

## **Supplementary Information**

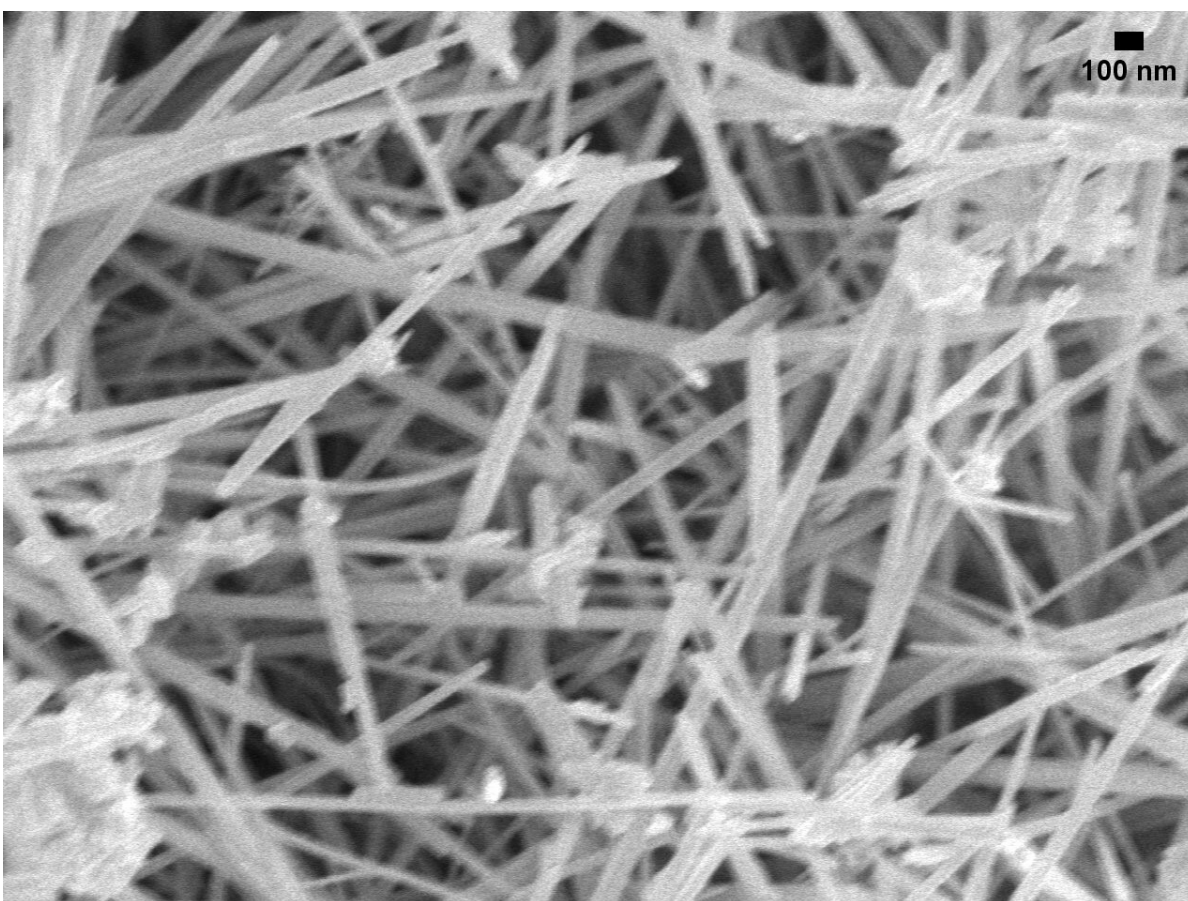
**Hydrothermal synthesis of MoS<sub>2</sub>/MnO<sub>2</sub> nanocomposite: a unique 3D-nanoflower/1D-nanorod structure for high-performance energy storage applications.**

