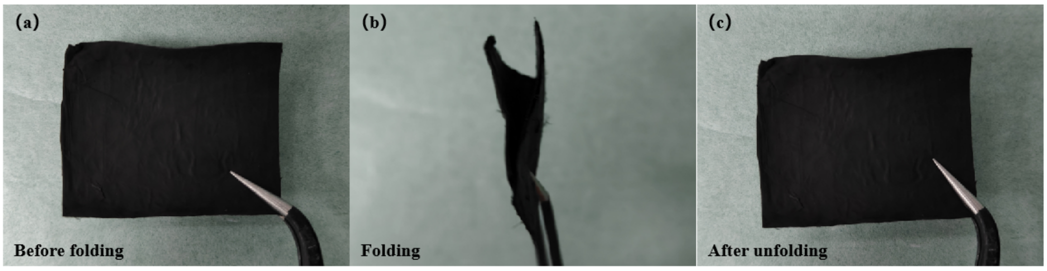

Fig. S2 Optical images of CNF-C_6P_1 (a) before folding, (b) folded with an angle of 180°, (c) after unfolding.

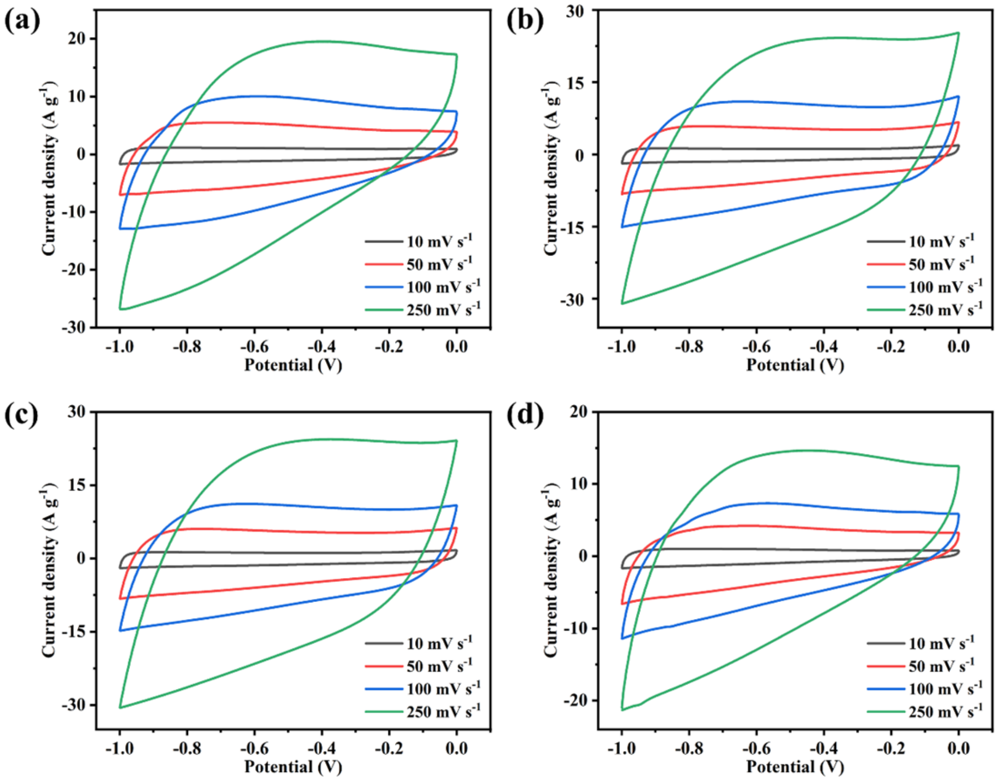

Fig. S3 CV profiles for (a) CNF-C_2P_1, (b) CNF-C_4P_1, (c) CNF-C_6P_1 and (d) CNF-C_8P_1 electrode at various scanning rates.

