Supporting Information

Highly dispersed MoS_x nanodot-modified TiO_2 photocatalyst: Vitamin C-mediated synthesis and improved H_2 evolution activity

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SI-1 The AQE calculation

The apparent quantum efficiency (AQE) of the prepared photocatalyst is calculated via the following equation:

$$\mathrm{AQE}(\%) = \frac{\text{number of reacted electrons}}{\text{number of incident photons}} \times 100\%$$
$$= \frac{\text{number of evolved } H_2 \text{ molecules} \times 2}{\text{number of incident photons}} \times 100\%$$

The average power of the UV light (four 3-W 365 nm) was 22.4 mW/cm^2. Hence, the AQE of the TiO_2@C/MoS_x(0.7 wt%) photocatalyst can be calculated to be 3.94%.

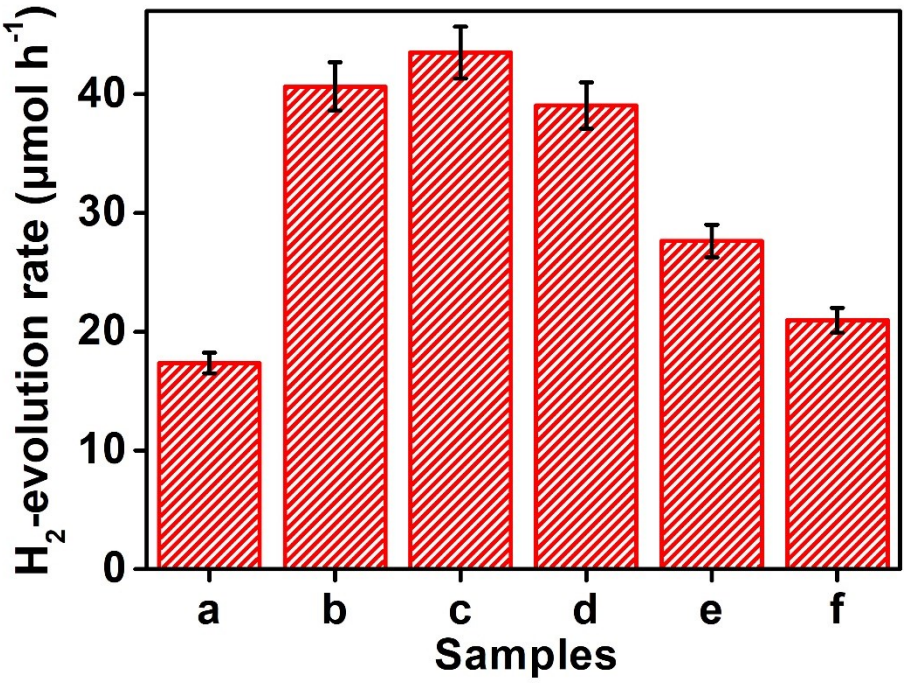

Fig. S1. The influence of VC amount on the photocatalytic H_2-evolution activities of TiO_2@C/MoS_x(1.0%) photocatalyst: (a) 0 mg, (b) 5 mg, (c) 9 mg, (d) 15 mg, (e) 20 mg, (f) 50 mg.