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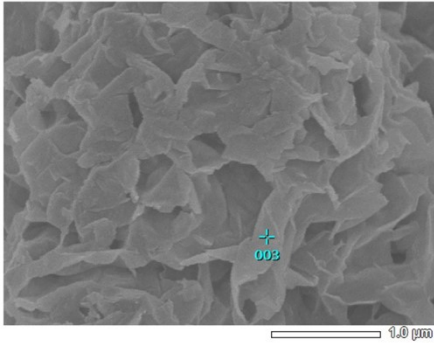
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**Fig. SF1** FE-SEM image of MnO<sub>2</sub> nanorod at high magnification

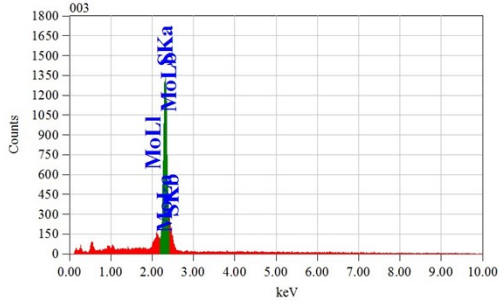
View000



JEOLUSER 1/1

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 Volt : 10.00 kV  
 Mag. : x 30,000  
 Date : 2022/06/05  
 Pixel : 512 x 384

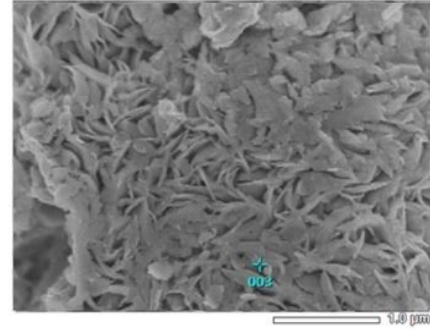
(a)



ZAF Method Standardless Quantitative Analysis  
 Fitting Coefficient : 0.1434

Acquisition Parameter  
 Instrument : 7600F  
 Acc. Voltage : 10.0 kV  
 Probe Current : 1.00000 nA  
 PHA mode : T3  
 Real Time : 30.28 sec  
 Live Time : 30.00 sec  
 Dead Time : 0 %  
 Counting Rate : 1058 cps  
 Energy Range : 0 - 20 keV

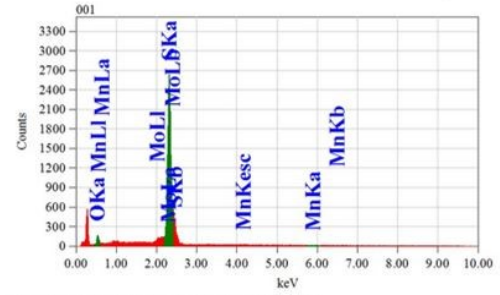
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JEOLUSER 1/1

Title : IMG1  
 Instrument : 7600F  
 Volt : 5.00 kV  
 Mag. : x 30,000  
 Date : 2022/07/27  
 Pixel : 512 x 384

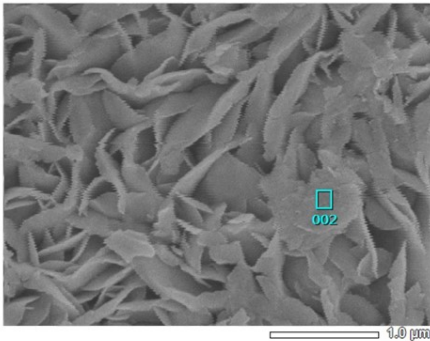
(b)



ZAF Method Standardless Quantitative Analysis  
 Fitting Coefficient : 0.2098

Acquisition Parameter  
 Instrument : 7600F  
 Acc. Voltage : 10.0 kV  
 Probe Current : 1.00000 nA  
 PHA mode : T3  
 Real Time : 30.47 sec  
 Live Time : 30.00 sec  
 Dead Time : 1 %  
 Counting Rate : 1802 cps  
 Energy Range : 0 - 20 keV