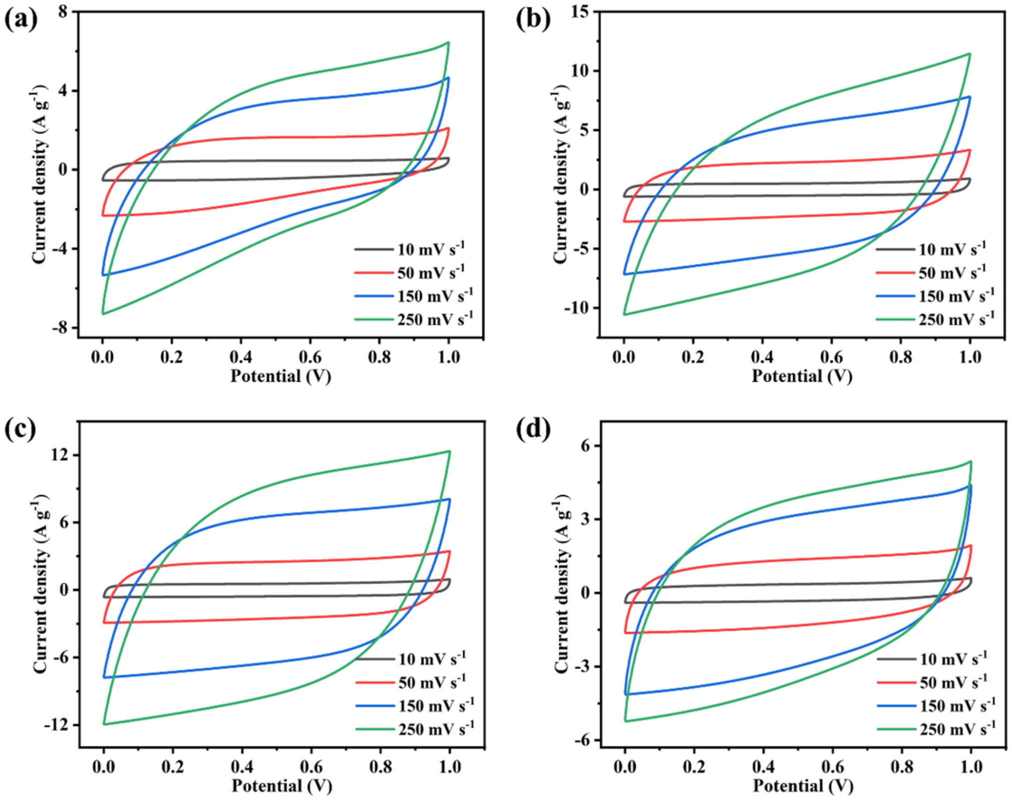

Fig. S4 CV curves for CNF-C_xP_1 electrodes at different scanning rates.

Table S1 The C, O and N contents of CNF-C_xP_1 samples.

Characterizations			**CNF-C_2P_1**	**CNF-C_4P_1**	**CNF-C_6P_1**	**CNF-C_8P_1**
C (%)			89.94	91.90	85.97	88.64
O (%)			4.82	5.11	10.77	7.75
N (%)			4.24	2.99	3.26	3.61
XPS	C=O	B.E. (eV)	531.00	531.27	531.30	531.10
		Content (%)	3.78	3.70	6.93	5.98
	C-OH or O-C=O	B.E. (eV)	532.62	532.51	532.57	532.68
		Content (%)	1.04	1.41	3.84	1.77
	N-6	B.E. (eV)	398.10	398.10	397.89	398.10
		Content (%)	0.50	0.29	0.26	0.41
	N-5	B.E. (eV)	399.60	399.70	399.60	399.60
		Content (%)	1.53	1.18	1.40	1.31
	N-Q	B.E. (eV)	401.06	401.00	401.10	401.10
		Content (%)	1.46	1.11	1.08	0.98

Table S2 Comparison between this work and others present in literature for supercapacitor characteristics.

