Supporting Information

Synthesis of Mn_3O_4 nanowires and its transformation to $LiMn_2O_4$ polyhedrons, application of $LiMn_2O_4$ as cathode in lithium-ion battery

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Fig. S1 XRD patterns of products obtained at 200 °C for different reaction times: (a) 0.5 h, (b) 1.0 h, (c) 6 h and (d) 12 h.

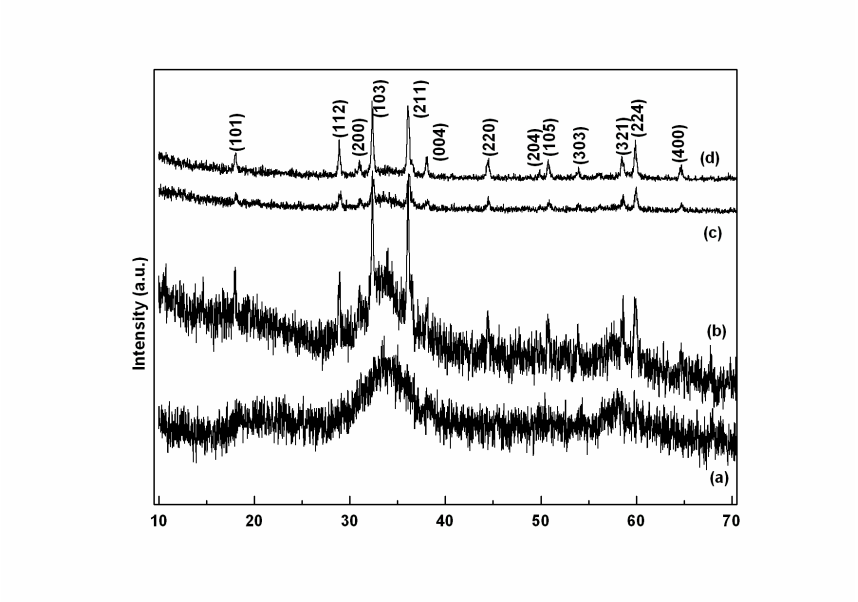
Fig. S2 (a) and (b) are the XRD pattern and the TEM image of the brown precipitate, respectively.

Table 1 Experimental pH parameter for the synthesis of Mn_3O_4 materials

Fig. S3 The SEM images of obtained: (a) sample (4); (b) sample (5).

Fig. S4 The SEM images (a) N_2 protecting, (b) excess O_2.

Fig. S5 (a) SEM of the $LiMn_2O_4$ using Mn_3O_4 nanocubes as raw material at 750 °C for 6h. (b) Discharge curves at 0.1 C, 0.2 C and 0.5 C, the capacity are 79.8, 79.2 and 72.9 mAh/g, respectively.



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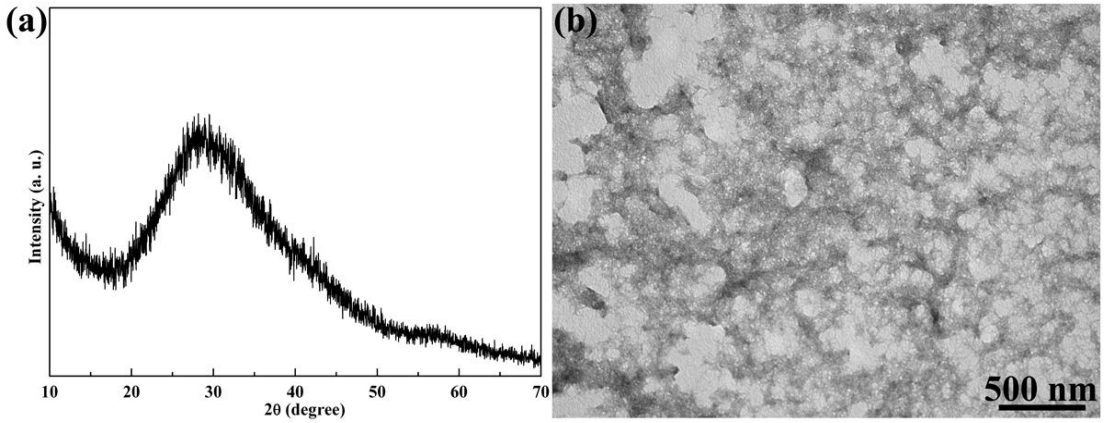

