Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Preparation of size-selective Mn_3O_4 hexagonal nanoplates with superior electrochemical properties for pseudocapacitors

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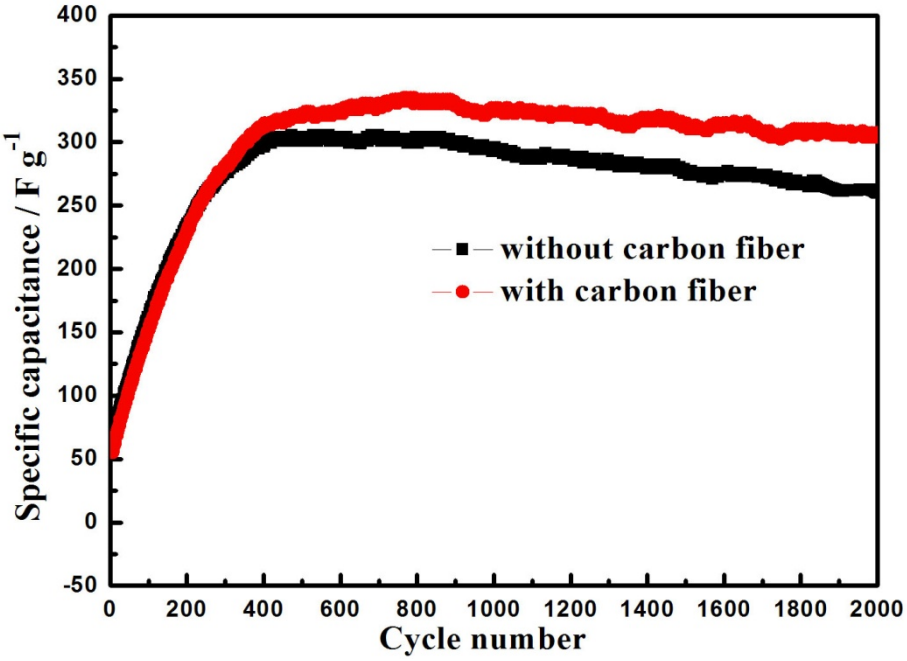

Fig. S1 Cycling performance curves of the optimal sample with and without carbon fiber at 1 A g^{-1}. (without carbon fiber: the mass radio of active materials:acetylene black:PTFE=75:20:5)

