Supporting Information:

1. Electrochemical measurements employed in the present work.

➢ **Measurements conducted in a three-electrode system using 6 mol L^{-1} KOH as electrolyte:**

A mixture of 80 wt% the carbon sample (~ 4 mg), 15 wt% acetylene black and 5 wt% polytetrafluoroethylene (PTFE) binder was fabricated using ethanol as a solvent. Slurry of the above mixture was subsequently pressed onto nickel foam under a pressure of 20 MPa, serving as the current collector. The prepared electrode was placed in a vacuum drying oven at 120 ºC for 24 h. A three electrode experimental setup taking a 6 mol L^{-1} KOH aqueous solution as electrolyte was used in cyclic voltammetry and galvanostatic charge-discharge measurements on an electrochemical working station (CHI660D, ChenHua Instruments Co. Ltd., Shanghai). Here, the prepared electrode, platinum foil (6 cm^2) and saturated calomel electrode (SCE) were used as the working, counter and reference electrodes, respectively.

Specific capacitances derived from galvanostatic tests can be calculated from the equation:

$$C = \frac{I\Delta t}{m\Delta V}$$

where C (F g^{-1}) is the specific capacitance; I (A) is the discharge current; Δt (s) is the discharge time; ΔV (V) is the potential window; and m (mg) is the mass of active materials loaded in working electrode.

Specific capacitances derived from cyclic voltammetry tests can be calculated from the equation:

$$C = \frac{1}{mv(V_b - V_a)} \int_{V_a}^{V_b} I \mathrm{d}V$$

where C (F g^{-1}) is the specific capacitance; m (mg) is the mass of active materials loaded in working electrode; v (V s^{-1}) is the scan rate; I (A) is the discharge current; V_b and V_a (V) are high and low potential limit of the CV tests.

Specific energy density (E) and specific power density (P) derived from galvanostatic tests can be calculated from the equations:

$$E = \frac{1}{2} C \Delta V^2$$

$$P = \frac{E}{\Delta t}$$

where E (Wh kg^{-1}) is the average energy density; C (F g^{-1}) is the specific capacitance; ΔV (V) is the potential window; P (W kg^{-1}) is the average power density and Δt (s) is the discharge time.

➢ **Measurements conducted in a two-electrode system using [EMIm]BF_4/AN as electrolyte:**

In a two-electrode cell, [EMIm]BF_4 and acetonitrile (AN) (weight ratio of 1:1) was adopted as electrolyte. A glassy paper separator was sandwiched between two electrodes, and each electrode contains a mixture of 80 wt% the carbon sample (~ 2 mg), 15 wt% acetylene black and 5 wt% polytetrafluoroethylene (PTFE) binder. Nickel foam serves as the current collector. The assembly of the test cell was done in a glove box filled with Ar.

Specific capacitances derived from galvanostatic tests can be calculated from the equation:

$$C = \frac{4I\Delta t}{m\Delta V}$$

where C (F g^{-1}) is the specific capacitance; I (A) is the discharge current; Δt (s) is the discharge time; ΔV (V) is the potential window; and m (mg) is the total mass of two electrodes.

Specific capacitances derived from cyclic voltammetry tests can be calculated from the equation:

$$C = \frac{2}{mv(V_b - V_a)} \int_{V_a}^{V_b} IdV$$

where C (F g^{-1}) is the specific capacitance; m (mg) is the mass of active materials loaded in working electrode; v (V s^{-1}) is the scan rate; I (A) is the discharge current; V_b

and V_a (V) are high and low potential limit of the CV tests.

Specific energy density (E) and specific power density (P) derived from galvanostatic tests can be calculated from the equations:

$$E = \frac{1}{8} C \Delta V^2$$

$$P = \frac{E}{\Delta t}$$

where E (Wh kg^{-1}) is the average energy density; C (F g^{-1}) is the specific capacitance; ΔV (V) is the potential window; P (W kg^{-1}) is the average power density and Δt (s) is the discharge time.

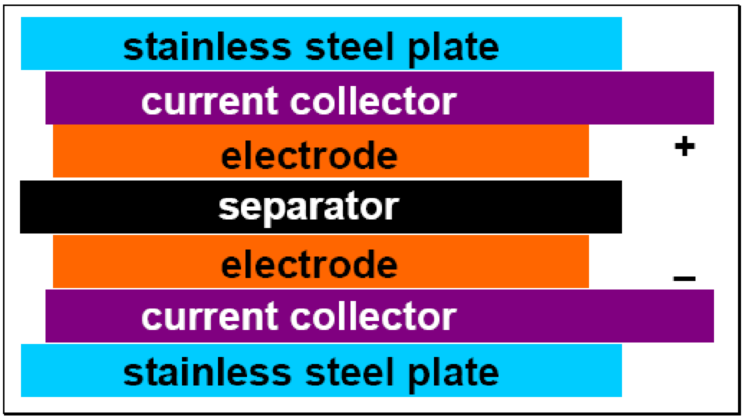


Fig. S1. Schematic illustration of a supercapacitor cell.

