

Fig.S1. FESEM images of: (a) pristine MoS<sub>2</sub>, (b) - (d) SnO<sub>2</sub>-decorated MoS<sub>2</sub> nanocomposite, (e) AFM image, (f) line profile and (g) Histogram of nanocomposite.

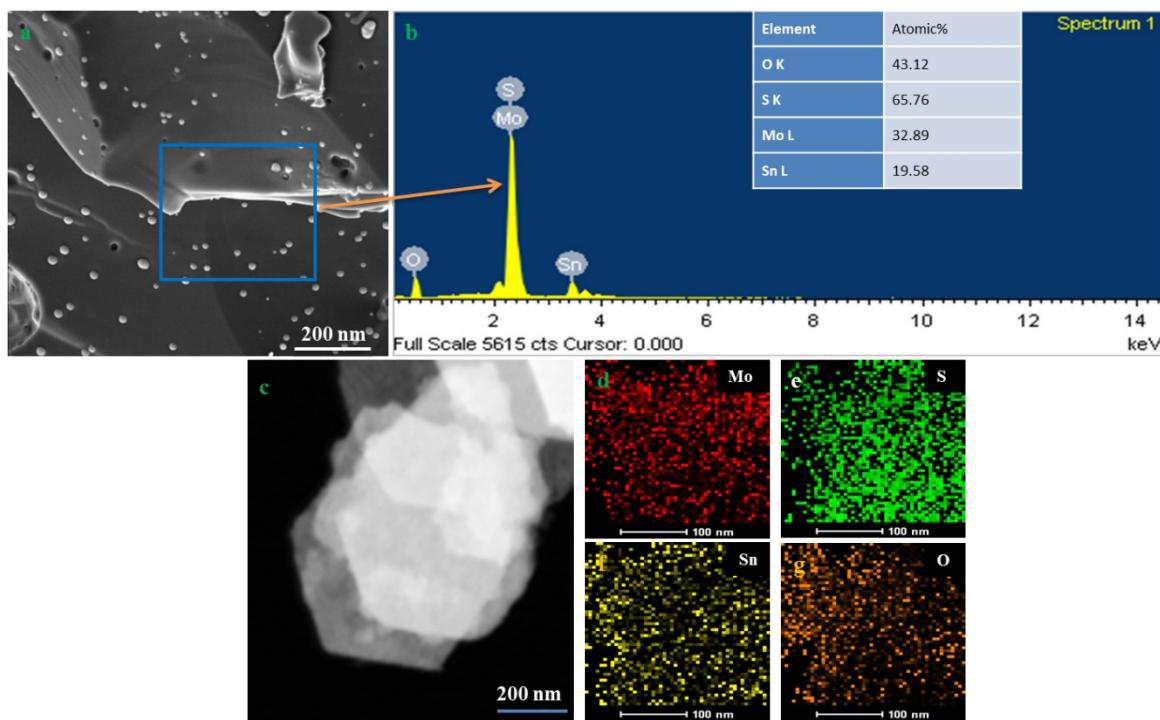


Fig.S2. Elemental mapping results of  $\text{SnO}_2$ -decorated  $\text{MoS}_2$  nanocomposite: (a) FESEM image, (b) FESEM -EDX mapping spectra, (c), (d) HRTEM images, (e)-(h) HRTEM-elemental mapping

