Supporting information

Tensile force induced tearing and collapse of ultrathin carbon shells to surface-wrinkled grape skins for high performance supercapacitor electrodes

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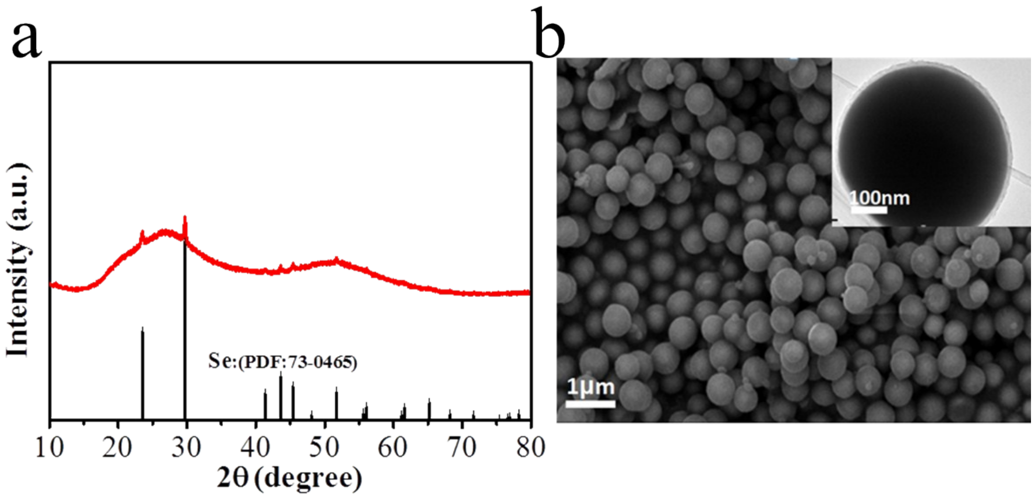

Fig. S1 (a) XRD pattern showing the merely exist of C and Se in the composite, (b) SEM and TEM images of Se@C showing fine uniformity and ultrathin shell of the composite.

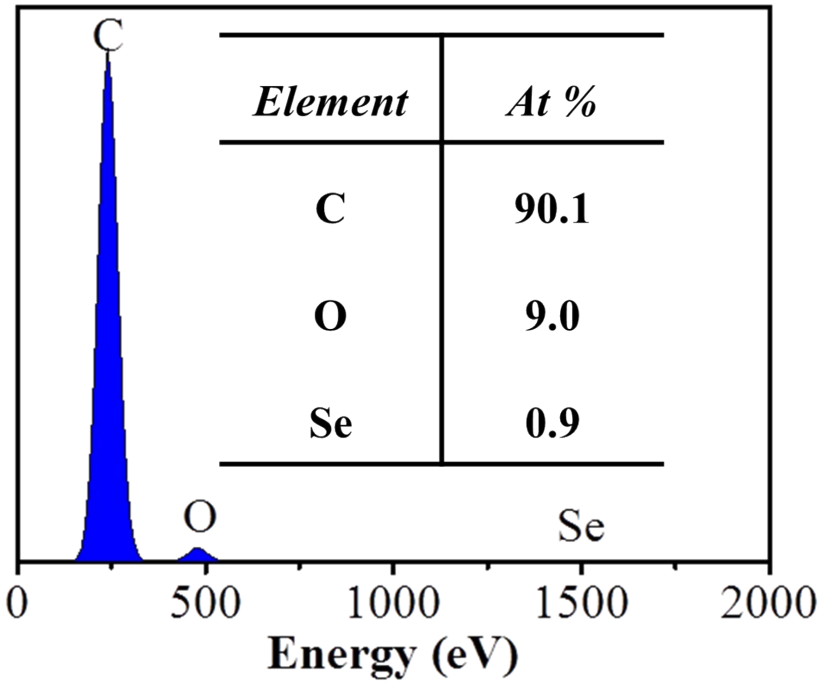

Fig. S2 EDS spectrum of CGS-700 showing the merely presence of elemental selenium

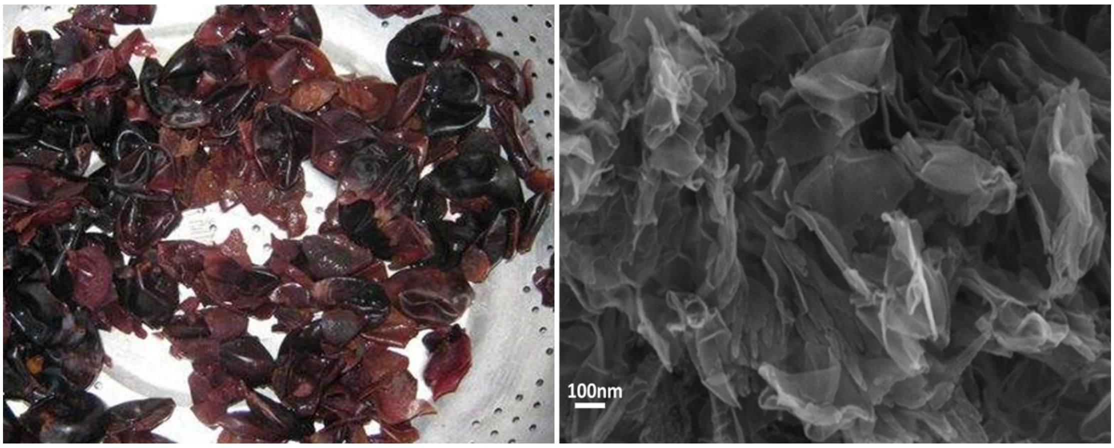

Fig. S3 Comparison between real products of grape skins and synthesized carbon grape skins