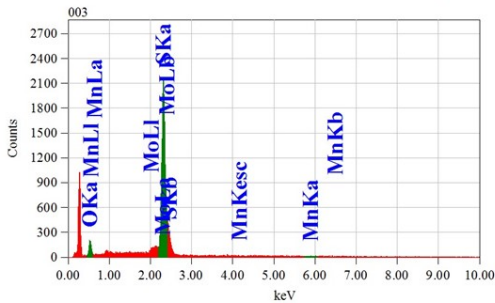
View000



JEOLUSER 1/1

Title : IMG1  
 Instrument : 7600F  
 Volt : 5.00 kV  
 Mag. : x 30,000  
 Date : 2022/07/27  
 Pixel : 512 x 384

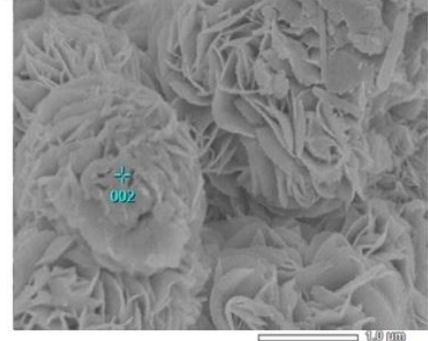
(c)



ZAF Method Standardless Quantitative Analysis  
 Fitting Coefficient : 0.3725

Acquisition Parameter  
 Instrument : 7600F  
 Acc. Voltage : 10.0 kV  
 Probe Current : 1.00000 nA  
 PHA mode : T3  
 Real Time : 30.43 sec  
 Live Time : 30.00 sec  
 Dead Time : 1 %  
 Counting Rate : 1712 cps  
 Energy Range : 0 - 20 keV

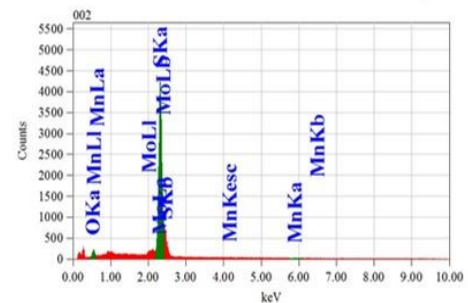
View000



JEOLUSER 1/1

Title : IMG1  
 Instrument : 7600F  
 Volt : 5.00 kV  
 Mag. : x 30,000  
 Date : 2022/07/27  
 Pixel : 512 x 384

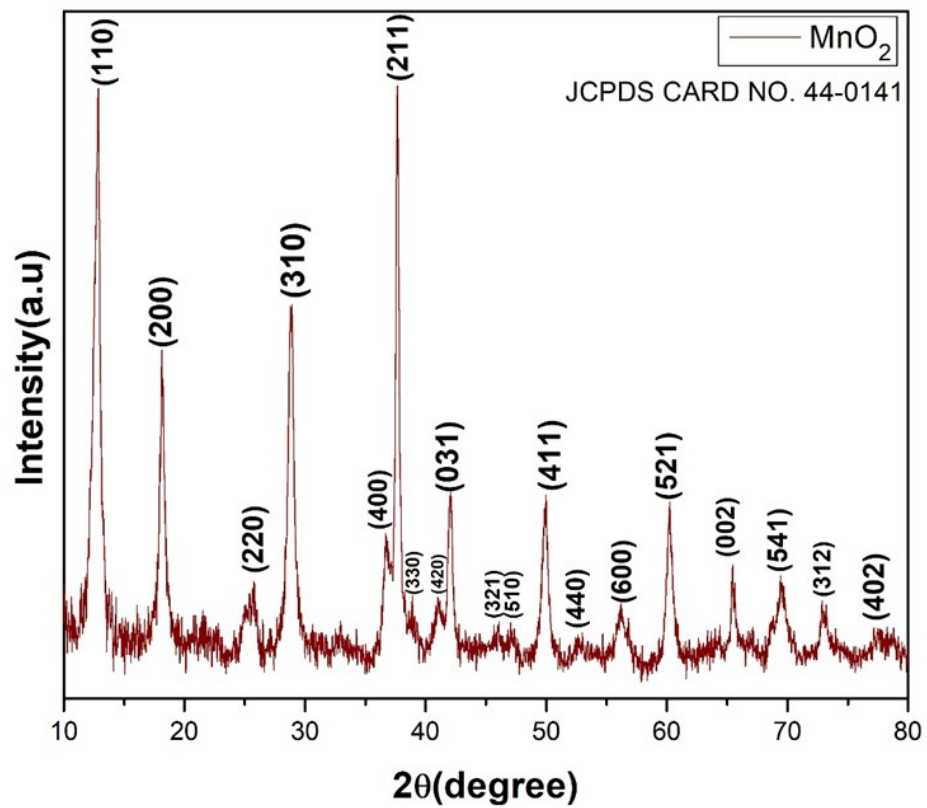
(d)



