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Supplementary

Nitrogen-Doped and Carbon-Coated Activated Carbon as a Conductivity Additive-Free Electrode for Supercapacitors

Su-Jin Jang [1,2], Jeong Han Lee [1,2], Seo Hui Kang [1,2], Yun Chan Kang [2] and Kwang Chul Roh [1,*]

[1] Energy and Environmental Division, Korea Institute of Ceramic Engineering and Technology, Jin-ju 52851, Korea; jsjin@kicet.re.kr (S.-J.J.); lunhan2@kicet.re.kr (J.H.L.); leakang18@kicet.re.kr (S.H.K.)
[2] Department of Materials Science and Engineering, Korea University, Anam-dong, Seongbuk-gu, Seoul 136-713, Korea; yckang@korea.ac.kr
* Correspondence: rkc@kicet.re.kr; Tel.: +82-55-792-2625

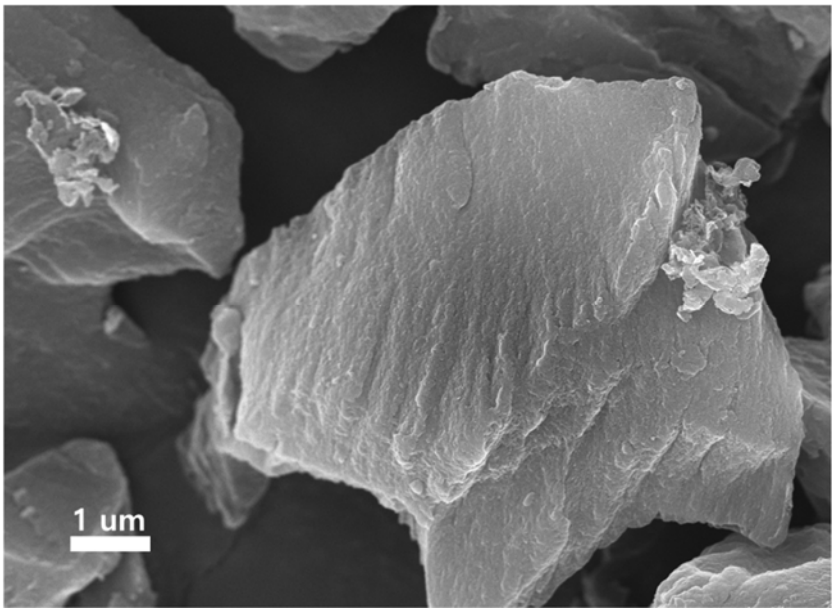

Figure S1. SEM images of CAC.

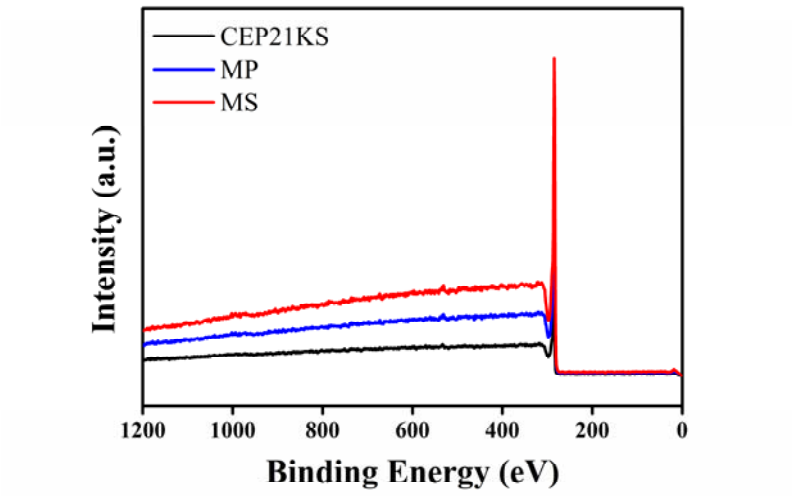

Figure S2. XPS survey spectra of samples.