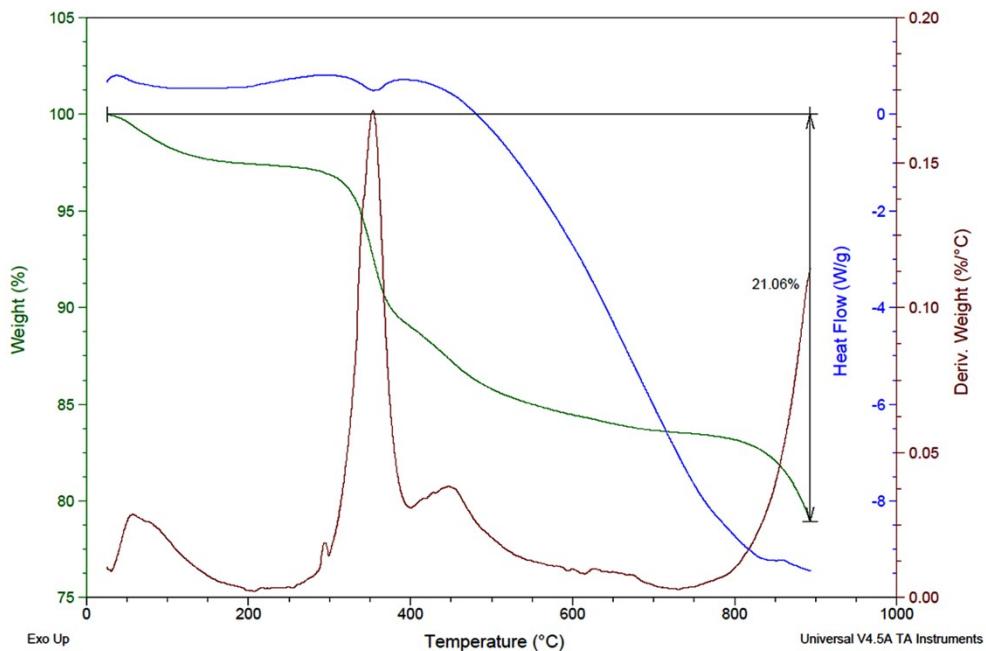


Fig.S3. TG-DTA curves of  $\text{SnO}_2$ -decorated  $\text{MoS}_2$  nanocomposite