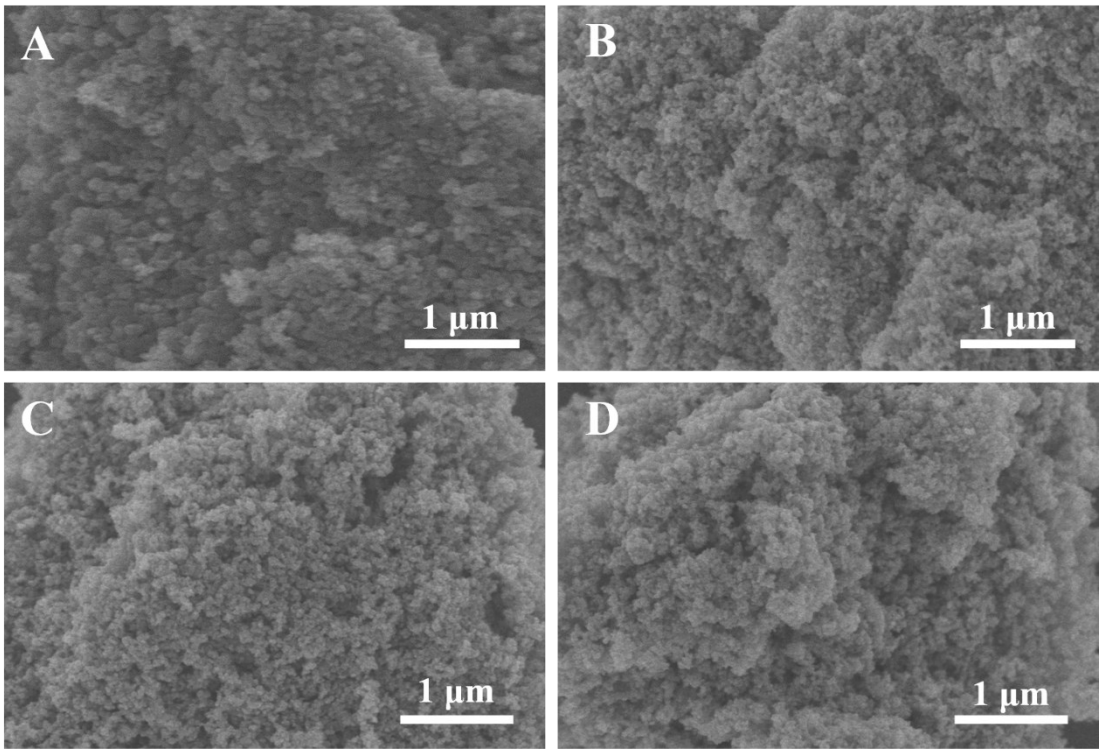

Fig. S2. FESEM images of different photocatalysts: (a) TiO_2, (b) TiO_2@C, (c) TiO_2@C/MoS_x(0.7%), (d) TiO_2/MoS_x(0.7%).

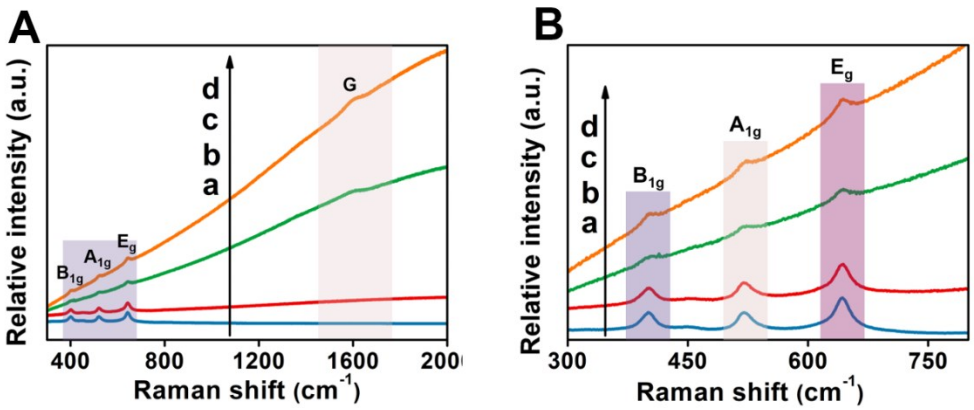

Fig. S3. (A) Raman spectra, (B) The enlarged Raman spectra of different samples: (a) TiO_2, (b) TiO_2/MoS_x(0.7%), (c) TiO_2@C/MoS_x(0.7%), (d) TiO_2@C.

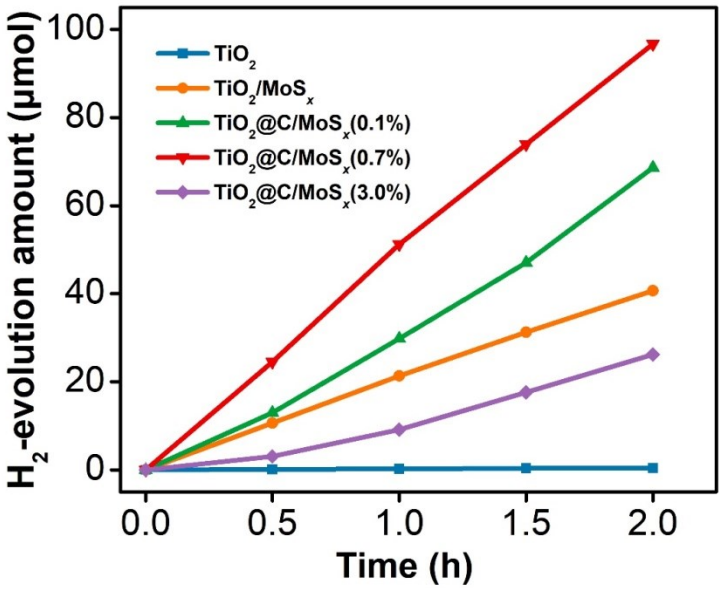

Fig. S4. Photocatalytic H_2-evolution activities of typical TiO_2 and MoS_x-modified photocatalysts.