Electronic Supplementary Material (ESI) for Nanoscale Advances.

Improved electrochemical performance of defect induced supercapacitor electrodes based on MnS incorporated MnO_2 nanorod

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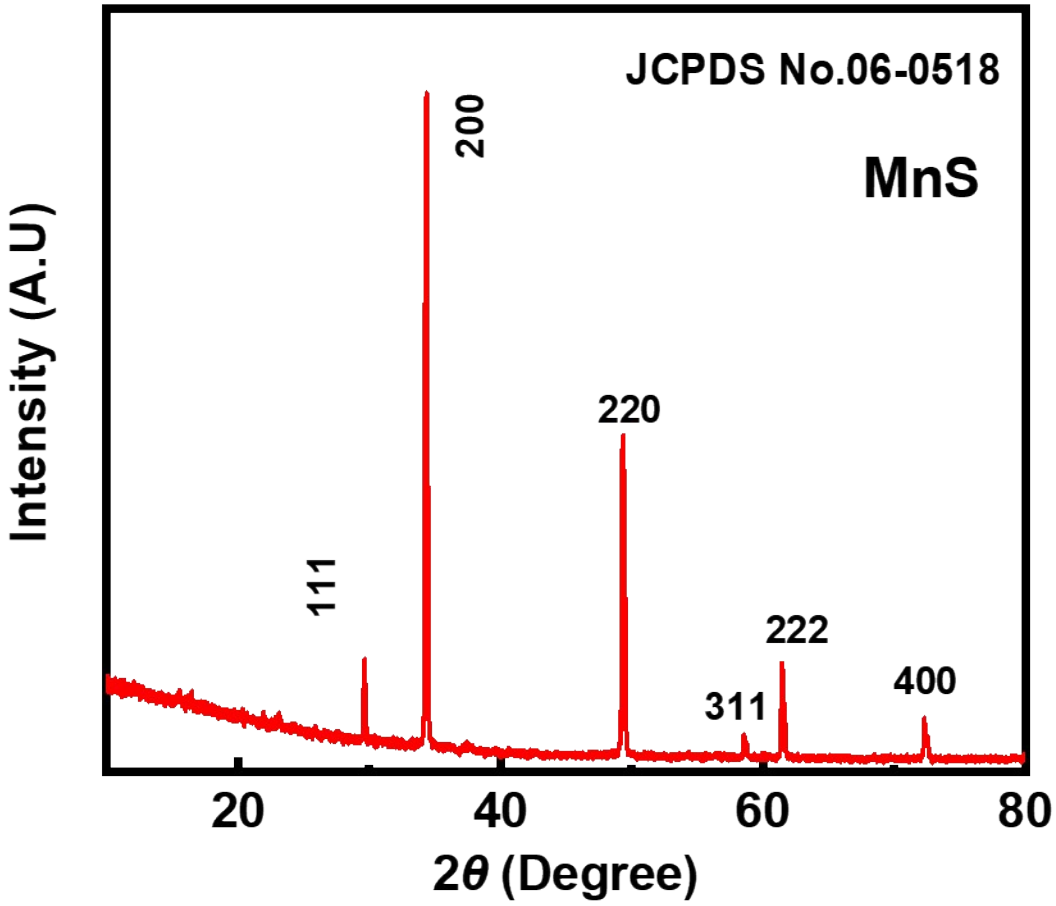