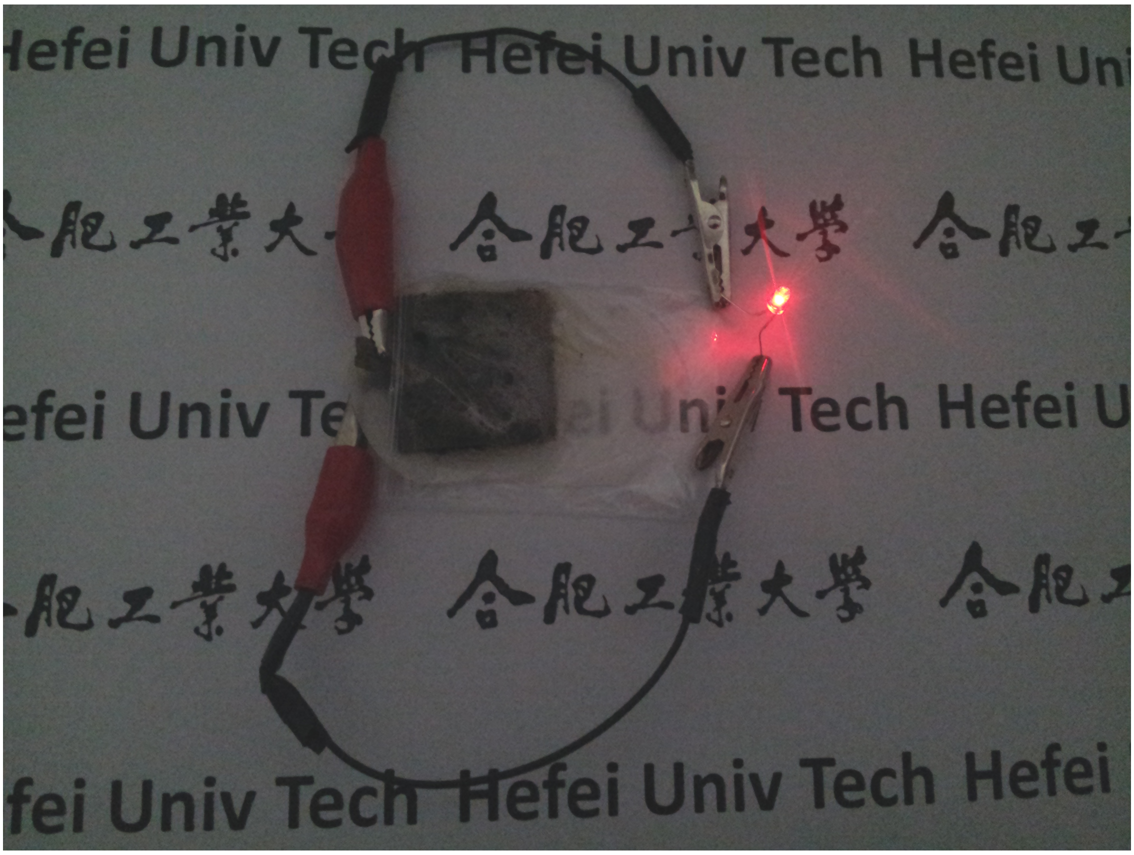


Fig. S2. Digital photograph of the simple supercapacitor cell that makes the red LED lamp (302UR-W) light, using the **carbon-1:2-700** sample as electrode material.

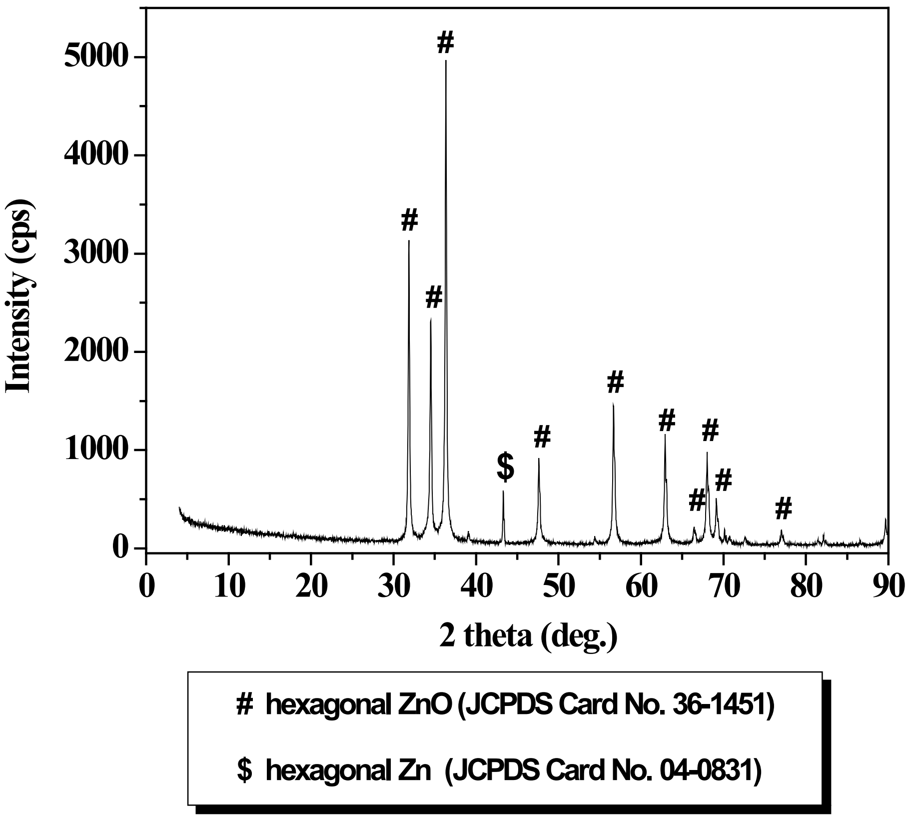


Fig. S3. XRD pattern of the **carbon-1:2-700** sample before washing treatment.