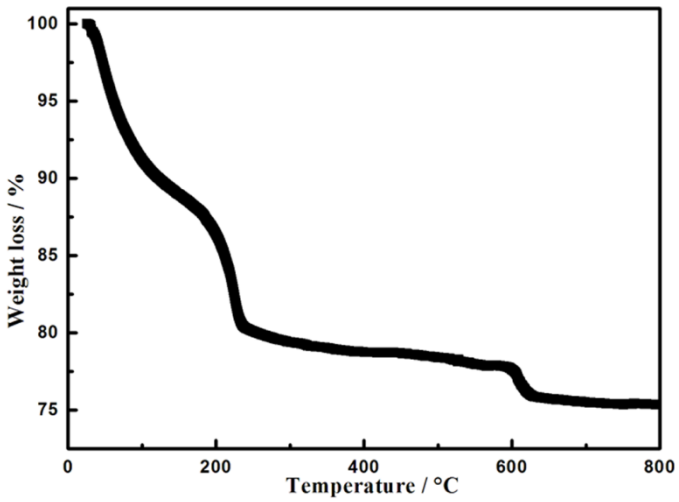

Fig. S2 TGA curve of the hexagonal nanoplate precursor

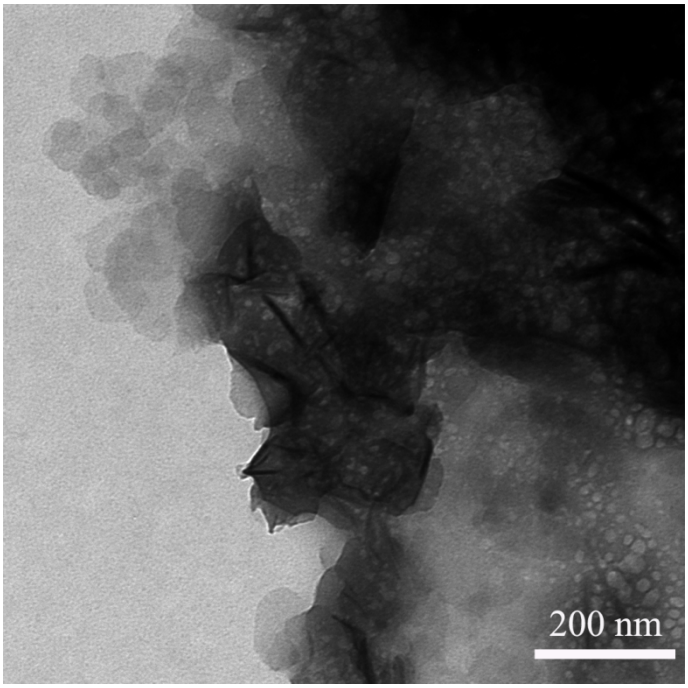

Fig. S3 Typical TEM image of origanal $Mn(OH)_2$ nanosheets

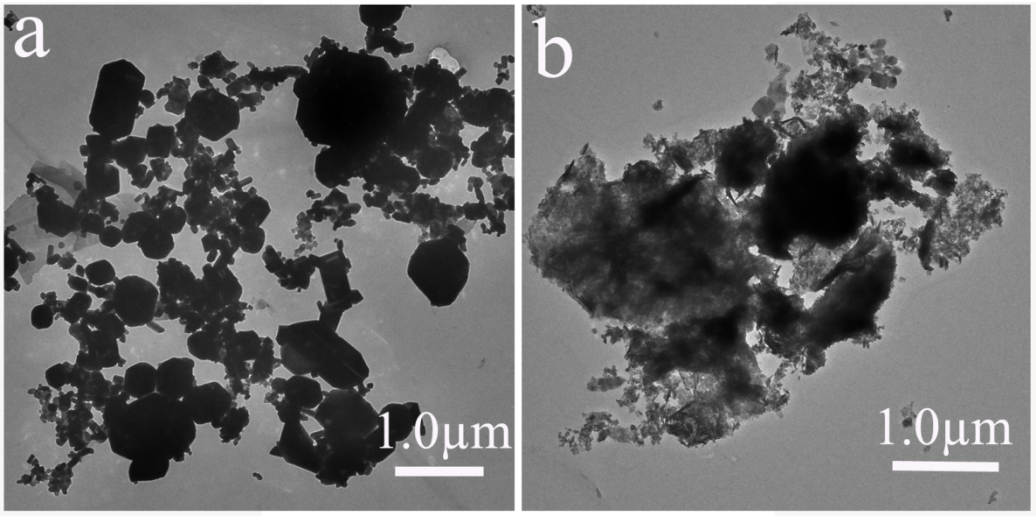

Fig. S4 TEM images of as-synthesized precursors prepared (a) without glucose addition and (b) with 0.001 mol KOH addition, respectively.

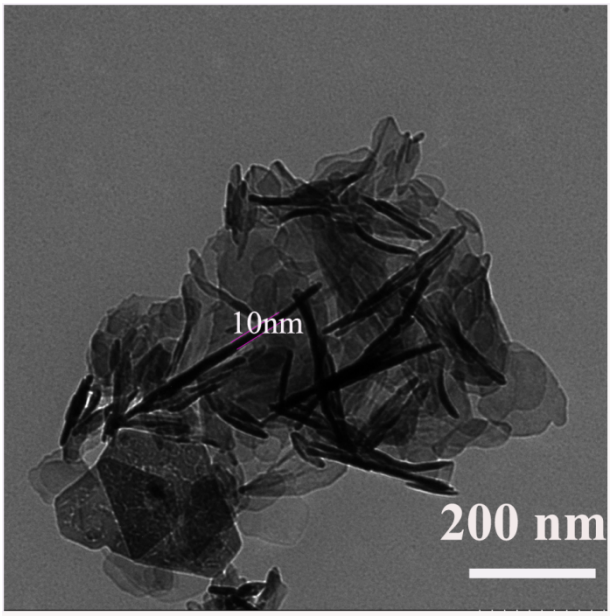

Fig. S5 TEM image of the precursors prepared at glucose content of 0.0167 mol.