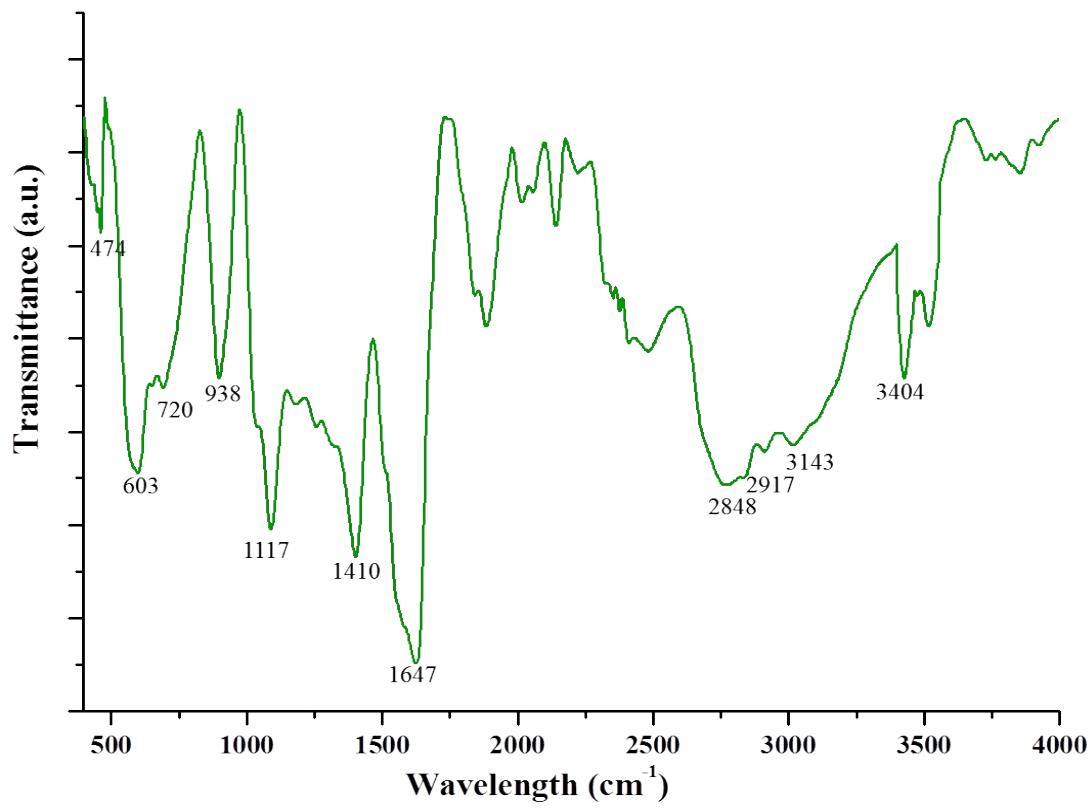


Fig.S4. FT-IR spectra of SnO<sub>2</sub>-decorated MoS<sub>2</sub> nanocomposite

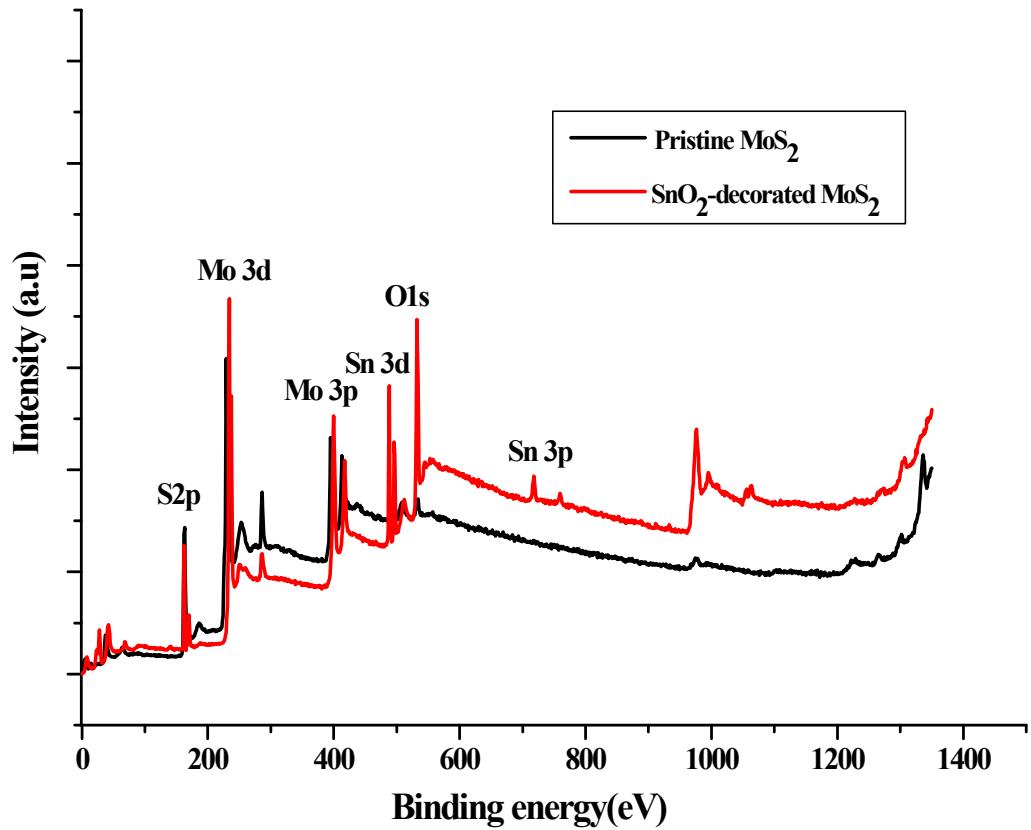


Fig.S5. X-ray photoelectron survey spectra of (a) pristine MoS<sub>2</sub> and (b) SnO<sub>2</sub>-decorated MoS<sub>2</sub> nanocomposite