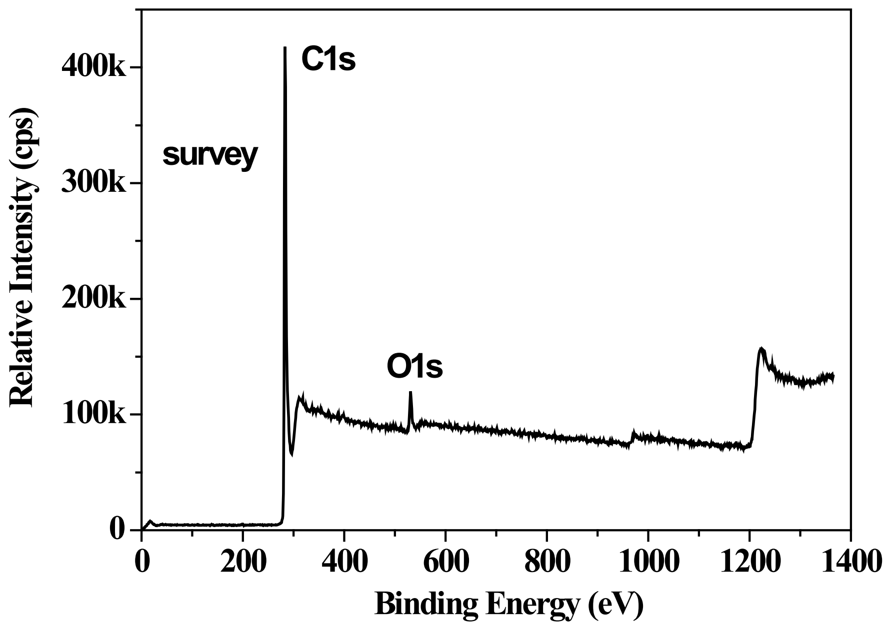
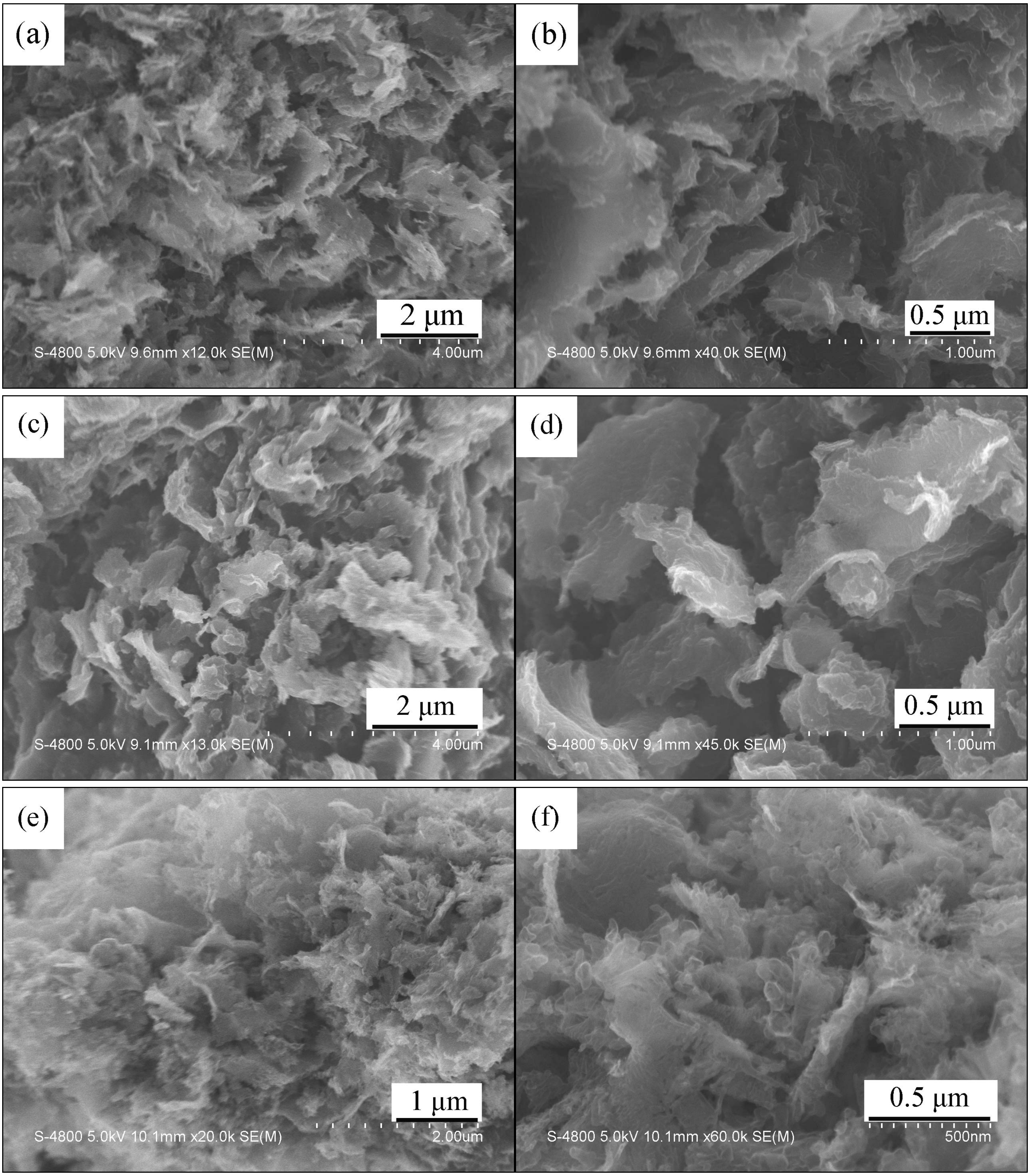


Fig. S4. XPS survey of the **carbon-1:2-700** sample.


(a)
2 μm
S-4800 5.0kV 9.6mm x12.0k SE(M)
4.00um
(b)
0.5 μm
S-4800 5.0kV 9.6mm x40.0k SE(M)
1.00um
(c)
2 μm
S-4800 5.0kV 9.1mm x13.0k SE(M)
4.00um
(d)
0.5 μm
S-4800 5.0kV 9.1mm x45.0k SE(M)
1.00um
(e)
1 μm
S-4800 5.0kV 10.1mm x20.0k SE(M)
2.00um
(f)
0.5 μm
S-4800 5.0kV 10.1mm x60.0k SE(M)
500nm