Types of Cell	Composition	Specific Capacitance	Cycle stability	Remarks	Ref.
Two electrodes	Commercial cotton cloth	116 F g^{-1} (0.2 A g^{-1}) 6 M KOH	85% (15,000 cycles)	Self-supporting	1
Two electrodes	Potassium citrate/vermicelli	90 F g^{-1} (0.1 A g^{-1}) 6 M KOH	96.9% (10,000 cycles)	Non-flexibility	2
Two electrodes	Resorcinol/formaldehyde resin	73 F g^{-1} (0.1 A g^{-1}) 1 M KOH	97.7% (10,000 cycles)	Non-flexibility	3
Two electrodes	Polyimide/H_2O_2	166 F g^{-1} (0.5 A g^{-1}) 6 M KOH	87.6% (20,000 cycles)	Self-supporting	4
Two electrodes	Osmanthus	86 F g^{-1} (1 A g^{-1}) 3 M KOH	93.5% (10,000 cycles)	Non-flexibility	5
Two electrodes	Microcrystalline cellulose	129 F g^{-1} (0.1 A g^{-1}) 6 M KOH	99.9% (3000 cycles)	Non-flexibility	6
Two electrodes	GO/Loblolly pine	94 F g^{-1} (0.5 A g^{-1}) 1 M H_2SO_4	93.5% (10,000 cycles)	Flexibility	7
Two electrodes	CA/$ZnCl_2$	143 F g^{-1} (0.1 A g^{-1}) 6 M KOH	92% (5000 cycles)	Self-supporting; deacetylation	8
Two electrodes	Lignocellulosic biomasses	130 F g^{-1} (0.1 A g^{-1}) 6 M KOH	88% (2500 cycles)	Non-flexibility	9
Two	Chinese fir bark	105 F g^{-1} (0.5 A g^{-1})	91%	Non-flexibility	10

electrodes		6 M KOH	(10,000 cycles)		
Two electrodes	Banana peels	87 F g^{-1} (1 A g^{-1}) 1 M H_2SO_4	/	Non-flexibility	11
Two electrodes	PVP/PIn	97 F g^{-1} (1 A g^{-1}) 1 M H_2SO_4	87.8% (3000 cycles)	Non-flexibility	12
Two electrodes	Asclepias syriaca	38 F g^{-1} (1 A g^{-1}) 1 M KOH	80% (200,000 cycles)	Non-flexibility	13
Two electrodes	Ginger cellulose	103 F g^{-1} (0.25 A g^{-1}) 1 M H_2SO_4	94.8% (1000 cycles)	Flexibility	14
Three electrodes	Carbon black/CA	101 F g^{-1} (0.5 A g^{-1}) 1 M KOH	74% (100 cycles)	Flexibility	15
Two electrodes	CA/KOH	52 F g^{-1} (0.25 A g^{-1}) 6 M KOH	97.2% (5000 cycles)	Non-flexibility	16
Two electrodes	CA/K_2CO_3	199 F g^{-1} (1 A g^{-1}) 6 M KOH	~100% (10,000 cycles)	Non-flexibility;	17
Three electrodes	CA/ NaOH	229 F g^{-1} (0.2 A g^{-1}) 6 M KOH	~97.3% (40,000 cycles)	Non-flexibility; deacetylation	18
Two electrodes	CA/bead cellulose	142 F g^{-1} (1 A g^{-1}) 4 M KOH	~77% (10,000 cycles)	Non-flexibility; deacetylation	19
Three electrodes	CA/PAN/$(CH_3COO)_2Zn$	132 F g^{-1} (0.5 A g^{-1}) 6 M KOH	98.2% (10,000 cycles)	Flexibility	This work
Two		111 F g^{-1} (0.1 A g^{-1})	85%		

electrodes	6 M KOH	(4000 cycles)

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