Table S1. Surface elemental composition and C1s bonding composition of of CAC, MS, and MP.

	Surface Atomic Composition (at.%)			Binding Composition (%)				
	C	O	N	C=C, C-C	C-O, C-N	C=O, O=C-N	O-C=O	π-π*
CAC	96.9	3.1	-	60.9	10.3	12.8	5.3	10.7
MS	98.5	1.0	0.5	63.4	12.2	2.3	8.2	13.9
MP	98.2	1.2	0.6	64.9	11.3	2.5	11.1	10.2

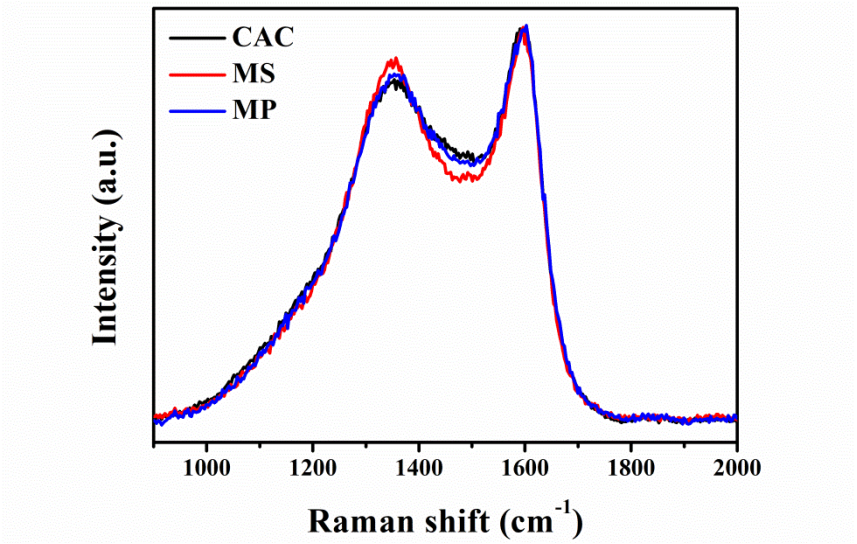

Figure S3. Raman spectra of all samples.

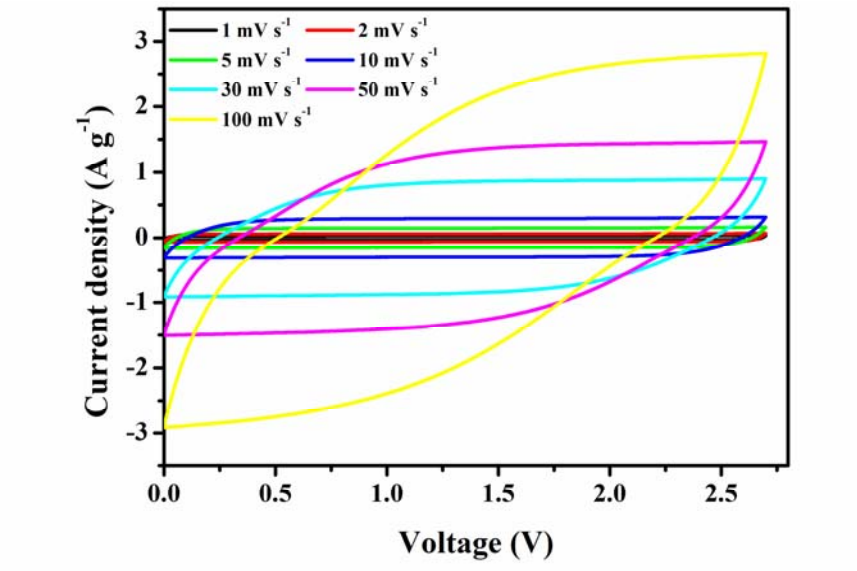

Figure S4. Cyclic voltammetry curves of MP measured with different scan rate.