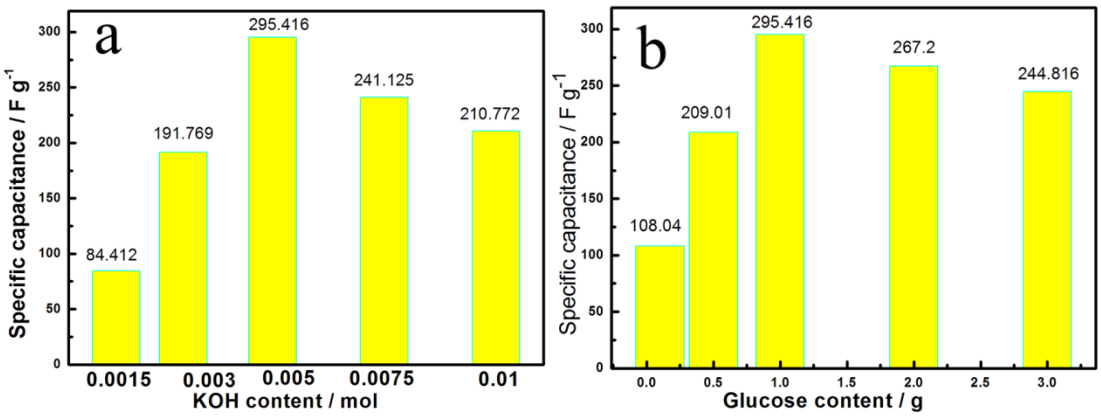

Fig. S6 Comparisons of the change in the specific capacitance at different (a)KOH and (b) glucose content.

Samples	S_{BET} ($cm^2\ g^{-1}$)	V_t ($cm^3\ g^{-1}$)	C ($F\ g^{-1}$)
1 (Mn^{2+}:OH^-=1:3)	114.799	0.271	84.412
2 (Mn^{2+}:OH^-=1:6)	89.33	0.284	191.769
3 (Mn^{2+}:OH^-=1:10)	38.7	0.245	295.41
4 (Mn^{2+}:OH^-=1:20)	34.125	0.111	210.772
5 (glucose content=0.1g)	17.804	0.036	108.04
6 (glucose content=0.5g)	34.491	0.085	209.01
7 (glucose content=3.0g)	79.447	0.272	244.816

Table S1 Comparisons of the change in the BET analysis at different KOH (Mn^{2+}:OH^- =1:3, 1:6, 1:10, 1:20) and glucose content (0.1g, 0.5g, 3.0g)

