Supplementary data

A Simple, One-pot Synthesis of Molybdenum Oxide-Reduced Graphene Oxide Composites in Supercritical Methanol and Their Electrochemical Performance

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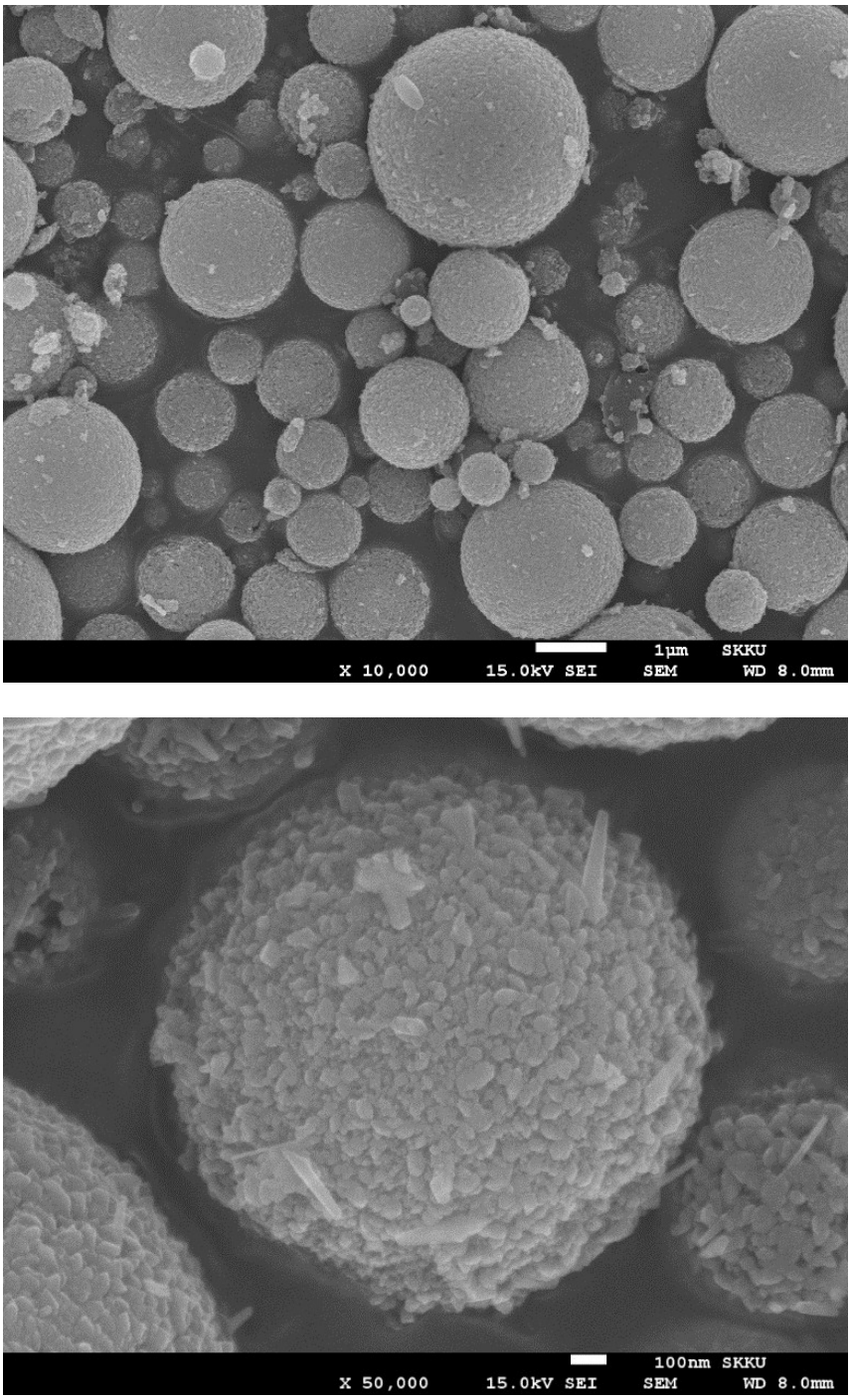
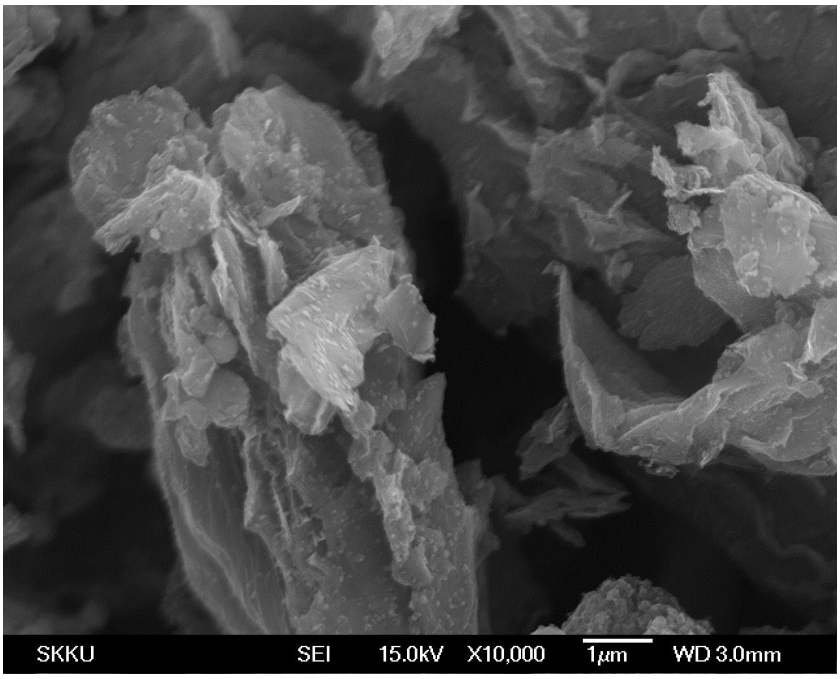
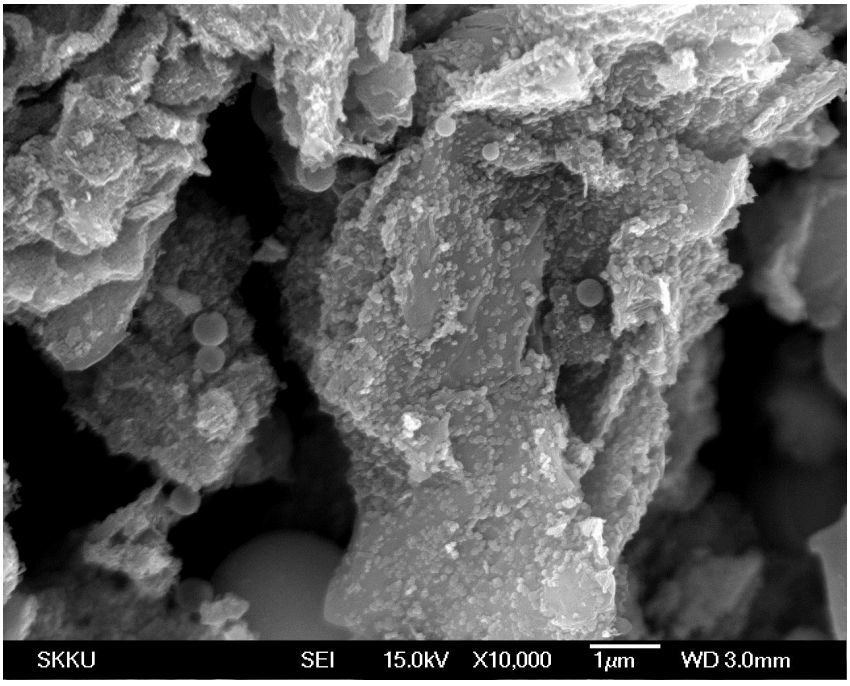