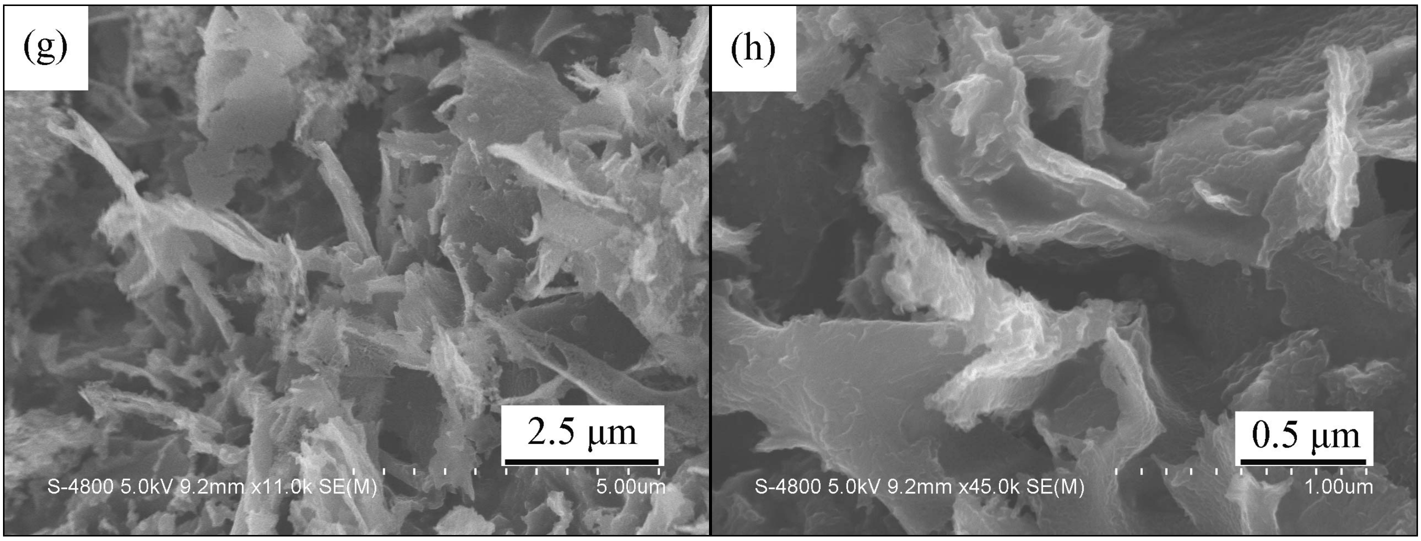
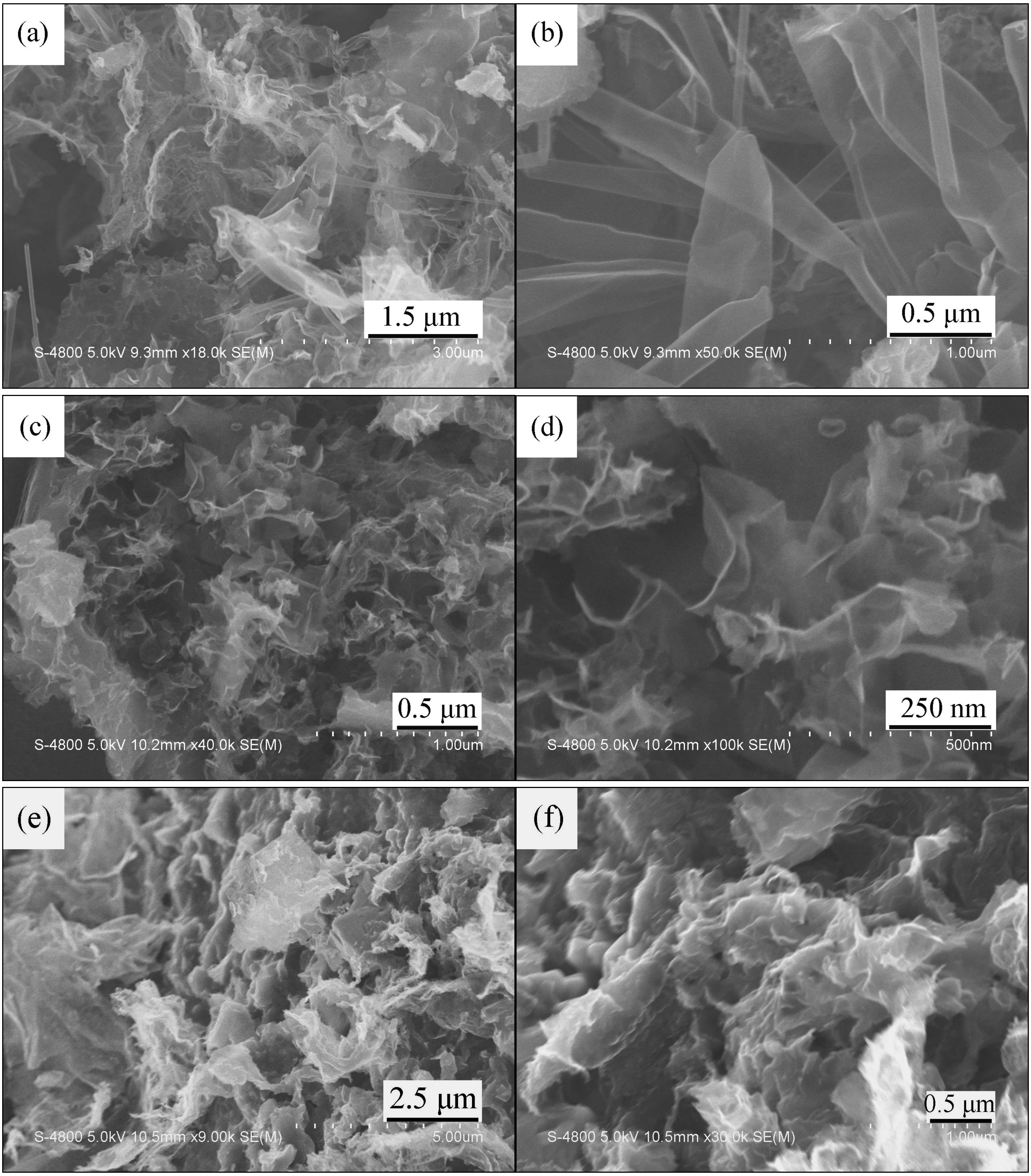
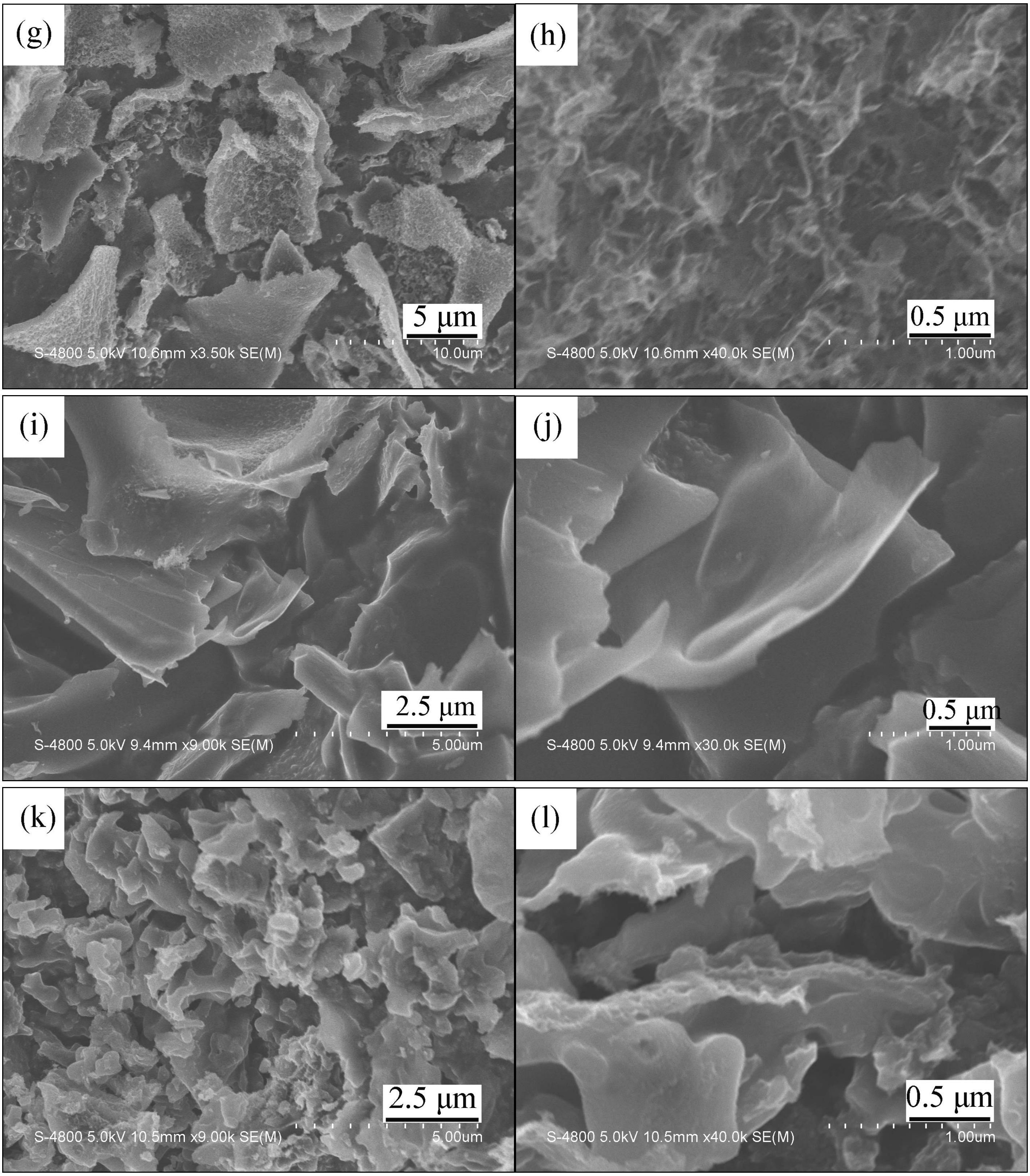