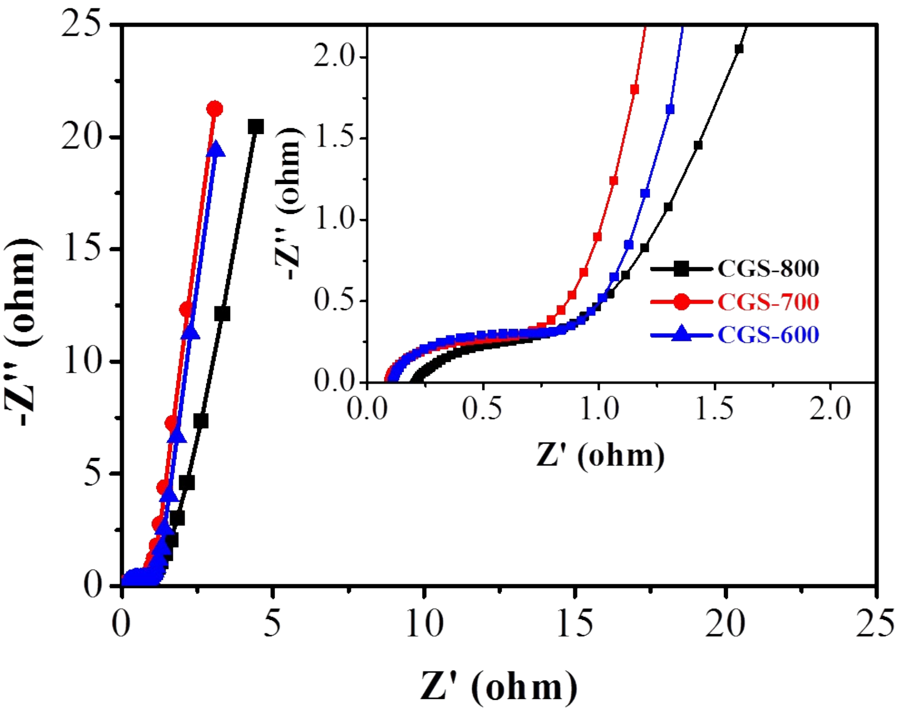

Fig. S4 Nyquist plots in the frequency range from 0.01 Hz to 100 kHz of CGSs

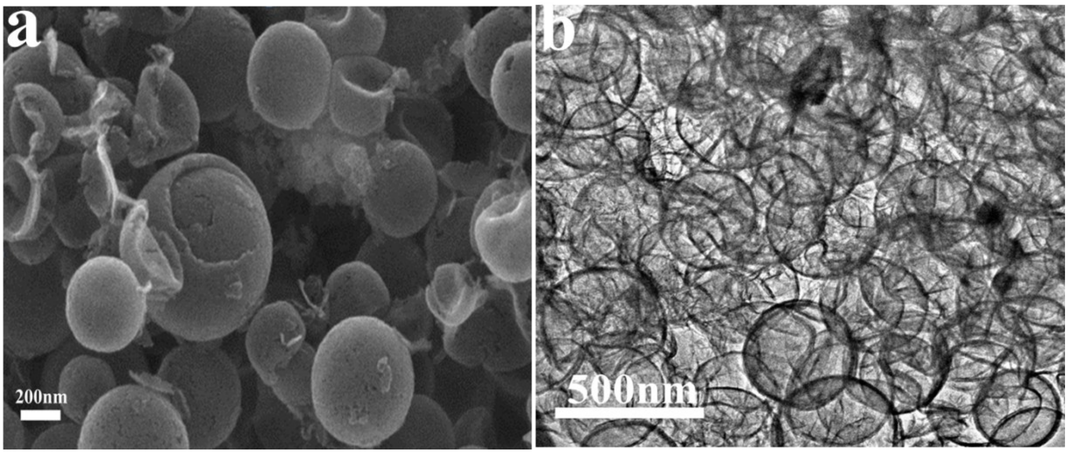

Fig. S5 SEM and TEM images of carbon hollow spheres obtained at 700 °C

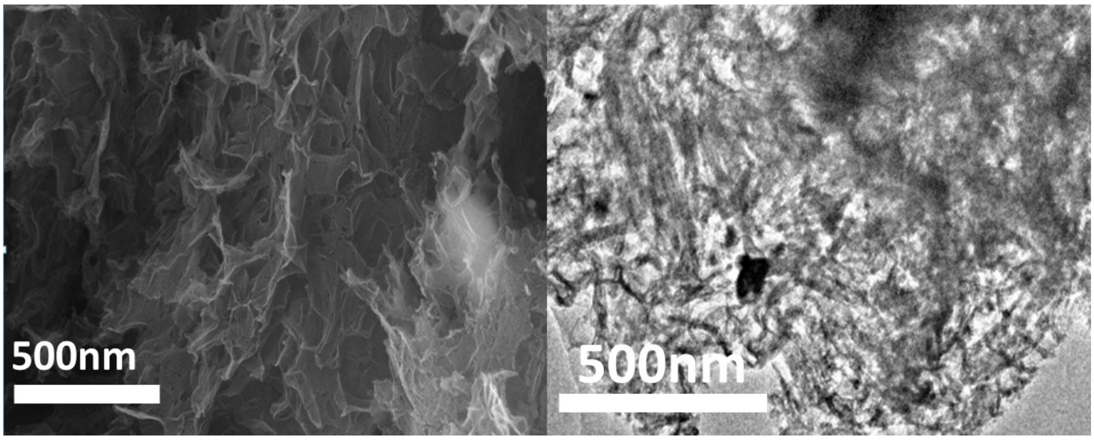

Fig. S6 SEM and TEM images of carbon nanosheets obtained at 700 °C

Table. S1 Comparison of electrochemical performance with different carbons in the literatures

Sample	Capacitance(F g^{-1})	Testing system	Electrolyte	Current density(A g^{-1})	Ref
Norit DLC Supra 50	/	3-electrode	/	/	[1]
	162 F g^{-1}	2-electrode	1M H_2SO_4	0.1 A g^{-1}	
SLC	208.4 F g^{-1}	3-electrode	6M KOH	0.1 A g^{-1}	[2]
	/	2-electrode	/	/	
a-HHPC	/	3-electrode	/	/	[3]
	214 F g^{-1}	2-electrode	6M KOH	0.2 A g^{-1}	
NS-PCMSs-TH-750	295 F g^{-1}	3-electrode	6M KOH	0.1 A g^{-1}	[4]
	/	2-electrode	/	/	
HPCNFs-3-1	/	3-electrode	/	/	[5]
	251 F g^{-1}	2-electrode	6M KOH	0.5 A g^{-1}	
NM-CMK-3	/	3-electrode		/	[6]
	260 F g^{-1}	2-electrode	3M H_2SO_4	0.1 A g^{-1}	
HPCs-750	314 F g^{-1}	3-electrode	6M KOH	0.5 A g^{-1}	[7]
	/	2-electrode		/	

Refer to **Table. S1** (continued)

NPC-900	149 F g^{-1}	3-electrode	6M KOH	0.5 A g^{-1}	[8]
	/	2-electrode	/	/	
CF III	221.72 F g^{-1}	3-electrode	3MKOH	0.3 A g^{-1}	[9]