Fig. S1. SEM image of the bare MoO_2 particles



(a)



(b)

Fig. S2. SEM image of (a) MoO_2-SRGO-1 and (b) MoO_2-SRGO-3

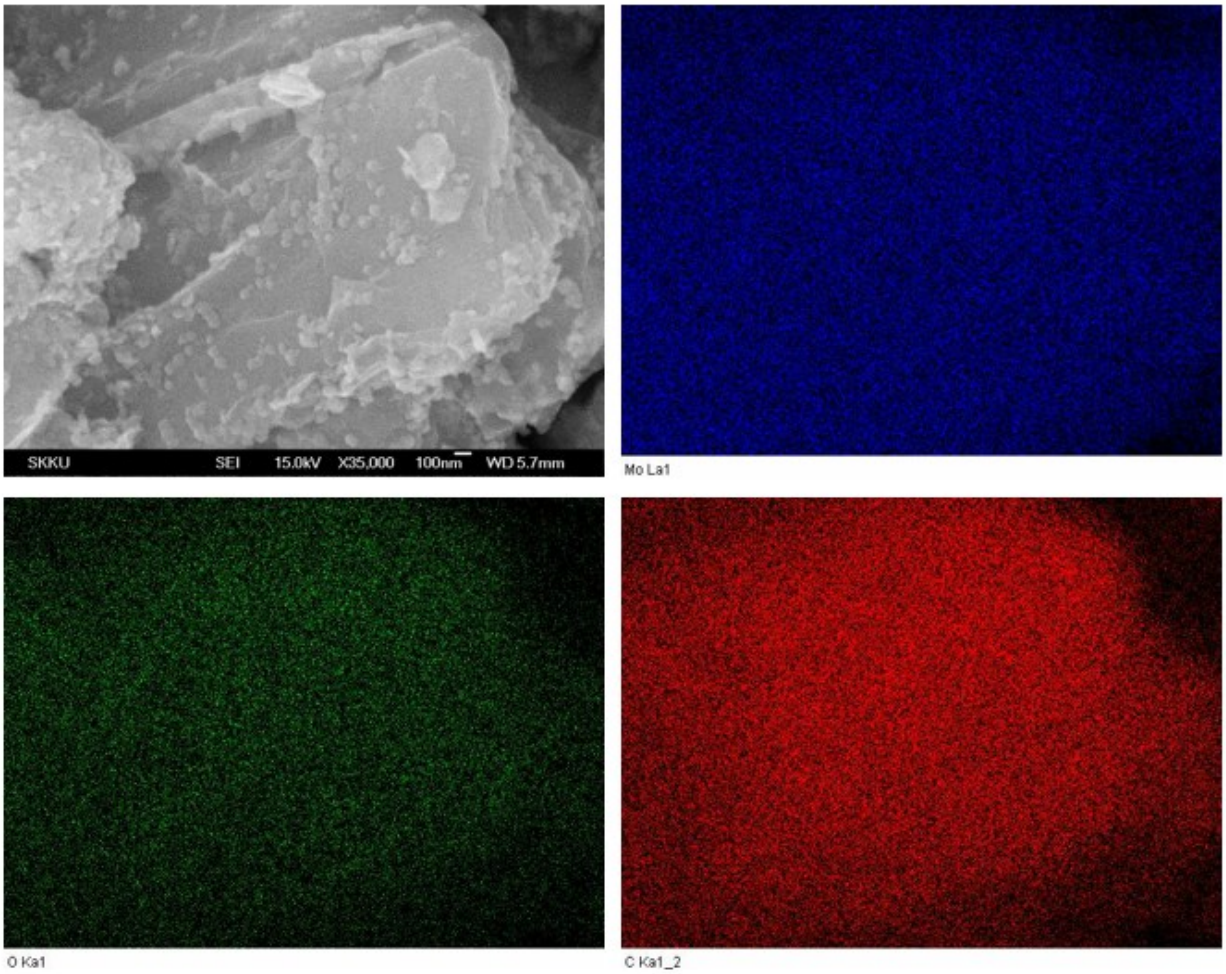


Fig. S3. EDS mapping image of MoO_2-SRGO-2 about molybdenum (blue), oxygen (green), and carbon (red)

Table S1. Refined lattice parameters of C-MoO_2 and MoO_2-SRGO composites.

