Electronic Supporting Information

A 3D flower-like VO_2/MXene hybrid architecture with superior anode performance for sodium ion batteries

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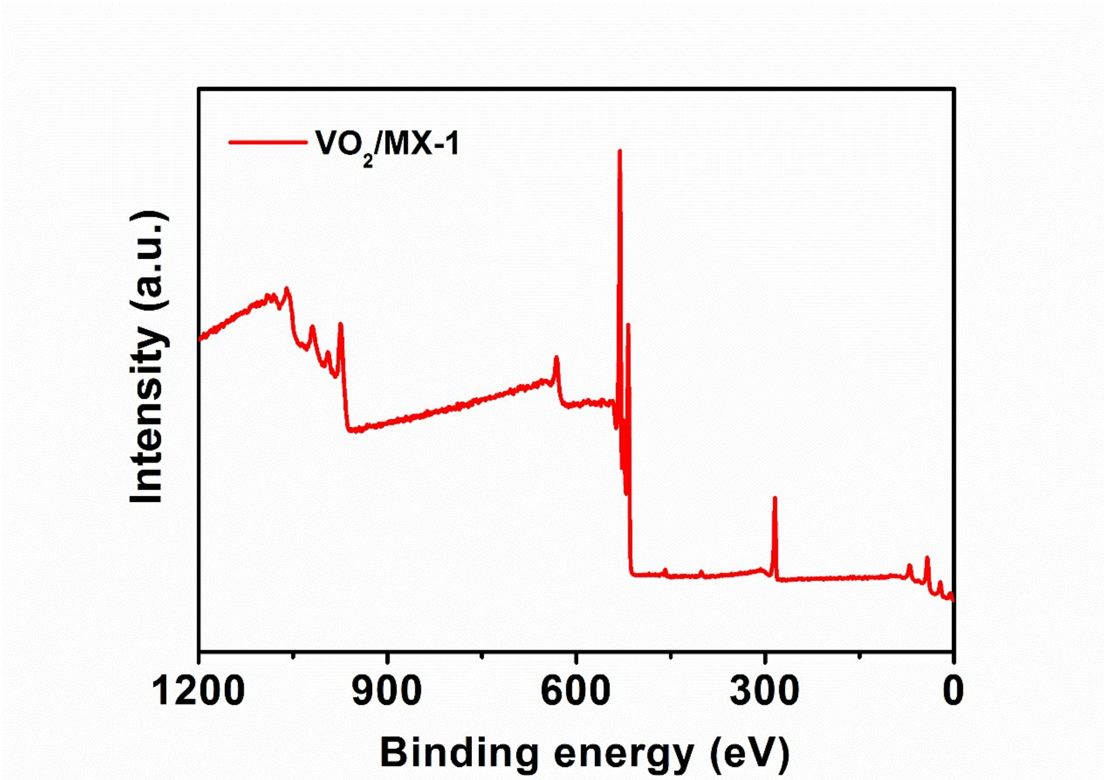

Fig. S1 The survey XPS spectrum of VO_2/MX-1 hybrid.