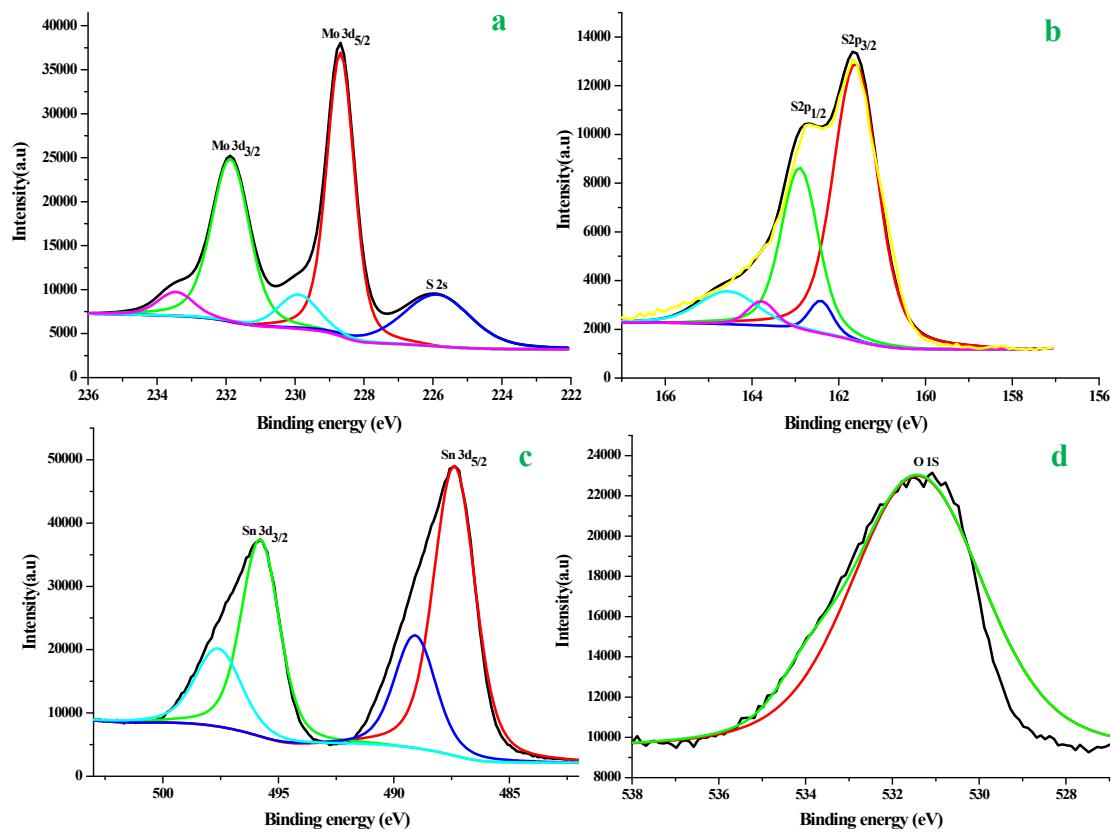


Fig.S6. X-ray photoelectron spectra of as prepared SnO<sub>2</sub>-decorated MoS<sub>2</sub> nanocomposite (a) Mo, (b) S, (c) Sn and (d) O elements

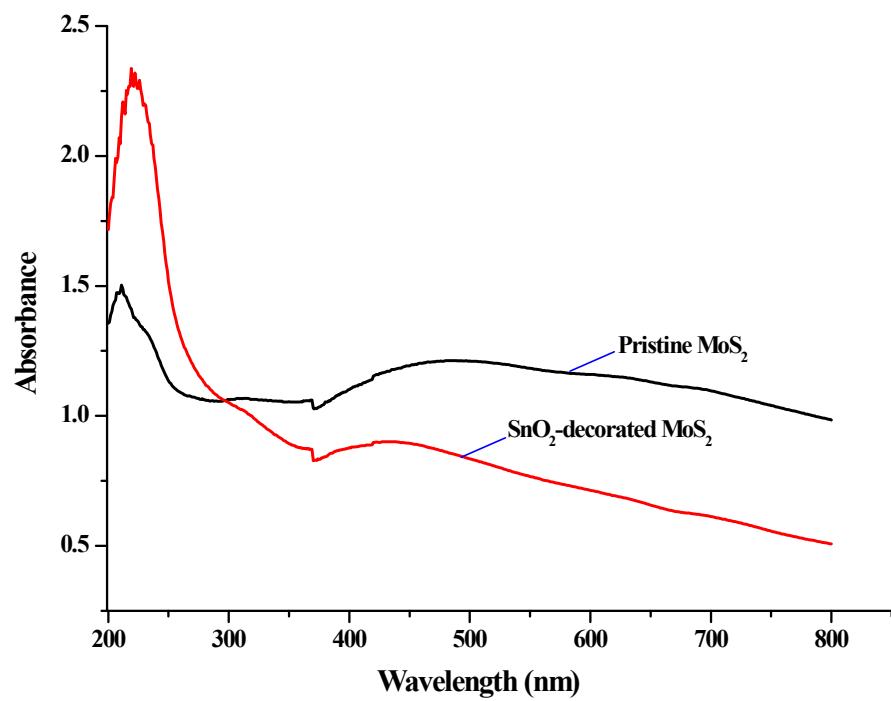


Fig.S7. UV-vis spectra of SnO<sub>2</sub>-decorated MoS<sub>2</sub> nanocomposite