Fig. ST 1. X-ray diffraction pattern of MnS nanoparticles

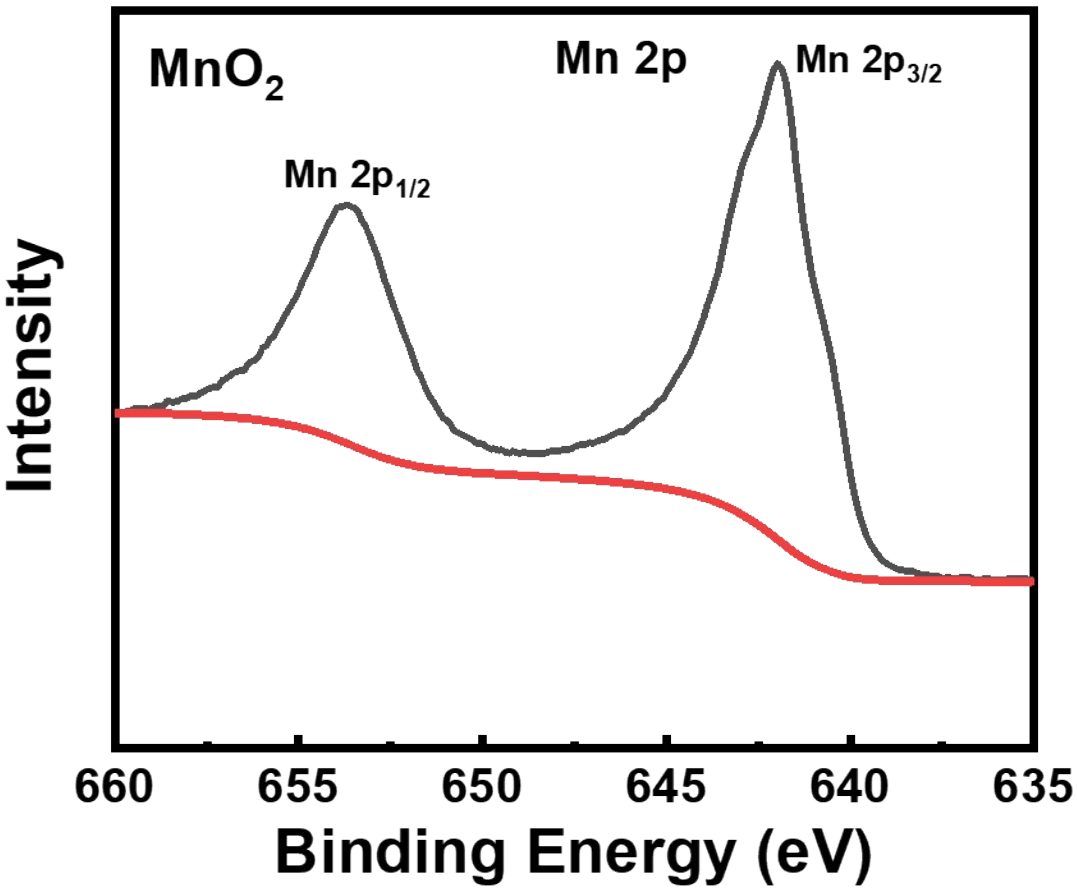

Fig. ST 2. High resolution Mn 2p spectra of MnO_2 nanorods

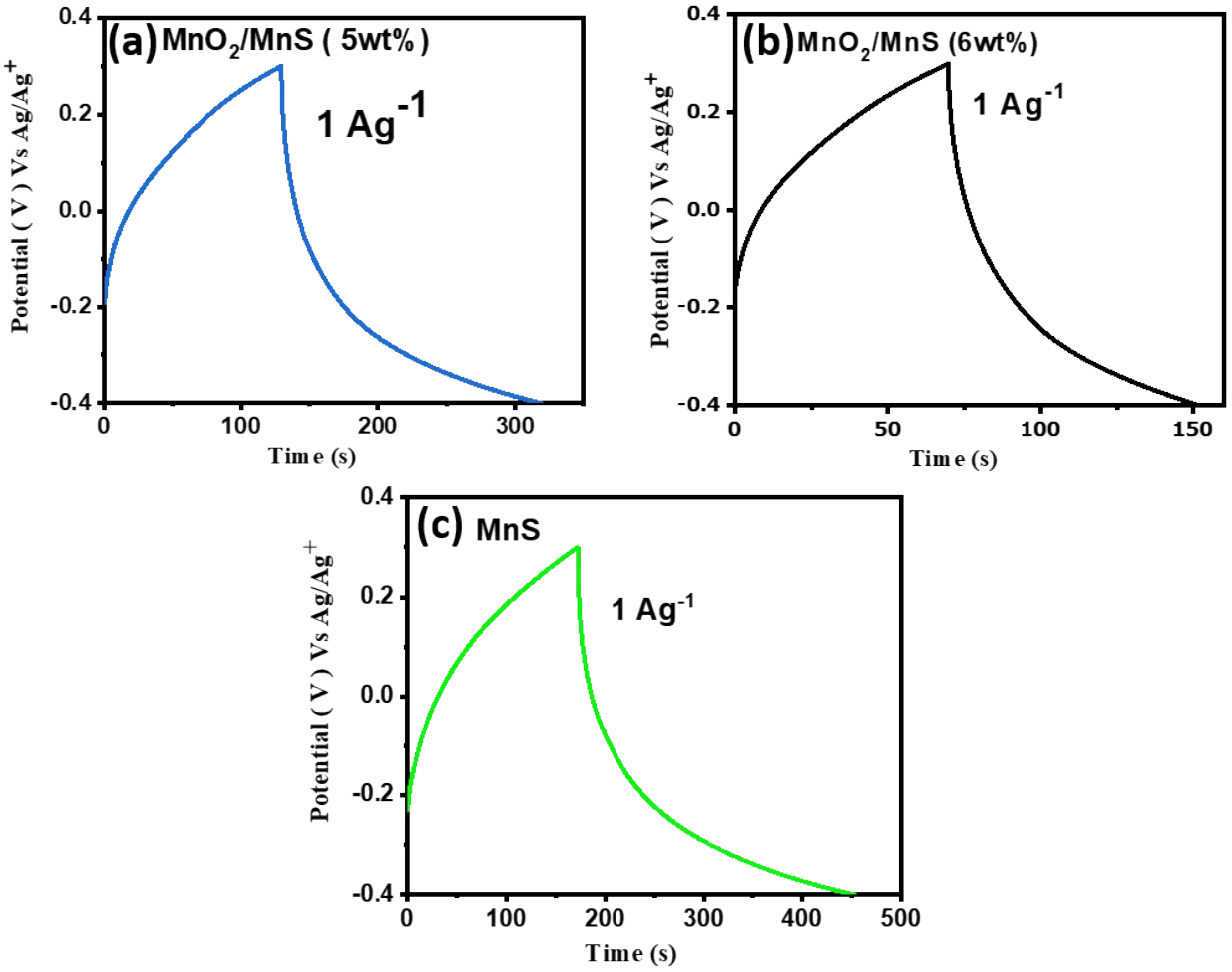

Fig. ST 3. GCD curve of (a) MnO_2/MnS (5wt%), (b) MnO_2/MnS (6wt%) and (c) MnS at three electrode system.

The capacitive performance of MnO_2/MnS (5wt%), MnO_2/MnS (6wt%) and MnS are measured in three electrode system by using the formula,

$$C_s = \frac{I \times \Delta t}{\Delta V \times m}$$