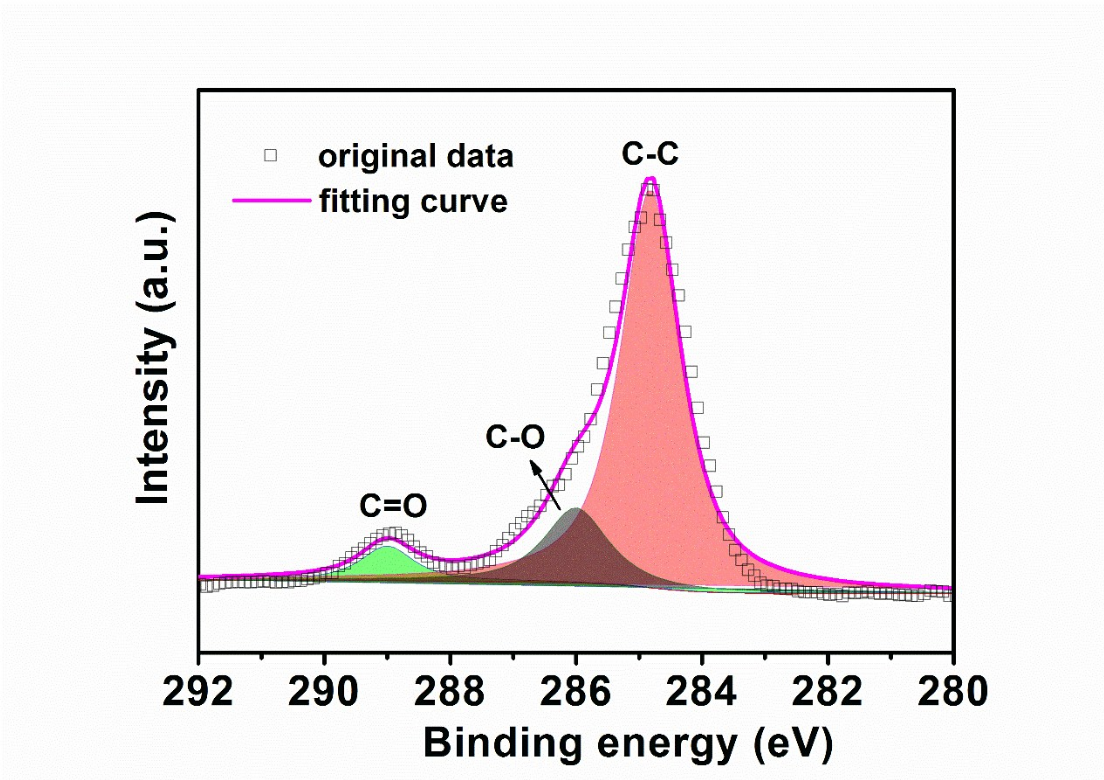

Fig. S2 XPS of C 1s spectra of VO_2/MX-1 hybrid.

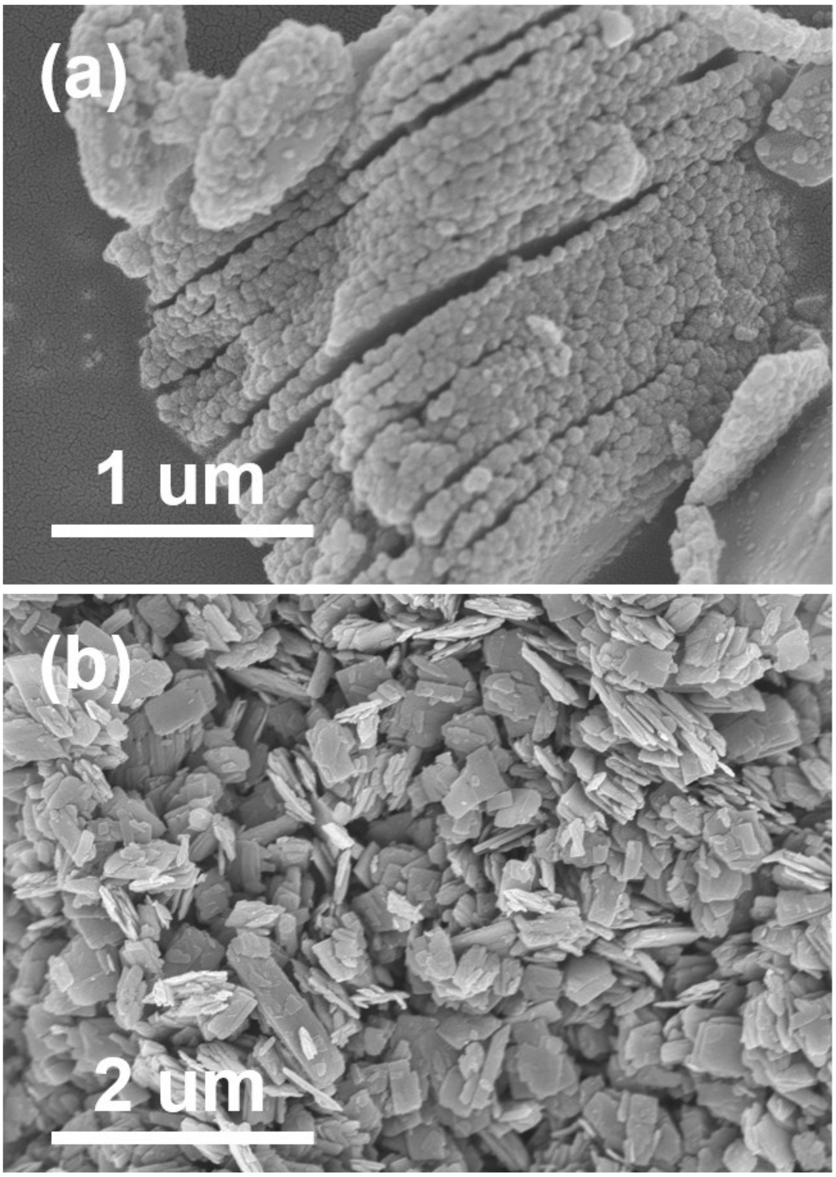

Fig. S3 SEM images of the (a) MX and (b) VO_2.