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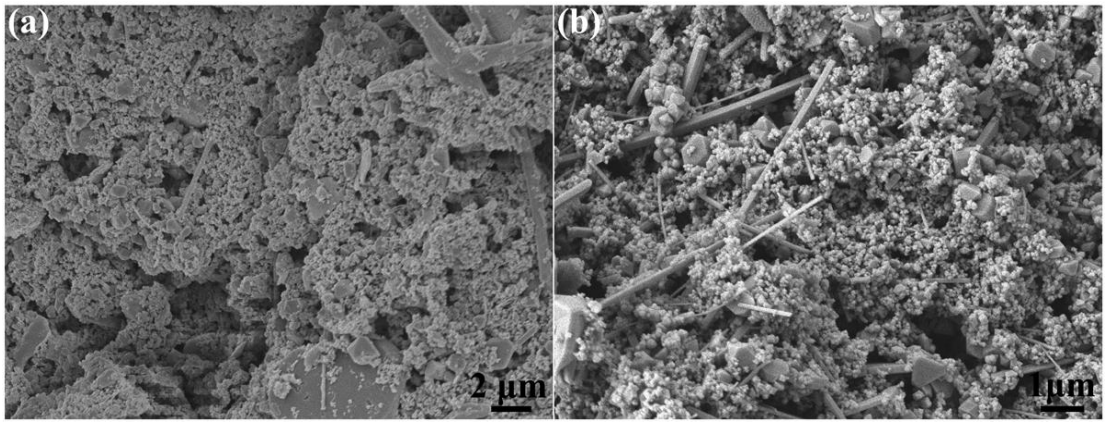
Sample	$MnSO_4$	$H_2O/Na_2B_4O_7$	NaOH	pH value	morphology
(1)	-	15 mL (1 mmol)	-	10.07	-
(2)	15 mL (1 mmol)	15 mL (1 mmol)	-	8.98	-
(3)	15 mL (1 mmol)	15 mL (1 mmol)	15 mL (1 mmol)	9.69	nanowires
(4)	15 mL (1 mmol)	15 mL (0 mmol)	0.267 M (some)	9.69	particles
(5)	15 mL (1 mmol)	15 mL (0 mmol)	15 mL (1 mmol)	9.45	particles and nanorods



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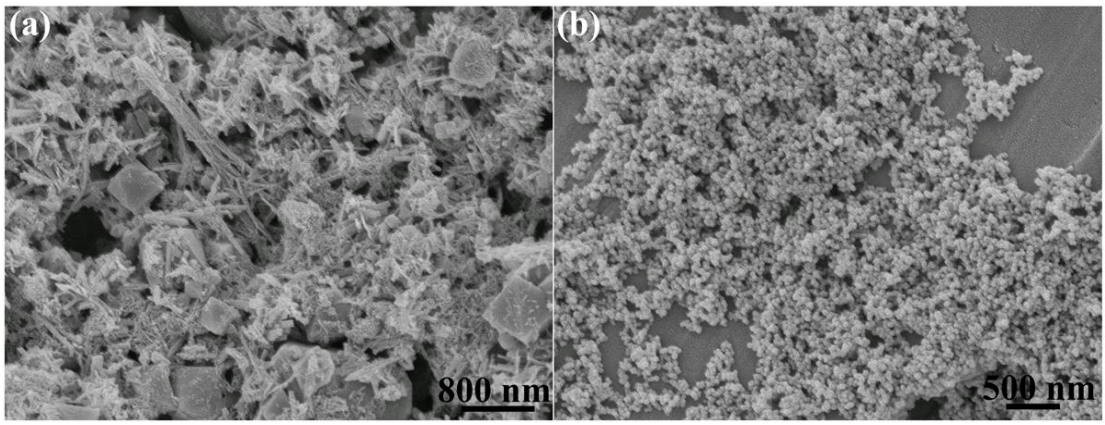

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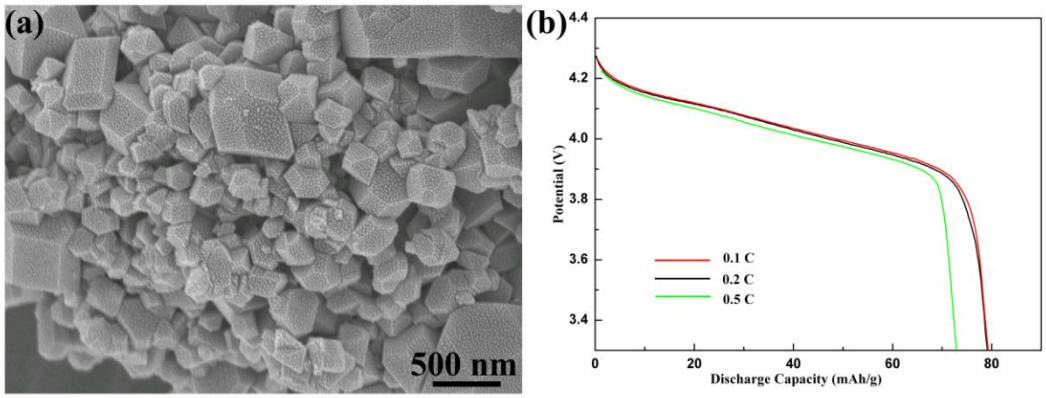

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