Sample code	a (Å)	b (Å)	c (Å)
C-MoO_2	5.6011	4.8793	5.6100
MoO_2-SRGO-1	5.6862	4.8058	5.7025
MoO_2-SRGO-2	5.6619	4.7537	5.7332
MoO_2-SRGO-3	5.6641	4.7671	5.6739

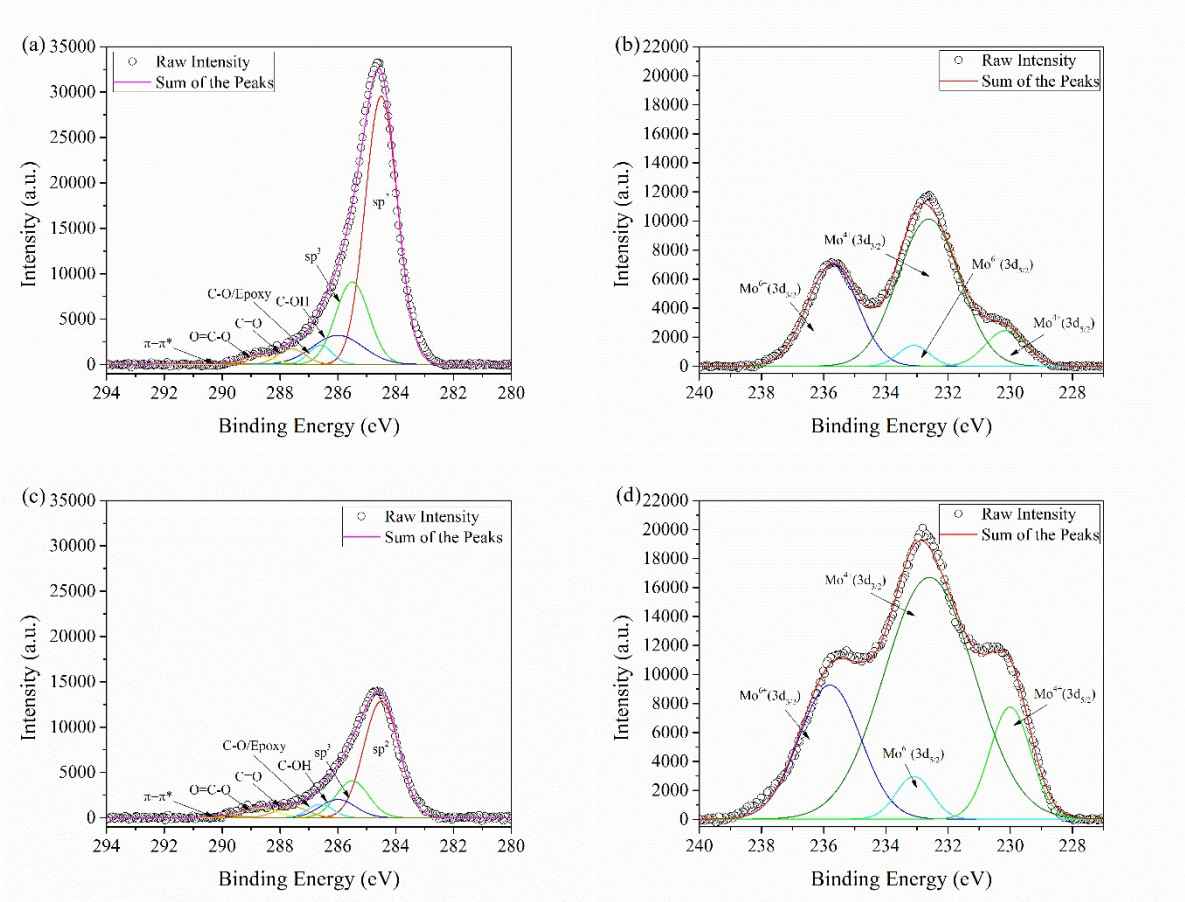


Fig. S4. High-resolution XPS spectra of C 1s and Mo 3d for (a), (b) MoO_2-SRGO-1 and (c), (d) MoO_2-SRGO-3

Table S2. C 1s XPS peak deconvolution results

Peaks	Peak Position (eV)	GO	SRGO	MoO_2-SRGO-1 (area%)	MoO_2-SRGO-2	MoO_2-SRGO-3
sp^2 carbon	284.5	36.8	66.6	61.5	64.0	58.5
sp^3 carbon	285.5	0.00	6.3	19.7	13.0	17.1
C-OH	286.0	2.89	7.4	10.3	9.2	9.2
C-O/epoxy	286.6	45.4	4.9	3.2	6.0	4.8
C=O	287.6	7.48	3.2	3.1	3.3	5.1
O=C-O	288.7	7.40	1.6	1.7	3.2	4.7
π-π* shake-up	289.9	0.00	10.0	0.5	1.3	0.6
Maximum Fitting Error	($\sum x^2$)	0.5032	3.5274	0.8647	0.6402	0.6155