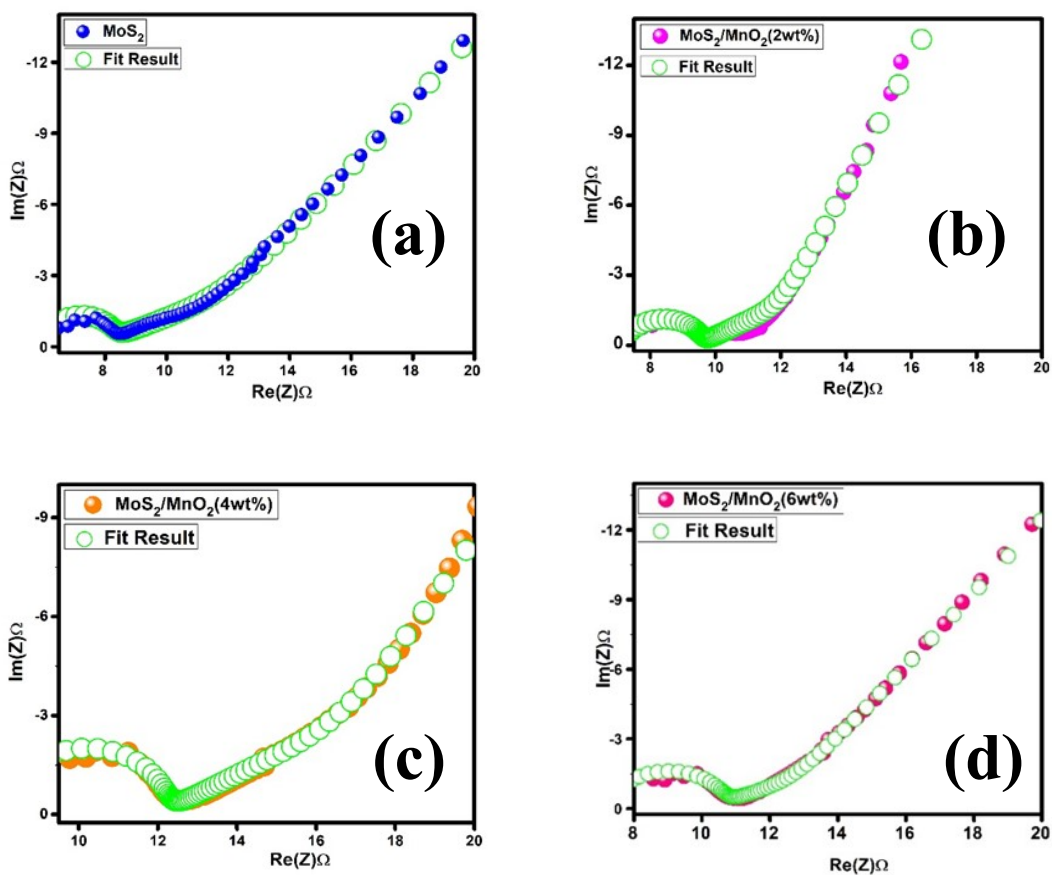
ZAF Method Standardless Quantitative Analysis  
 Fitting Coefficient : 0.0912