Fig. S5. FESEM images: (a-b) **carbon-1:2-800**; (c-d) **carbon-1:2-900**; (e-f) **carbon-1:1-900**; (g-h) **carbon-2:1-900**. ***Note that all of samples use adipic acid and zinc as starting materials with different mass ratios and carbonization temperatures.***


(a)
1.5 μm
S-4800 5.0kV 9.3mm x18.0k SE(M)
3.00um
(b)
0.5 μm
S-4800 5.0kV 9.3mm x50.0k SE(M)
1.00um
(c)
0.5 μm
S-4800 5.0kV 10.2mm x40.0k SE(M)
1.00um
(d)
250 nm
S-4800 5.0kV 10.2mm x100k SE(M)
500nm
(e)
2.5 μm
S-4800 5.0kV 10.5mm x9.00k SE(M)
5.00um
(f)
0.5 μm
S-4800 5.0kV 10.5mm x30.0k SE(M)


(g)
5 μm
S-4800 5.0kV 10.6mm x3.50k SE(M)
10.0um
(h)
0.5 μm
S-4800 5.0kV 10.6mm x40.0k SE(M)
1.00um
(i)
2.5 μm
S-4800 5.0kV 9.4mm x9.00k SE(M)
5.00um
(j)
0.5 μm
S-4800 5.0kV 9.4mm x30.0k SE(M)
1.00um
(k)
2.5 μm
S-4800 5.0kV 10.5mm x9.00k SE(M)
5.00um
(l)
0.5 μm
S-4800 5.0kV 10.5mm x40.0k SE(M)
1.00um

