Supporting Information

1 Cyclic voltammetry curves
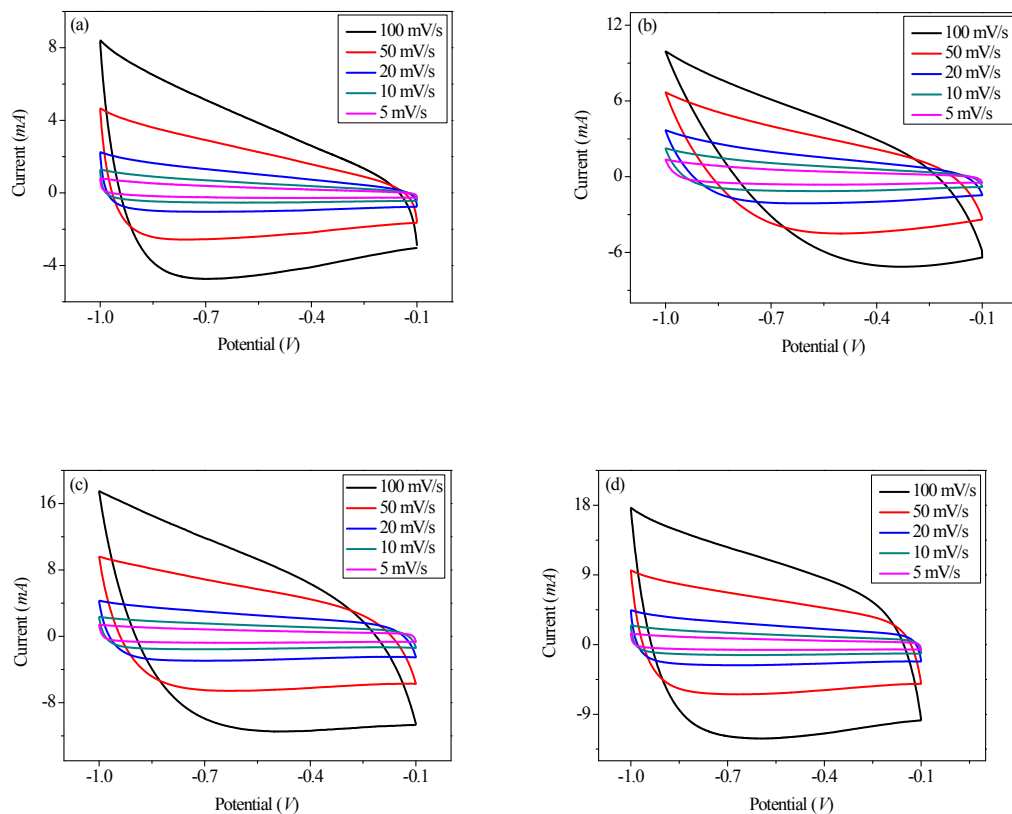

Fig. S1 Cyclic voltammetry curves of of PFC-K (a), OMC (b), OMC-K (c) and OMC/G-K (d) as a function of scan rates.

2. Specific surface area

Sample	PF:GO=9.5:0.05	PF:GO=9.0:0.10	PF:GO=8.5:0.15 (OMC/G-K)	PF:GO=8.0:0.20
S_{BET} (m^2g^{-1})	1048.73	1223.92	2109.21	2049.62

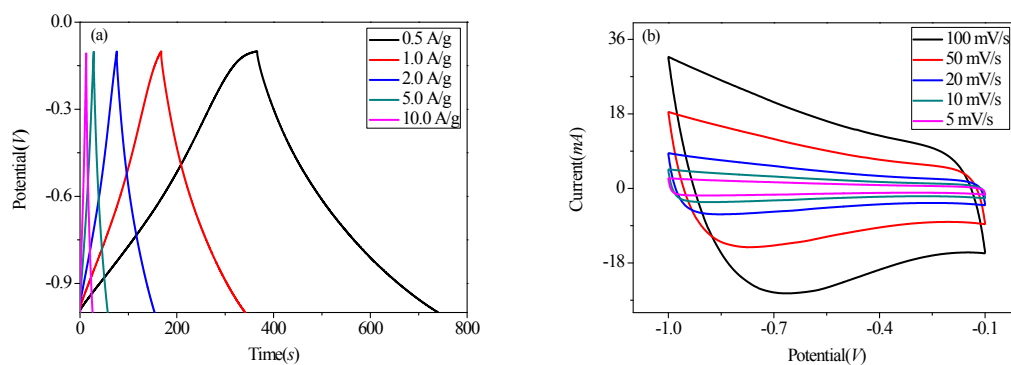### 3. Electrochemical performance of mechanical mixing with OMC and graphene