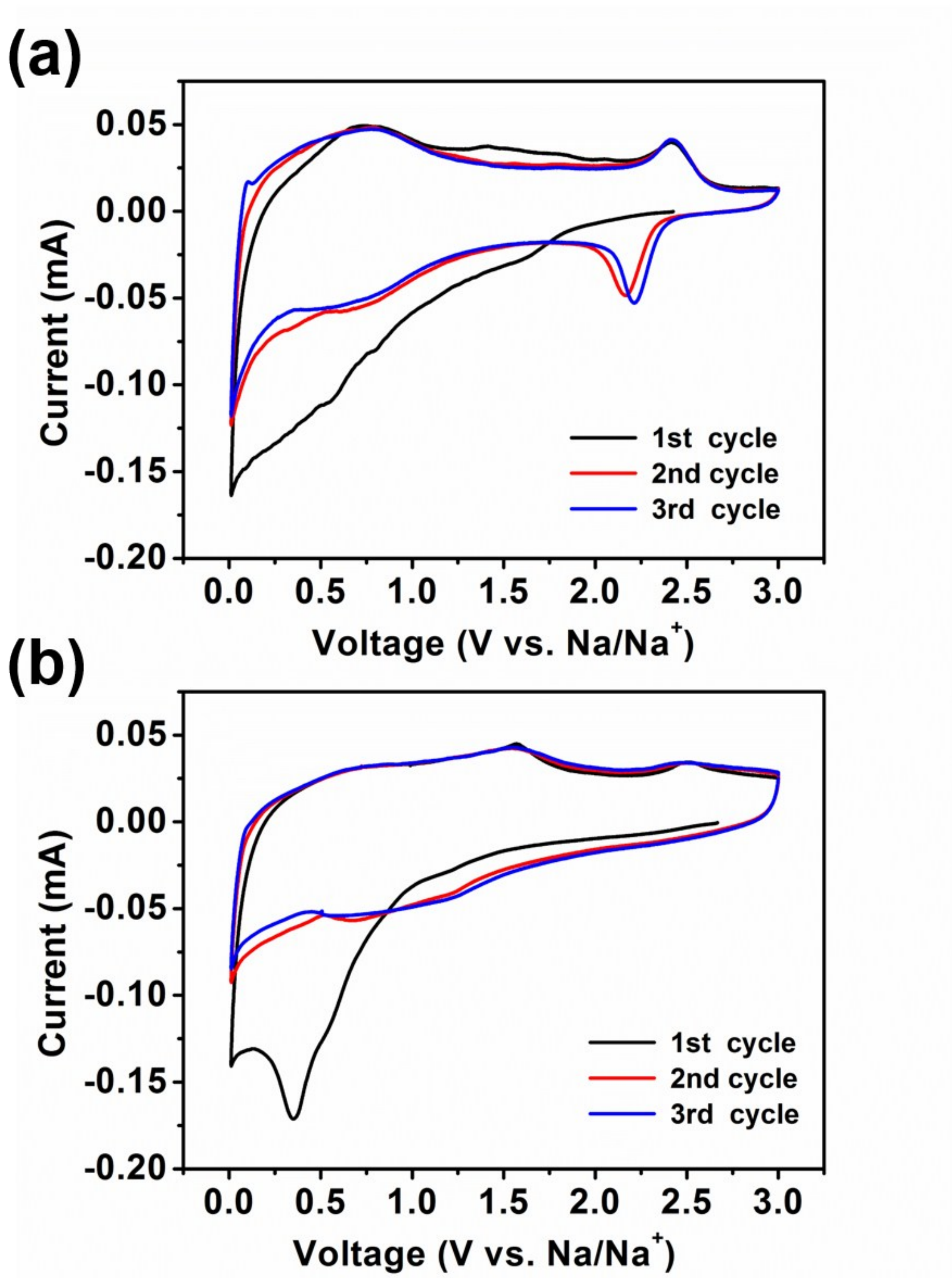

Fig. S4 CV curves of (a) MX and (b) VO_2 electrodes at a scanning rate of 0.1 mV s^{-1}.