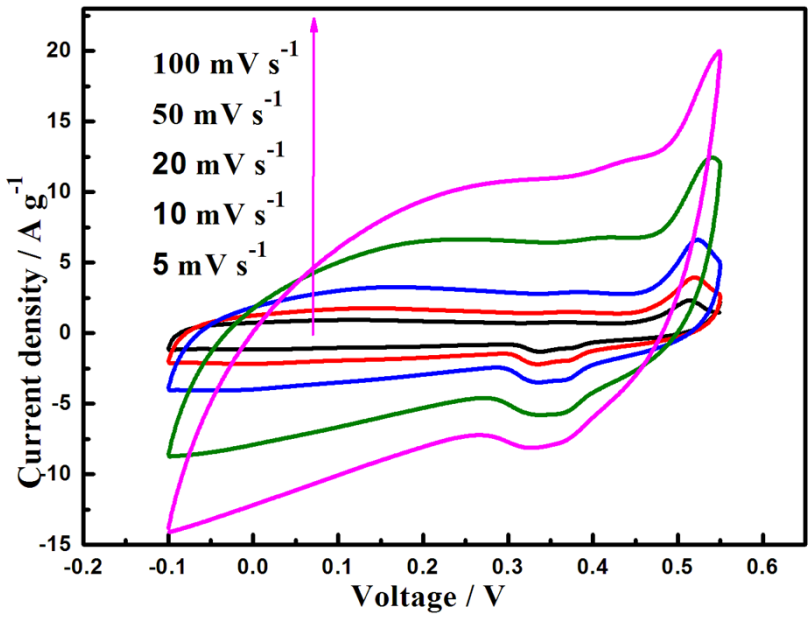

Fig. S7 CV curves of the optimal sample at various rates after 5000th cycles

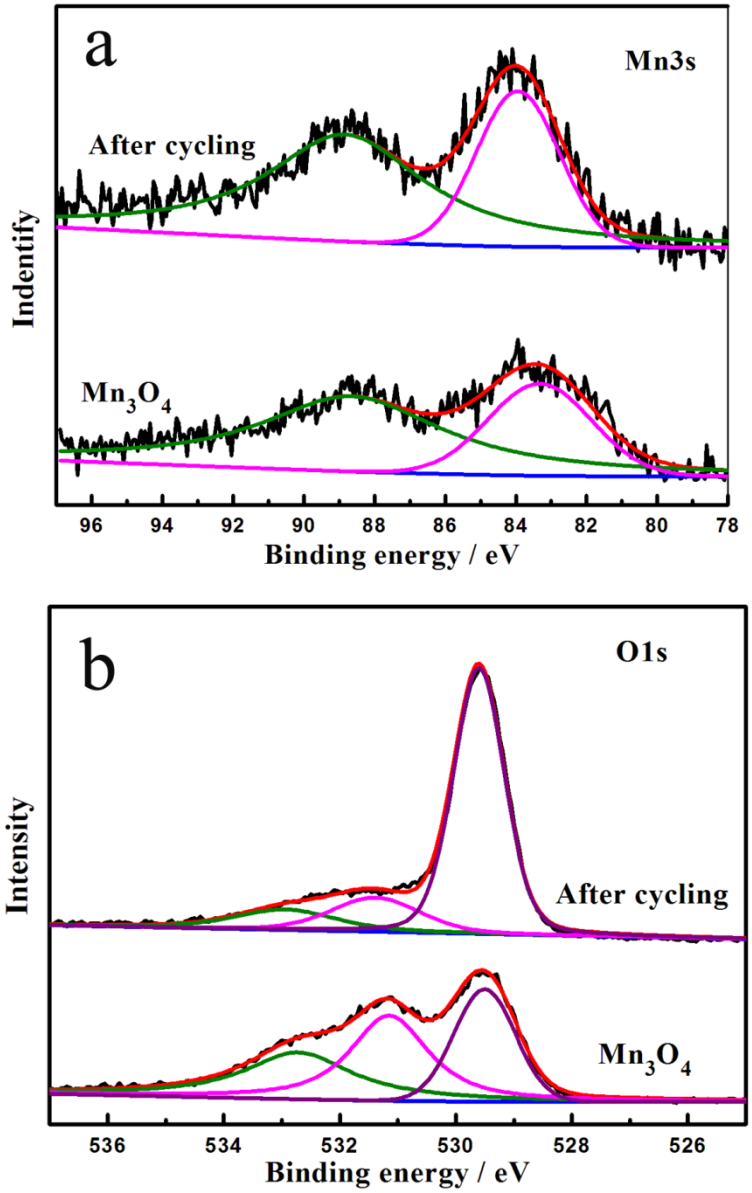

Fig. S8 XPS spectra of the sample before and after cycling. (a) Mn 3s and (b) O 1s.