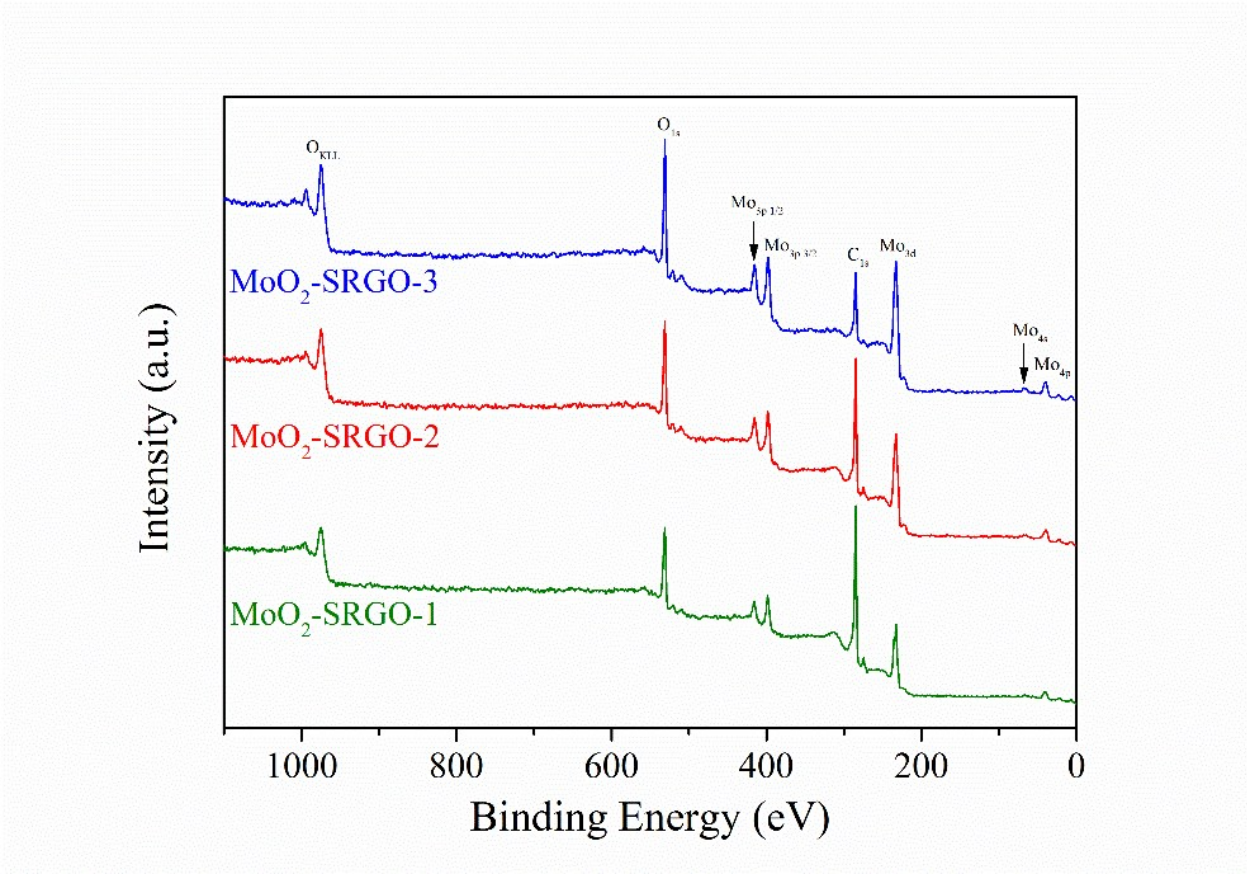


Fig. S5. XPS survey scan spectra of the MoO_2-SRGO composites

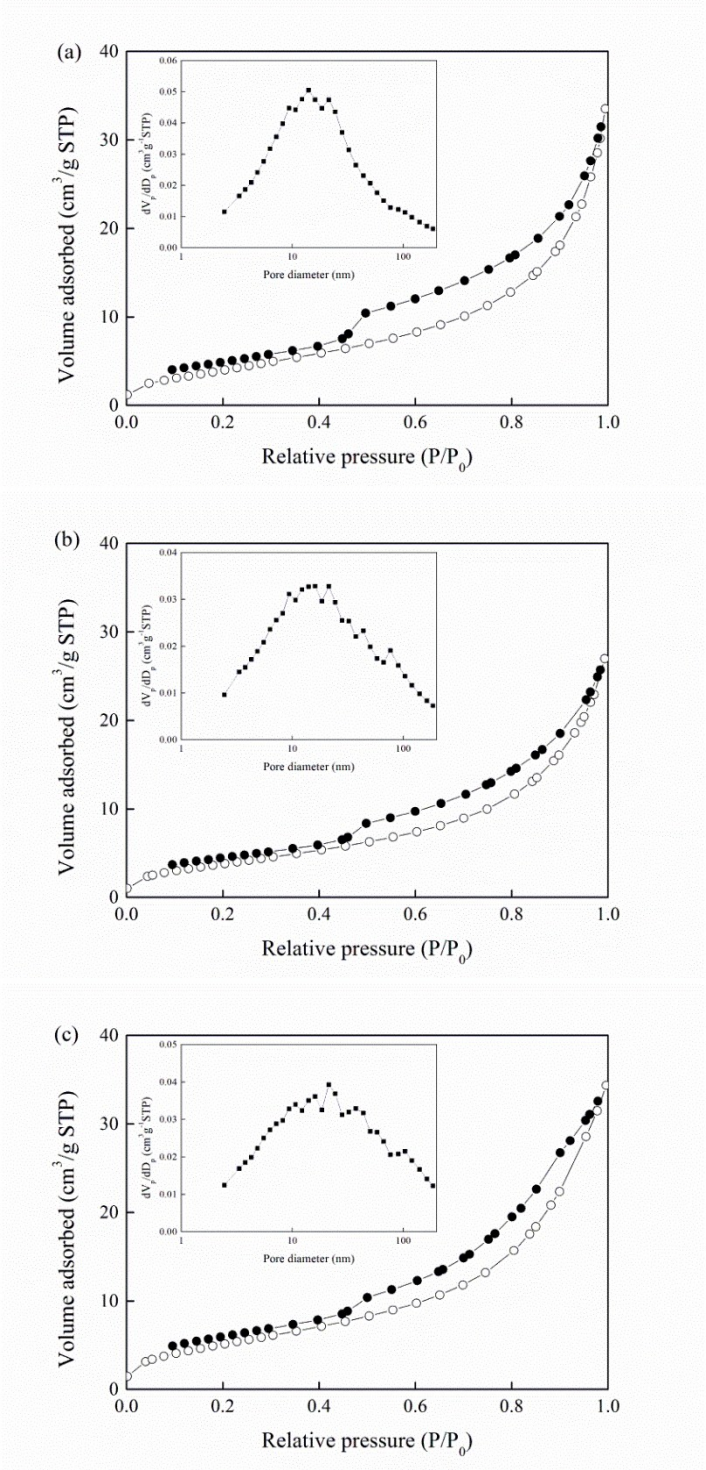


Fig. S6. N_2 adsorption-desorption isotherms of (a) MoO_2-SRGO-1, (b) MoO_2-SRGO-2 and (c) MoO_2-SRGO-3