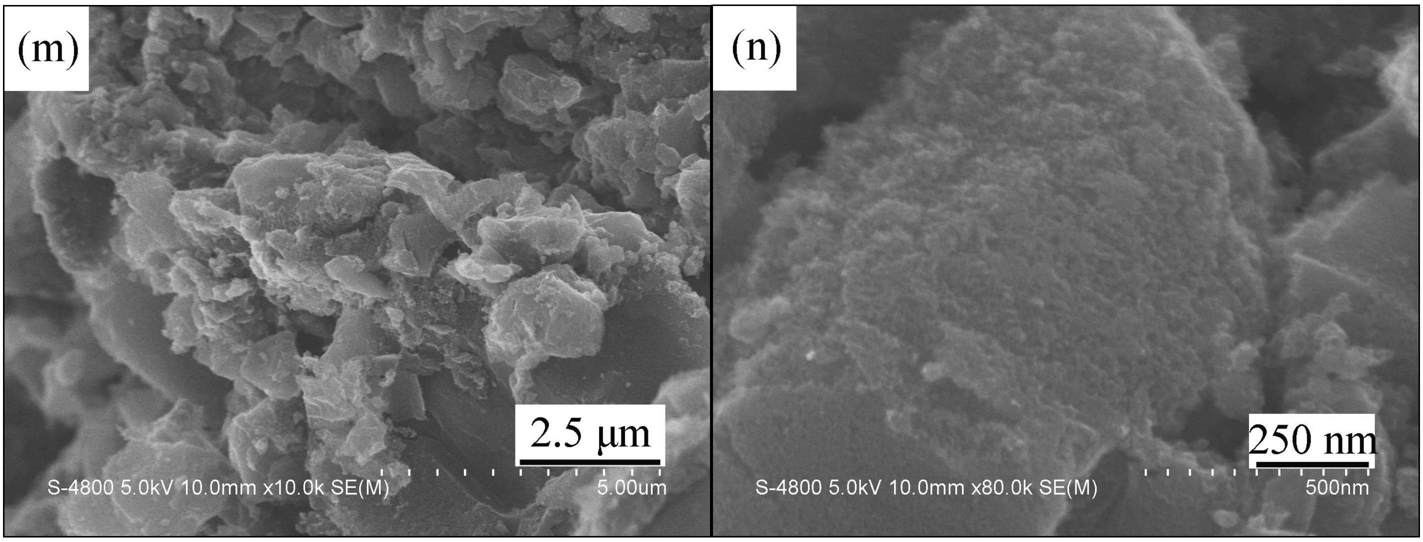


Fig. S6. FESEM images: (a-b) **carbon-1:1-900** (polyvinyl alcohol and zinc); (c-d) **carbon-1:1-900** (polyvinyl butyral and zinc); (e-f) **carbon-1:1-900** (diphenyl carbonate and zinc); (g-h) **carbon-1:1-900** (stearic acid and zinc); (i-j) **carbon-1:1-900** (urea formaldehyde resin and zinc); (k-l) **carbon-1:1-900** (citric acid and zinc); (m-n) **carbon-1:1-900** (magnesium citrate and zinc).