The specific capacitance of MnO_2/MnS (5wt%, 6wt%) and MnS is 268 Fg^{-1}, 114Fg^{-1} and 397 Fg^{-1}.

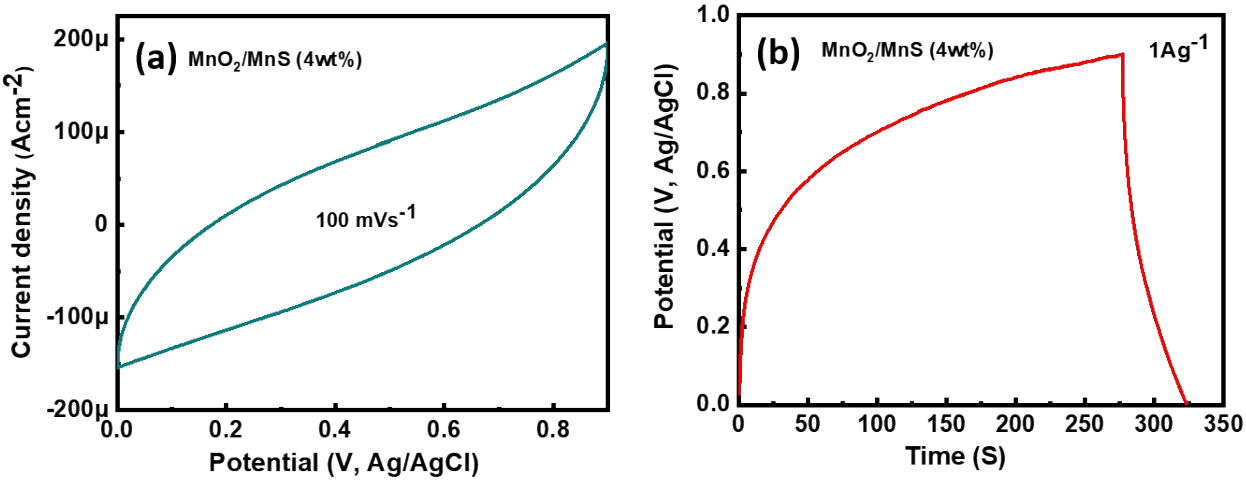

Fig. ST 4. (a) Cyclic voltammetry curve and (b) Galvanostatic charging-discharging curve of MnO_2/MnS (4wt%) nanocomposite at two electrode system.

The specific capacitance, energy density and power density of two electrode symmetric system by using the formula,

$$C_s = \frac{4I \times \Delta t}{\Delta V \times m}$$

$$E_s = \frac{Cs(\Delta v)2 \times 1000}{8 \times 3600}$$

$$P_s = \frac{E_s \times 3600}{\Delta T}$$