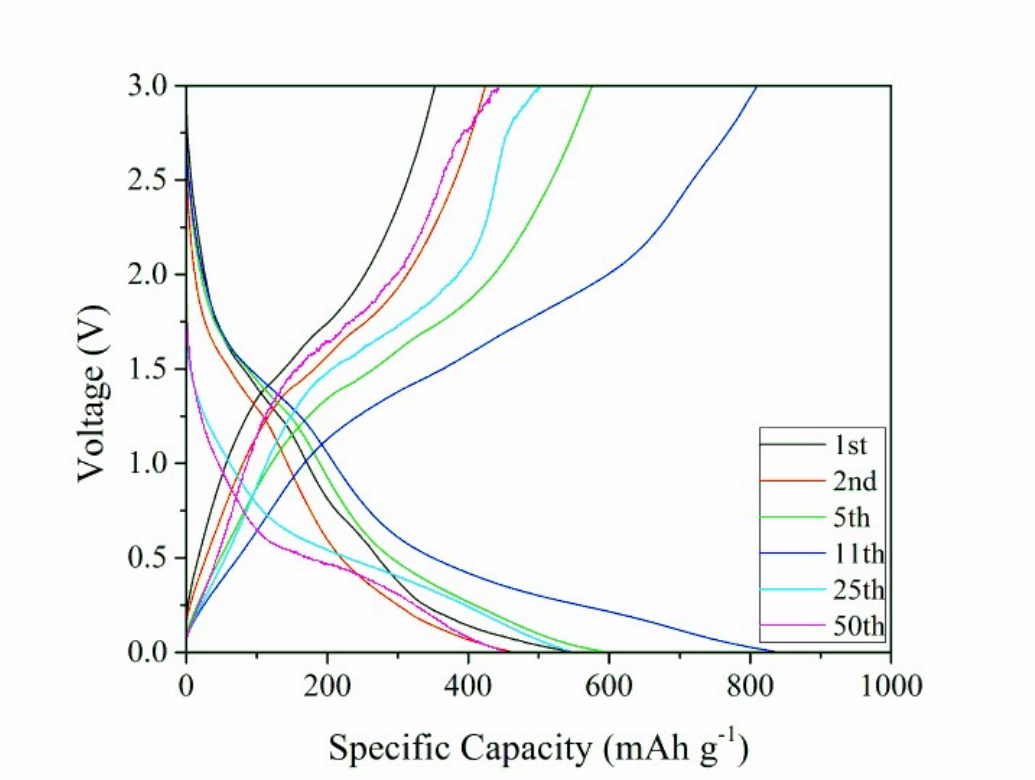


Fig. S7. Charge-discharge profile of the C-MoO_2 sample

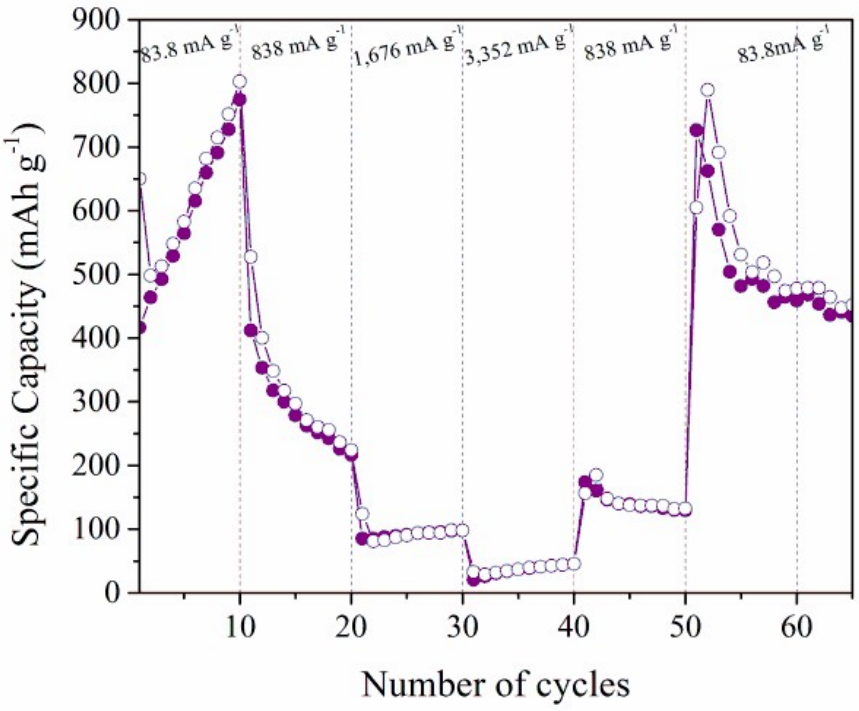


Fig. S8 Rate performance of C-MoO_2

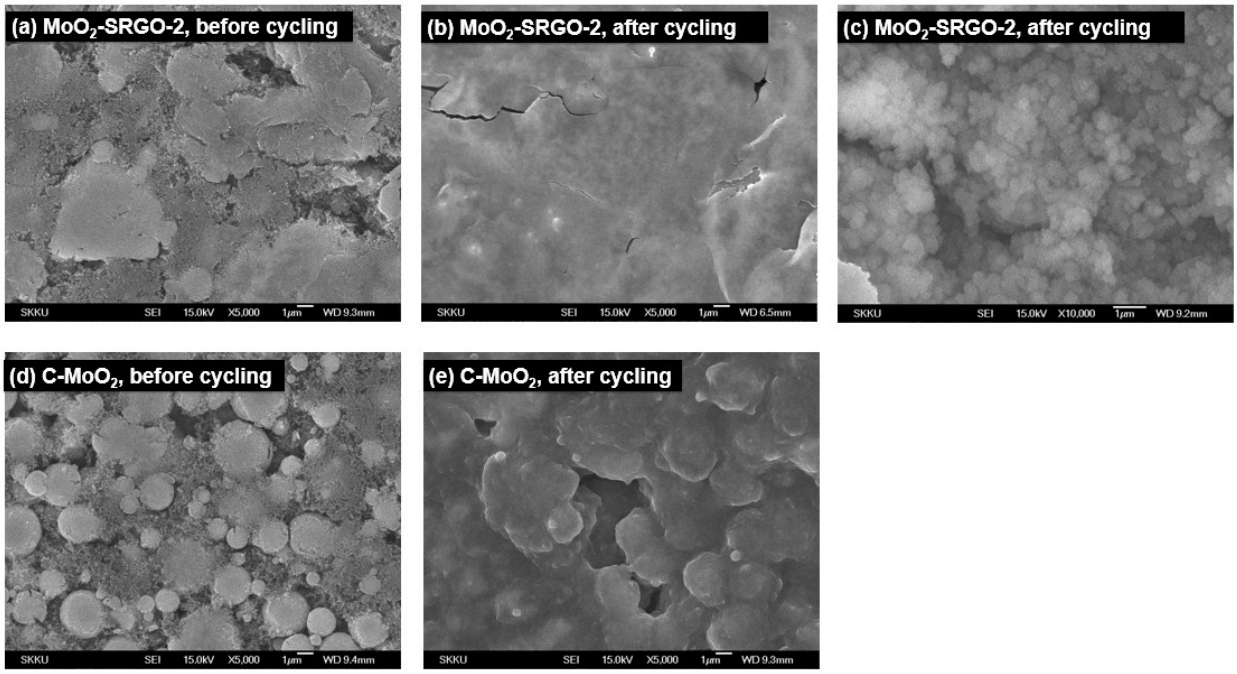