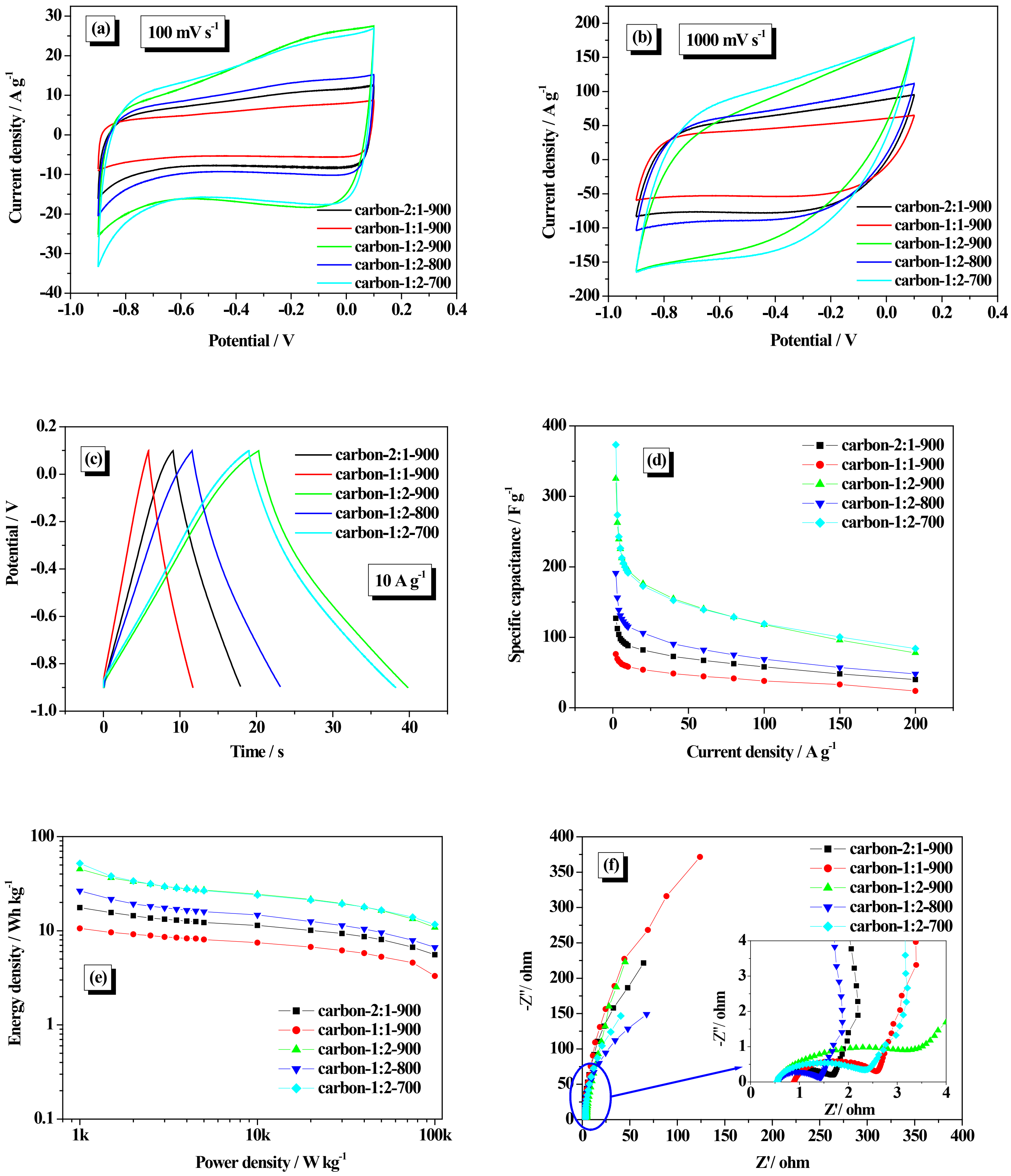
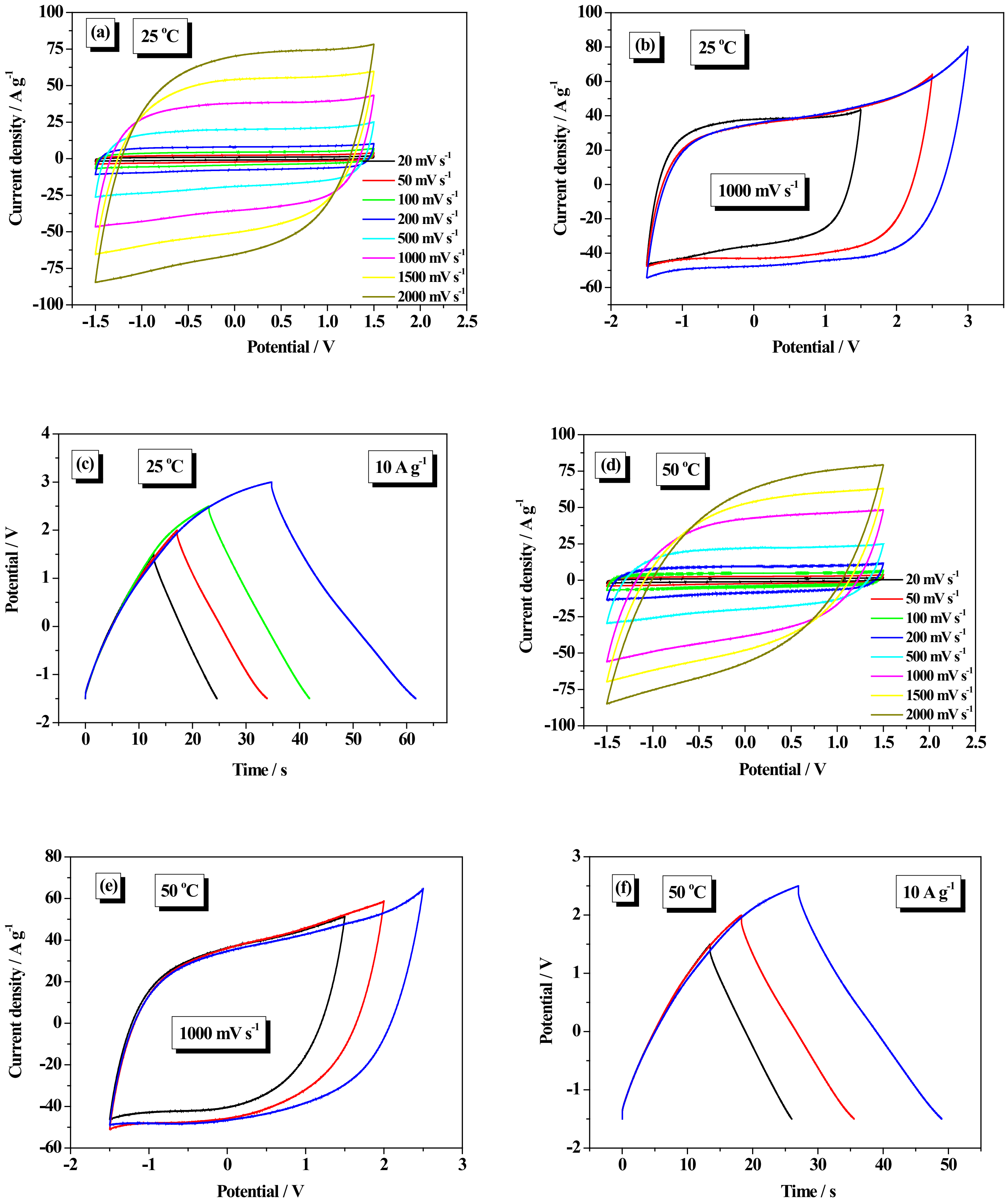
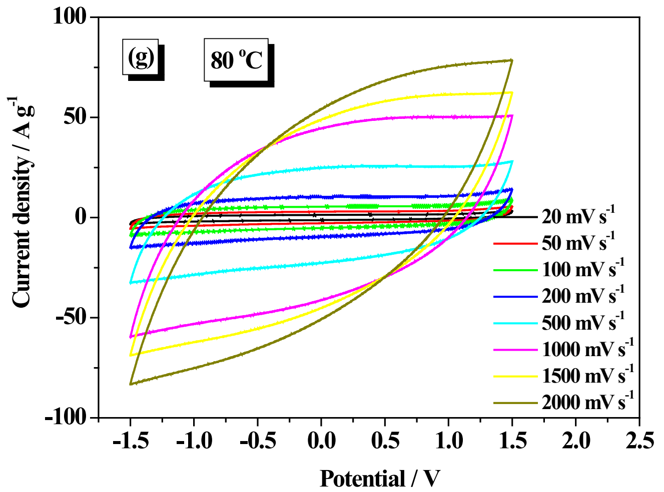
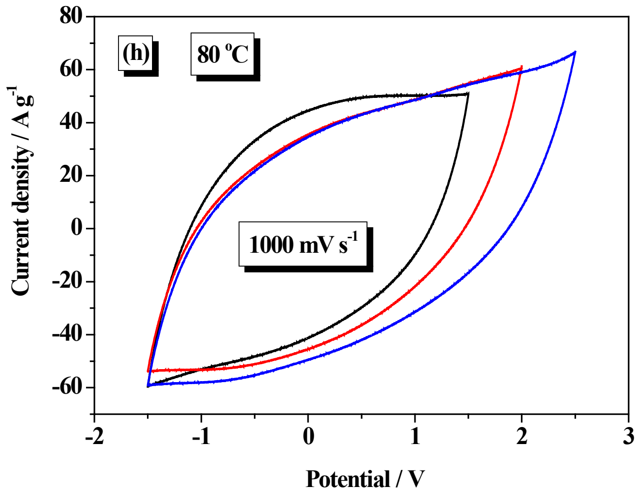
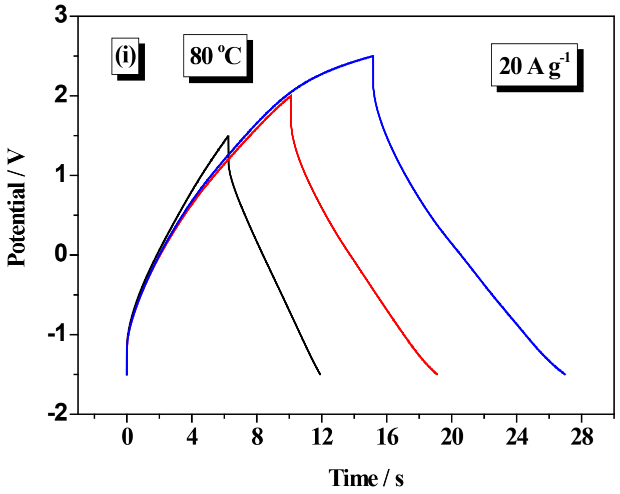