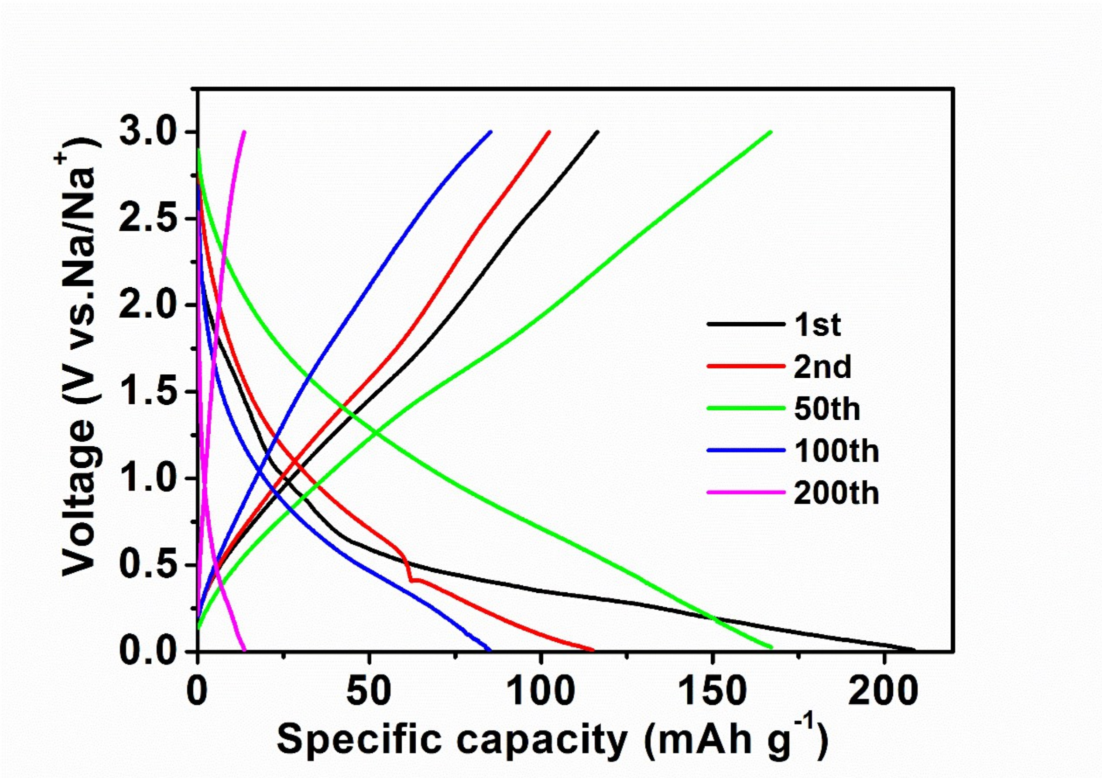

Fig. S5 Charge/discharge curves of the VO_2 electrode cycled for the 1st, 2nd, 50th, 100th, and 200th cycle at a current of 0.1 A g^{-1}