Fig. S9 SEM images of MoO_2-SRGO-2 and C-MoO_2 before and after 100 cycles

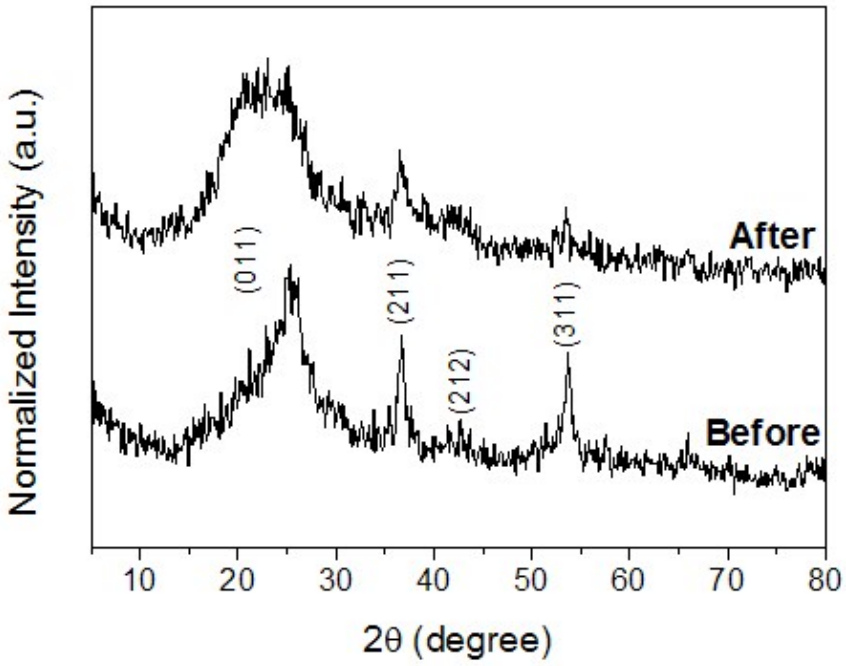


Fig. S10 XRD patterns of MoO_2-SRGO-2 before and after 100 cycles