(a)
100 mV s-1
Current density / A g-1
Potential / V
carbon-2:1-900
carbon-1:1-900
carbon-1:2-900
carbon-1:2-800
carbon-1:2-700
(b)
1000 mV s-1
Current density / A g-1
Potential / V
(c)
10 A g-1
Potential / V
Time / s
(d)
Specific capacitance / F g-1
Current density / A g-1
(e)
Energy density / Wh kg-1
Power density / W kg-1
(f)
-Z''/ ohm
Z'/ ohm

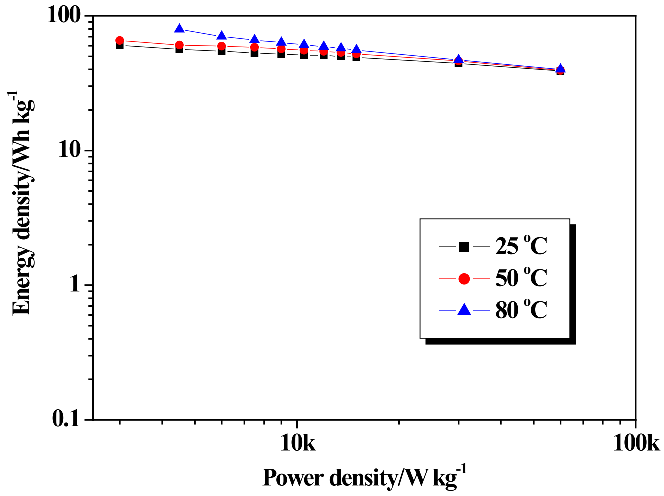
Fig. S7. (a) CV curves at 100 mV s^{-1}; (b) CV curves at 1000 mV s^{-1}; (c) galvanostatic charge-discharge curves at various current densities; (d) the calculated specific capacitances from discharging time; (e) Ragone plot showing energy density *vs*. power density; (f) Nyquist plots before cycling, as well as the magnified ones (the inset). ***Note that all of samples use adipic acid and zinc as starting materials with different mass ratios and carbonization temperatures and they were measured in a three-electrode system using 6 mol L^{-1} KOH as electrolyte.***


(a)
25 °C
Current density / A g-1
Potential / V
20 mV s-1
50 mV s-1
100 mV s-1
200 mV s-1
500 mV s-1
1000 mV s-1
1500 mV s-1
2000 mV s-1
(b)
25 °C
1000 mV s-1
Current density / A g-1
Potential / V
(c)
25 °C
10 A g-1
Potential / V
Time / s
(d)
50 °C
Current density / A g-1
Potential / V
20 mV s-1
50 mV s-1
100 mV s-1
200 mV s-1
500 mV s-1
1000 mV s-1
1500 mV s-1
2000 mV s-1
(e)
50 °C
1000 mV s-1
Current density / A g-1
Potential / V
(f)
50 °C
10 A g-1
Potential / V
Time / s


(g)
80 °C
Current density / A g-1
Potential / V
20 mV s-1
50 mV s-1
100 mV s-1
200 mV s-1
500 mV s-1
1000 mV s-1
1500 mV s-1
2000 mV s-1


(h)
80 °C
1000 mV s-1
Current density / A g-1
Potential / V


(i)
80 °C
20 A g-1
Potential / V
Time / s


Energy density/Wh kg-1
Power density/W kg-1
25 °C
50 °C
80 °C

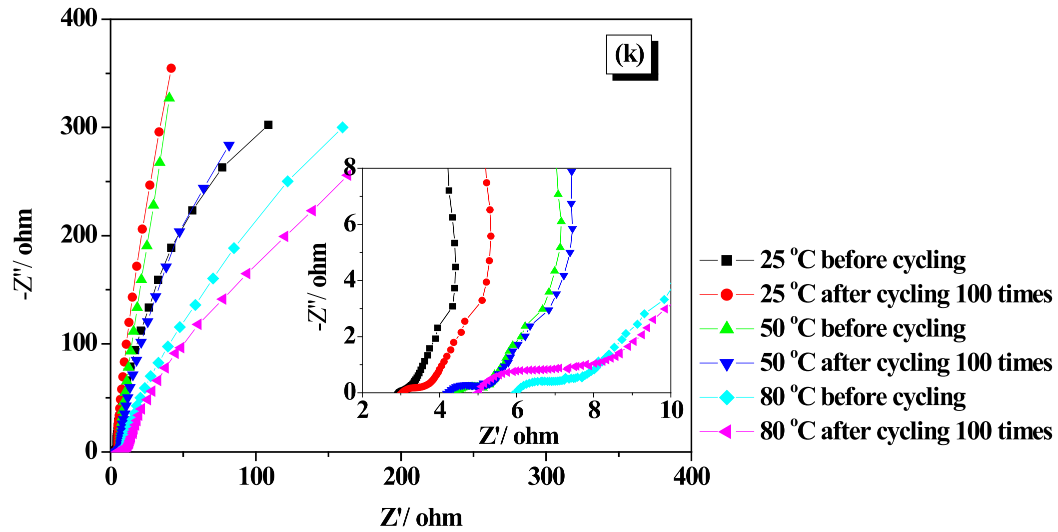

(k)
-Z''/ ohm
Z'/ ohm
25 °C before cycling
25 °C after cycling 100 times
50 °C before cycling
50 °C after cycling 100 times
80 °C before cycling
80 °C after cycling 100 times

Fig. S8. The **carbon-1:2-700** sample measured in a two-electrode system using [EMIm]BF_4/AN as electrolyte at the operation temperatures of 25/50/80 °C: (a-c) CV curves and galvanostatic charge-discharge curves at 25 °C; (d-f) CV curves and galvanostatic charge-discharge curves at 50 °C; (g-i) CV curves and galvanostatic charge-discharge curves at 80 °C; (j) Ragone plot showing energy density *vs*. power density at 25/50/80 °C; (k) Nyquist plots before/after 100 cycles, as well as the magnified ones (the inset).