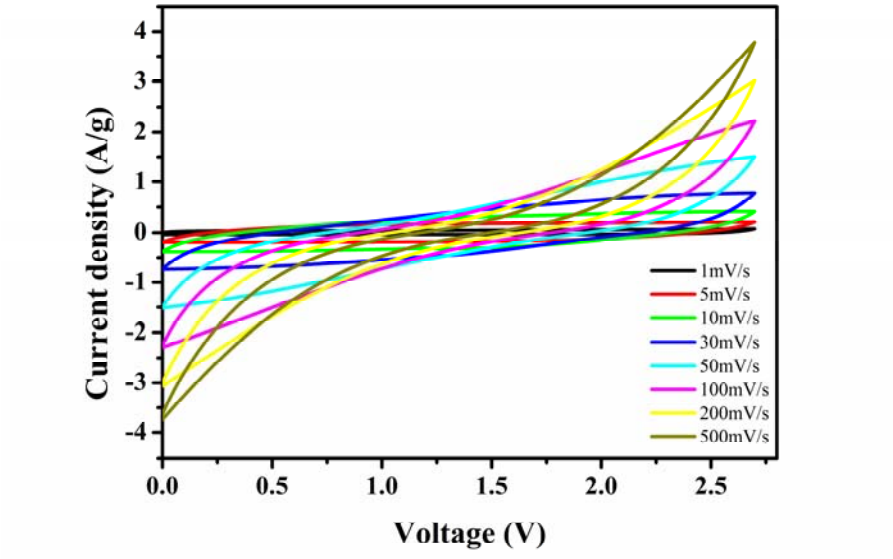

Figure S5. Cyclic voltammetry curves of CAC measured with different scan rate.

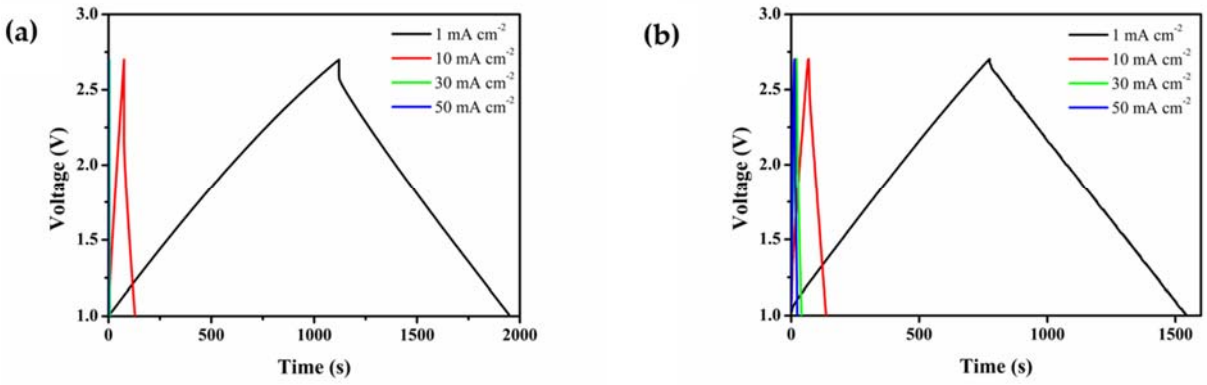

Figure S6. GCD profile of (**a**) CAC, and (**b**) MP.