Acquisition Parameter  
 Instrument : 7600F  
 Acc. Voltage : 10.0 kV  
 Probe Current : 1.00000 nA  
 PHA mode : T3  
 Real Time : 30.76 sec  
 Live Time : 30.00 sec  
 Dead Time : 2 %  
 Counting Rate : 2983 cps  
 Energy Range : 0 - 20 keV

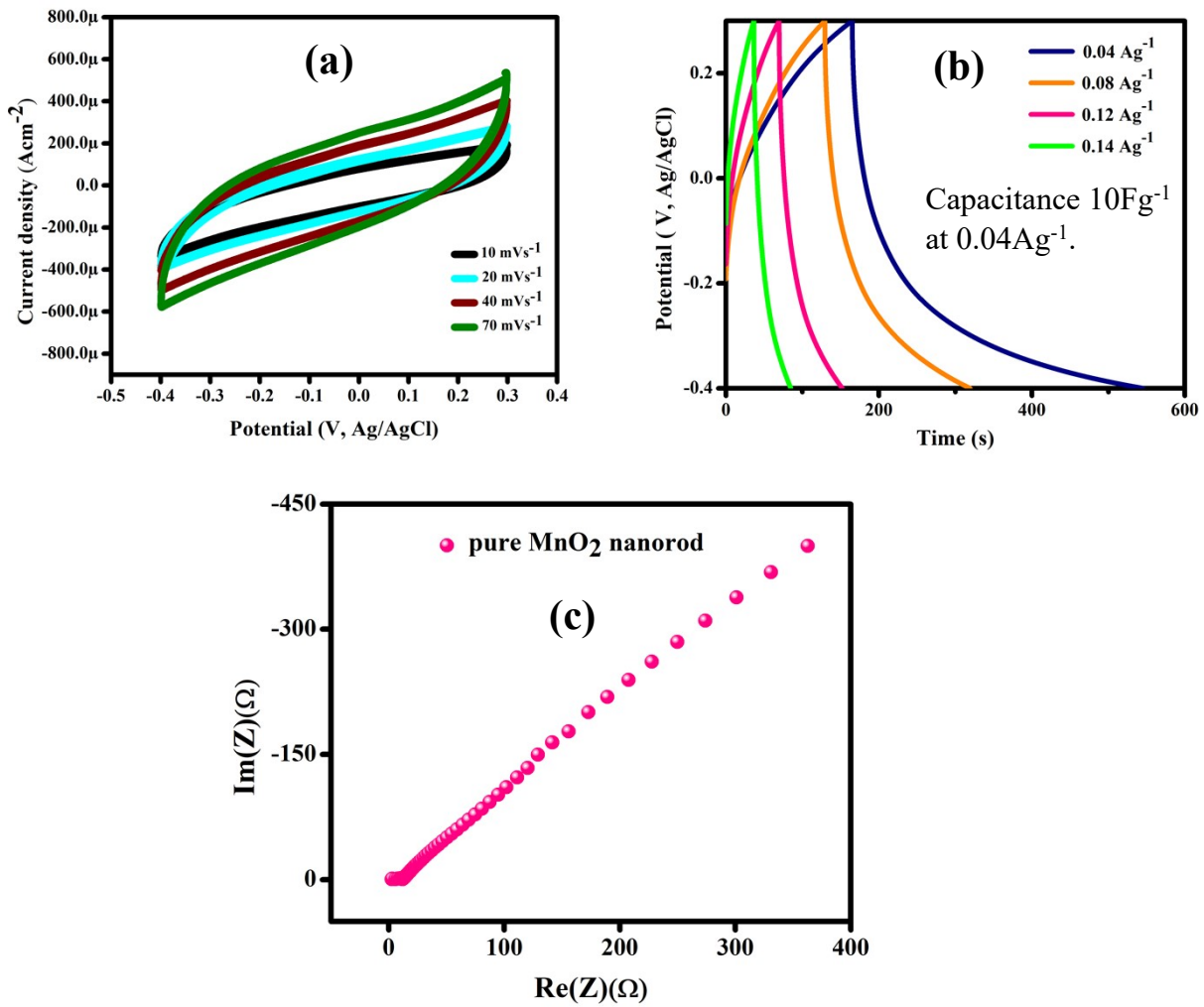
**Fig. SF2 EDX spectra of (a) MoS<sub>2</sub> nanoflower, (b) MoS<sub>2</sub> /MnO<sub>2</sub> (2wt%), (c) MoS<sub>2</sub> /MnO<sub>2</sub> (4wt%), and (d) MoS<sub>2</sub> /MnO<sub>2</sub> (6wt%) nanocomposites.**



