Supplementary information

Direct synthesis of porous graphitic carbon sheets grafted on carbon fiber for high-performance supercapacitors

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Content:

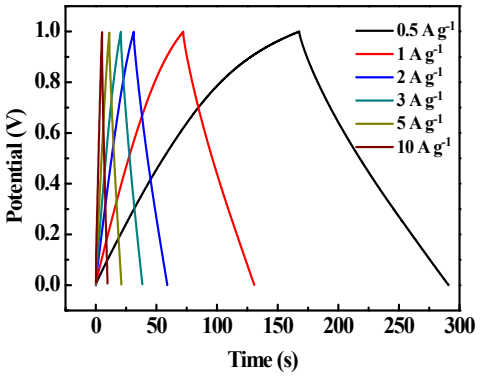

Fig. S1 Galvanostatic charge–discharge curves of CS@CF-KFe symmetric supercapacitor at different current densities in 6 M KOH electrolyte.

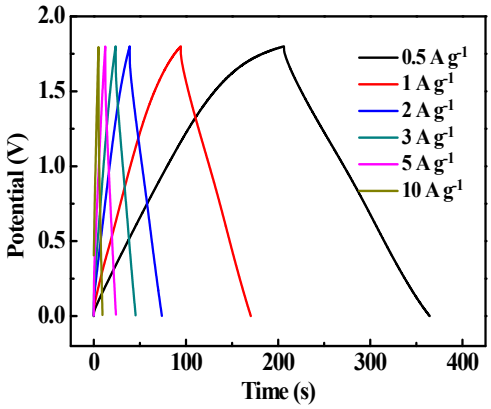

Fig. S2 Galvanostatic charge–discharge curves of CS@CF-KFe symmetric supercapacitor at different current densities in 1 M Na_2SO_4 electrolyte.

Table S1 Comparison of electrochemical properties of CS@CF-KFe with reported various biomass-derived carbon materials in the references.

Precursor	Catalyst	S_{BET} (m^2 g^{-1})	T^a (A g^{-1})	C^b (F g^{-1})	Cycling stability	Ref.
Cornstalk	$K_4[Fe(CN)_6]$	540	1	213	98% after 6000	[1]
Glucose	KOH	1880	0.25	283	88.5% after 10000	[2]
Willow catkin	KOH	1533	0.5	298	98% after 1000	[3]
Camellia petals	$(NH_4)_2S_2O_8$	1122	0.5	275	98% after 1000	[4]
Pectin biopolymer	$Mg(CH_3COO)_2$ ·$4H_2O$	1320	1	274	---	[5]
Bagasse	KOH	2296	0.5	320	92.85% after 15000	[6]
Nori	$ZnCl_2$	832.4	0.1	220	96.6% after 5000	[7]
Glucose	KOH	1997.5	0.5	312	91.3% after 4000	[8]
Pomelo mesocarps	$CaCl_2$	974.6	0.5	245	---	[9]
Filter papers and glucose	$K_3[Fe(C_2O_4)_3]$ ·H_2O	1515.6	1	313.0	100.2% after 10000	This work

Note: [a] Current density; [b] Specific capacitance in KOH electrolyte using a three-electrode system.

References

1. L. Wang, G. Mu, C. Tian, L. Sun, W. Zhou, P. Yu, J. Yin and H. Fu, *ChemSusChem*, 2013, **6**, 880-889.
2. D. Jia, X. Yu, H. Tan, X. Li, F. Han, L. Li and H. Liu, *J. Mater. Chem. A*, 2017, **5**, 1516-1525.
3. Y. Li, G. Wang, T. Wei, Z. Fan and P. Yan, *Nano Energy*, 2016, **19**, 165-175.
4. T. Wei, X. Wei, L. Yang, H. Xiao, Y. Gao and H. Li, *J. Power Sources*, 2016, **331**, 373-381.
5. F. Ma, D. Ma, G. Wu, W. Geng, J. Shao, S. Song, J. Wan and J. Qiu, *Chem. Commun.*, 2016, **52**, 6673-6676.
6. H. Feng, H. Hu, H. Dong, Y. Xiao, Y. Cai, B. Lei, Y. Liu and M. Zheng, *J. Power Sources*, 2016, **302**, 164-173.
7. C. Wang and T. Liu, *J. Alloys Compd.*, 2017, **696**, 42-50.
8. Y. Wang, H. Xuan, G. Lin, F. Wang, Z. Chen and X. Dong, *J. Power Sources*, 2016, **319**, 262-270.
9. H. Peng, G. Ma, K. Sun, Z. Zhang, Q. Yang and Z. Lei, *Electrochim. Acta*, 2016, **190**, 862-871.