	/	2-electrode	/	/	
NOMC–H2O-800	281.2 F g^{-1}	3-electrode	6M KOH	0.5 A g^{-1}	[10]
	/	2-electrode	/	/	
HPNCT-800	292 F g^{-1}	3-electrode	6M KOH	1 A g^{-1}	[11]
	139 F g^{-1}	2-electrode	1M $LiPF_6$	1 A g^{-1}	
ACA-SCD	302 F g^{-1}	3-electrode	6M KOH	0.5 A g^{-1}	[12]
	/	2-electrode	/	/	
A-NHPC14-4-80	314 F g^{-1}	3-electrode	2M KOH	0.5 A g^{-1}	[13]
	52.5 F g^{-1}	2-electrode	2M KOH	0.5 A g^{-1}	
A-G/G-60	306 F g^{-1}	3-electrode	6M KOH	0.5 A g^{-1}	[14]
	262 F g^{-1}	2-electrode		0.5 A g^{-1}	
NBKBC	262 F g^{-1}	3-electrode	1M H_2SO_4	0.5 A g^{-1}	[15]
	/	2-electrode	/	/	
MCM-70-5.5	268 F g^{-1}	3-electrode	6M KOH	1 A g^{-1}	[16]
	/	2-electrode	/	/	
NC2	/	3-electrode	/	/	[17]
	212 F g^{-1}	2-electrode	6M KOH	1 A g^{-1}	
FMCS-1	226 F g^{-1}	3-electrode	6M KOH	0.5 A g^{-1}	[18]
	/	2-electrode	/	/	
HMCNs	253 F g^{-1}	3-electrode	1M H_2SO_4	1 A g^{-1}	[19]
	/	2-electrode	/	/	
NMC-1.5-2	229.7 F g^{-1}	3-electrode	6M H_2SO_4	0.5 A g^{-1}	[20]
	/	2-electrode	/	/	
C-3.7@0.1	303 F g^{-1}	3-electrode	/	0.7 A g^{-1}	[21]
	/	2-electrode	/	/	
CGS-700	315 F g^{-1}	3-electrode	6M KOH	0.5 A g^{-1}	This work
	268 F g^{-1}	2-electrode	6M KOH	0.1 A g^{-1}	

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