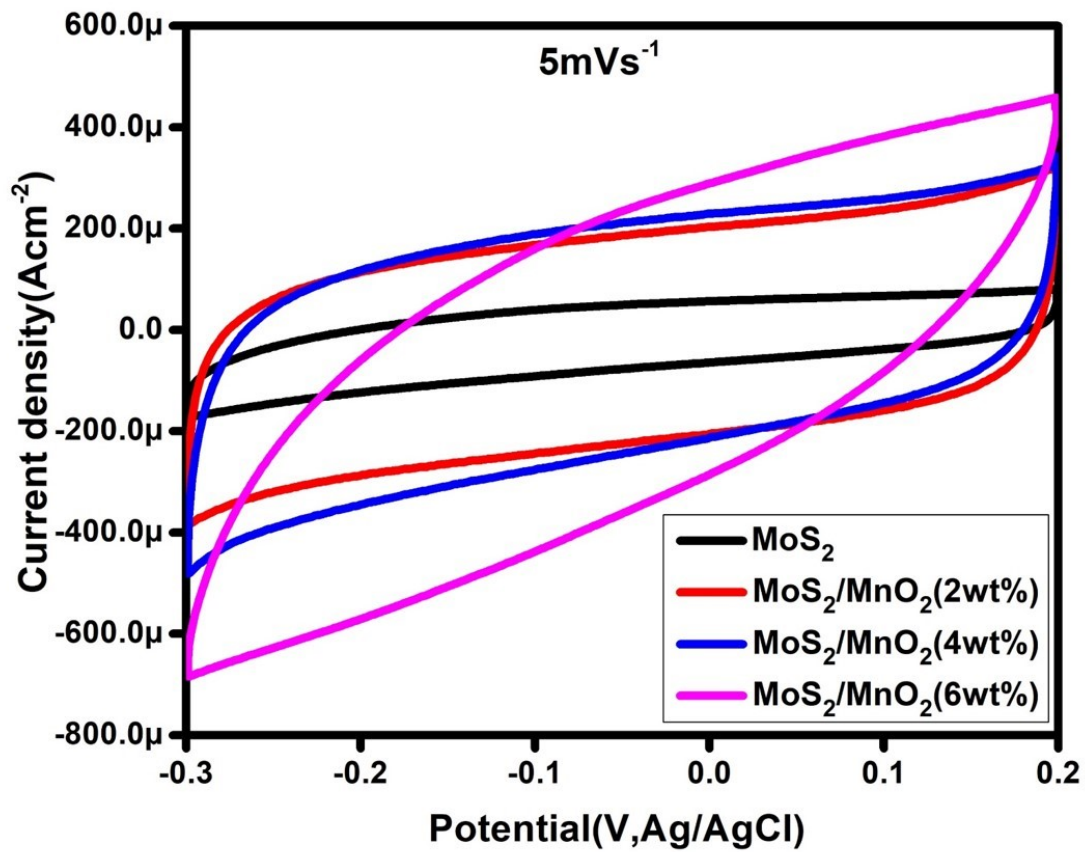
**Fig. SF3** XRD pattern of as prepared MnO<sub>2</sub> nanorod.



**Fig. SF4** Simulated and experimental Nyquist plots of MoS<sub>2</sub> NF and as prepared MoS<sub>2</sub>/MnO<sub>2</sub> nanocomposites.



**Fig. SF5** (a) CV, (b) GCD, and (c) EIS curve of pure MnO<sub>2</sub> nanorod.



**Fig. SF6** The CV area of all samples at constant scan rate  $5\text{mVs}^{-1}$