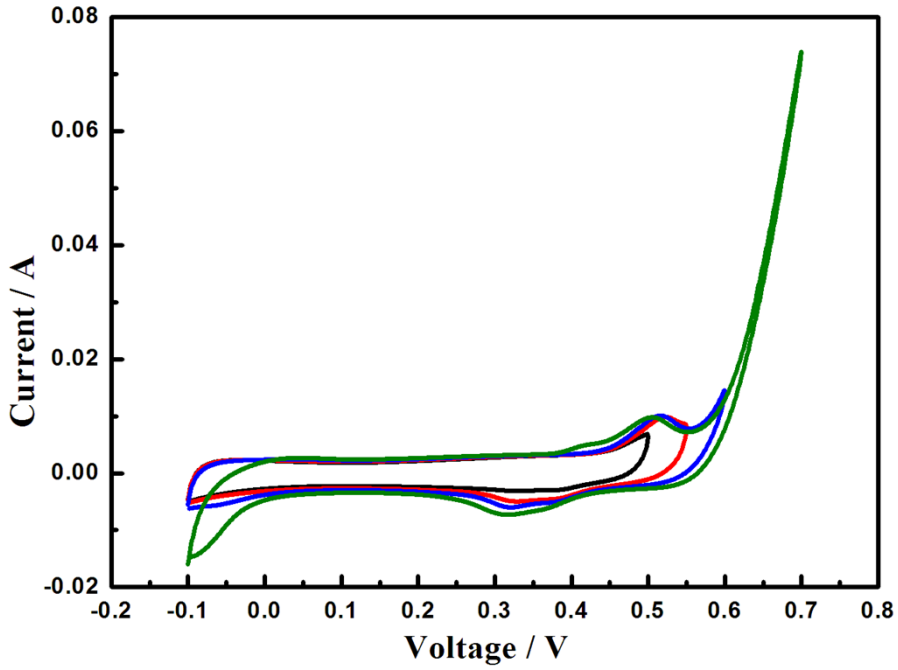

Fig. S9 Cyclic voltammograms of the Mn_3O_4 electrode with different potential ranges in a three-electrode system in 6 M KOH solution at a scan rate of 10 mV s^{-1}.

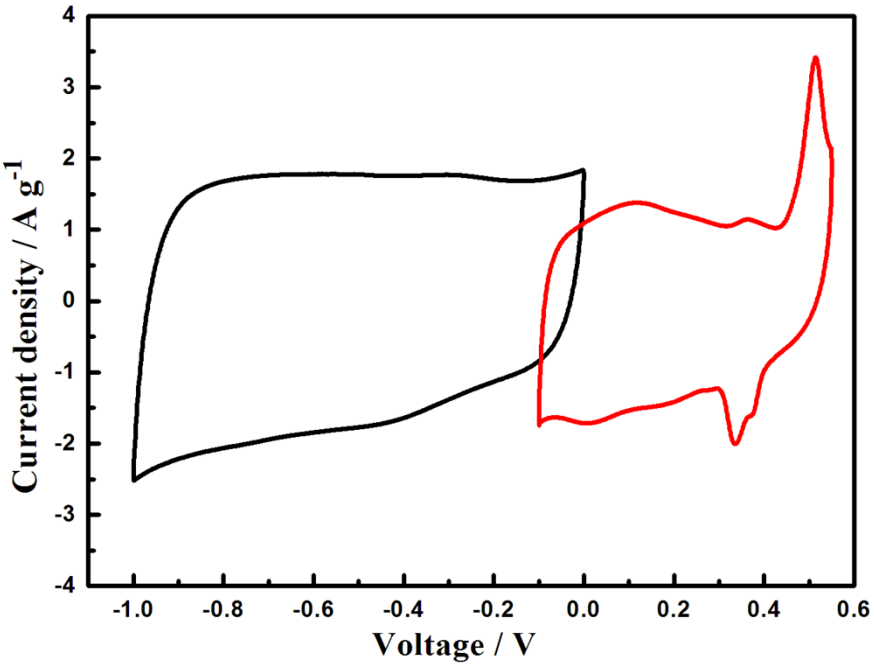

Fig. S10 Cyclic voltammorgrams of NC and Mn_3O_4 electrodes performed in a three-electrode system in 6 M KOH solution at a scan rate of 10 mV s^{-1}.