Fig. S2 (a) The first charge-discharge curves of mechanical mixing with OMC and graphene (OMC+G)-K at different current densities, (b) cyclic voltammetry curves of (OMC+G)-K at different scanning rates.

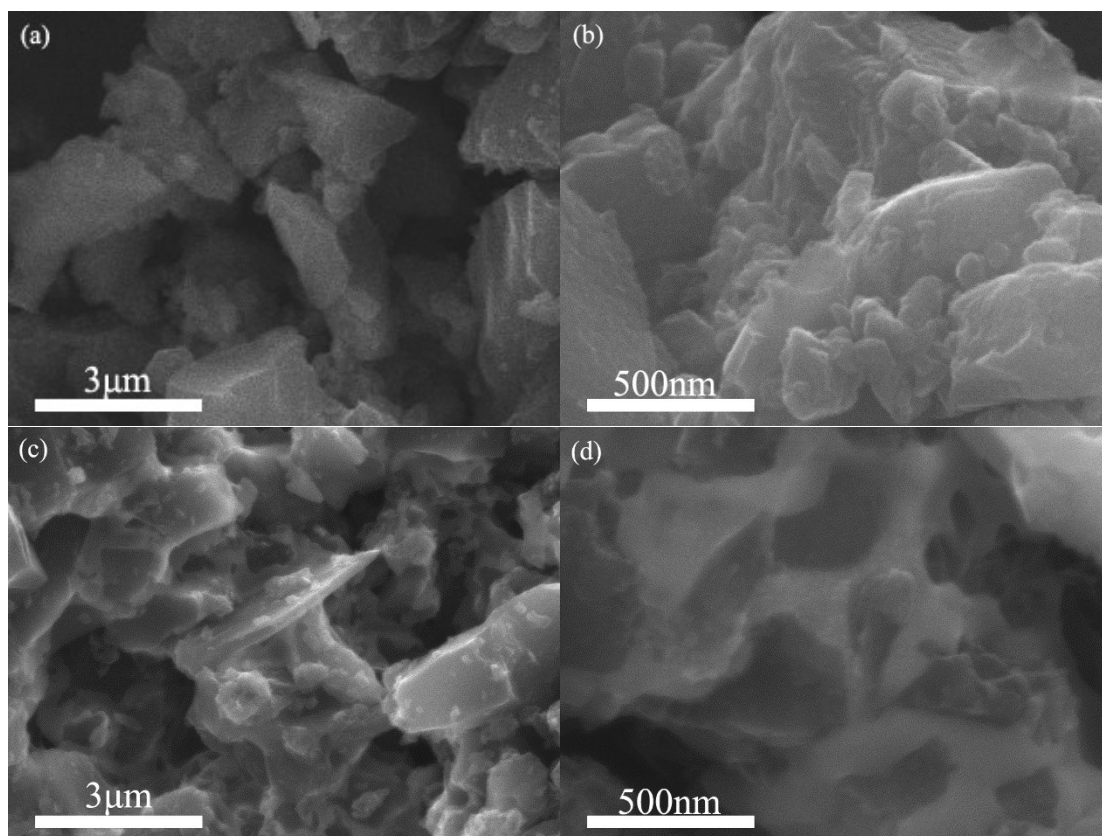## 4. Surface Morphologies of Ordered Mesoporous Carbon/Graphene composites

Fig. S3 SEM images of OMC, (a) and (b), and OMC/G composites (c) and (d).

As shown in Fig. S3, the surface of OMC/G exhibits much more pore channels than that of OMC. These pore channels are inclined to the impregnation of KOH, causing that much more micropores are formed on OMC/G after KOH activation.