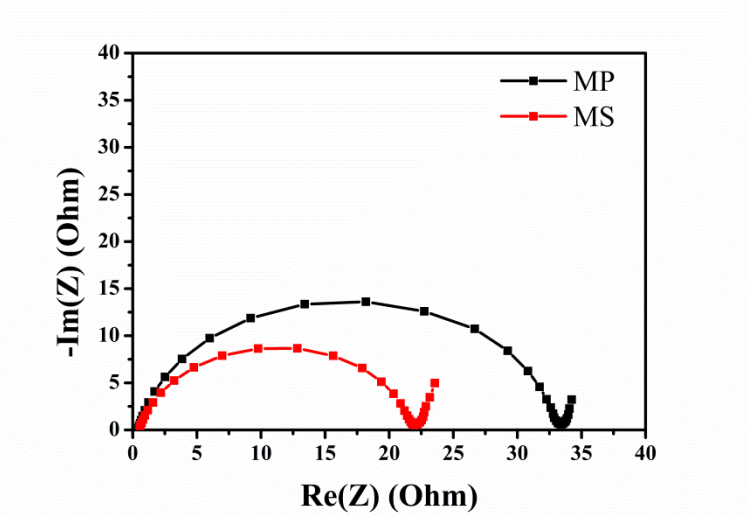

Figure S7. Comparison of electrochemical imdedance spectroscopy(EIS) of MS and MP.

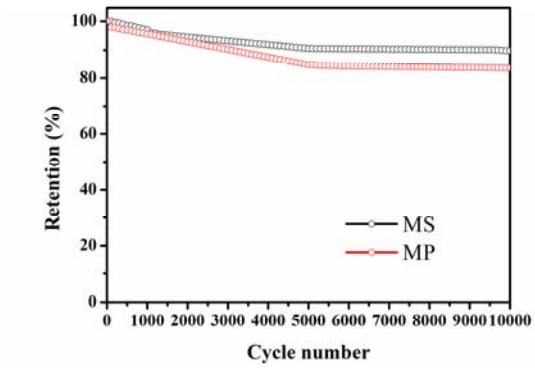

Figure S8. Cycle stability for MP and MS at 10 mA cm^{-2}.

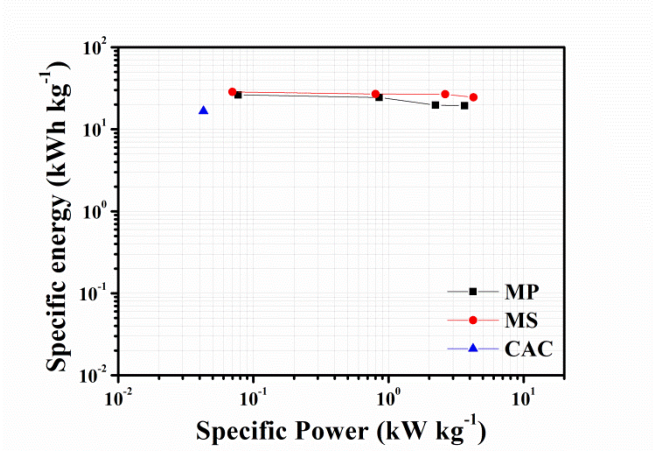

Figure S9. Ragone plots.

Table S2. Comparison of nitrogen-doped activated carbon in $TEABF_4$/AN electrolyte.

Sample name	Nitrogen Content (at.%)	Electrolyte	Current Density	Capacitance	ED (Wh/kg)	PD (W/kg)	Refer-ence
NCF(Fe)	5.34	$TEABF_4$/AN	0.5 A/g	119.2 F/g	25.9	634	[1]
CAC 1:0	0.3	$TEABF_4$/AN	0.5 A/g	49 F/cc	-	-	[2]
CAC 1:1	6.99	$TEABF_4$/AN	0.5 A/g	83 F/cc	42	750	[2]
CAC 1:10	16.7	$TEABF_4$/AN	0.5 A/g	46 F/cc	-	-	[2]
NAC@Gr5	5.1	$TEABF_4$/AN	1.0 A/g	107 F/cc	13.2	25	[3]
MS	0.5	$TEABF_4$/AN	0.05 A/g	70.4 F/cc	24.5	4265	This work

References

1. Ni, L.; Wang, R.; Wang, H.; Sun, C.; Sun, B.; Guo, X.; Jiang, S.; Shi, Z.; Jing, W.; Zhu, L. Designing nanographitic domains in N-doped porous carbon foam for high performance supercapacitors. *Carbon* **2018**, *139*, 1152-1159.
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