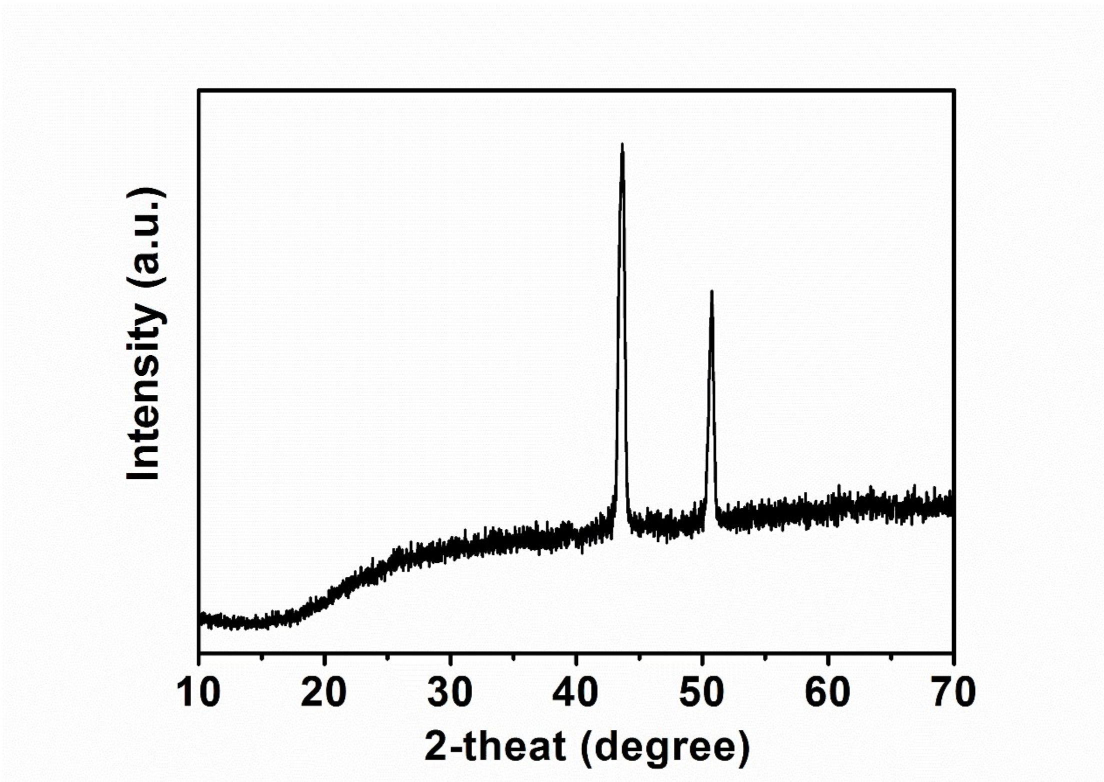

Fig. S6 Ex-situ XRD pattern of the VO_2/MX-1 electrode after the 10th cycle discharged to 0.01V.

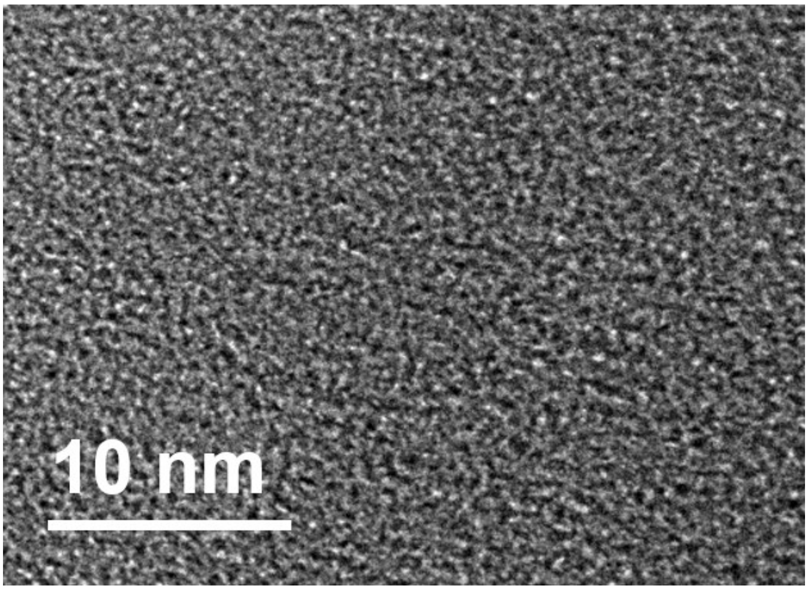

Fig. S7 HRTEM image of the VO_2/MX-1 electrode after the 10th cycle discharged to 0.01V.

Table S1 The electrochemical performance comparison of MXene based and VO_2 materials for SIBs

Electrode materials	Current density (mA g^{-1})	Final capacity (mA h g^{-1})	Capacity retention (%)	Ref.
Ti_3C_2 MXene-Derived Sodium Nanoribbons ($NaTi_{1.5}O_{8.3}$)	200	171 mA h g^{-1} after 50 cycles	~81 (C_{50th}/C_{2nd})	1
alkalized Ti_3C_2MXene nanoribbons (a-Ti_3C_2 MNRs)	50	113 mA h g^{-1} after 200 cycles	~67 (C_{200th}/C_{2nd})	2
$MoS_2/Ti_3C_2T_x$ composite	100	250.9 mA h g^{-1} after 100 cycles.	~88 (C_{100th}/C_{2nd})	3
dimethyl sulfoxide intercalte into $Ti_3C_2T_x$ (d-D-Ti_3C_2Tx)	100	103 mA h g^{-1} after 500 cycles	~86 (C_{500th}/C_{2nd})	4
Sb_2O_3/MXene	100	472 mA h g^{-1} after 100 cycles	~106 (C_{100th}/C_{2nd})	5
VO_2/rGO nanorods	60	173 mA h g^{-1} after 100 cycles	~ 70 (C_{100th}/C_{2nd})	6
VO_2/crumpled rGO	100	260 mA h g^{-1} after 500 cycles	~ 70 (C_{500th}/C_{2nd})	7
3D flower-like VO_2/MX-1	100	280.9 mA h g^{-1}after 200 cycles	~141 (C_{200th}/C_{2nd})	This work

References

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