

## **Supporting Information**

**Chemically modified graphene oxide-wrapped quasi-micro**

**Ag decorated silver trimolybdate nanowires for**

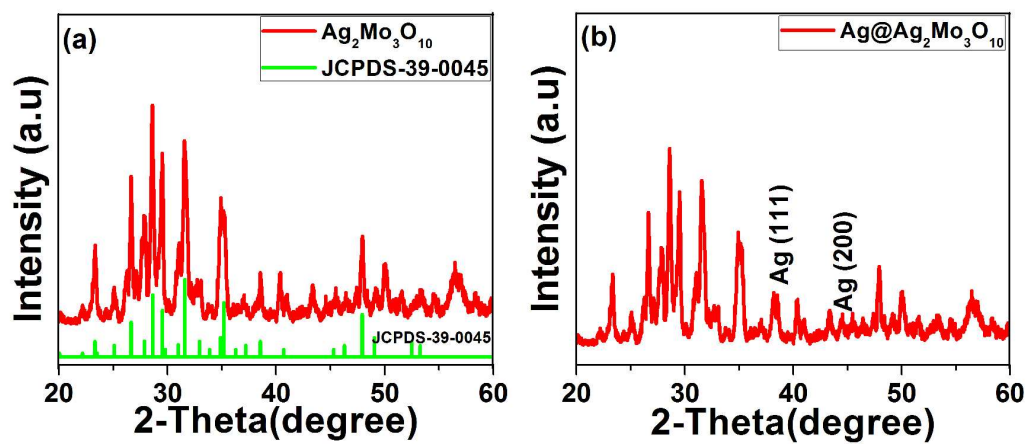
**photocatalytic applications**

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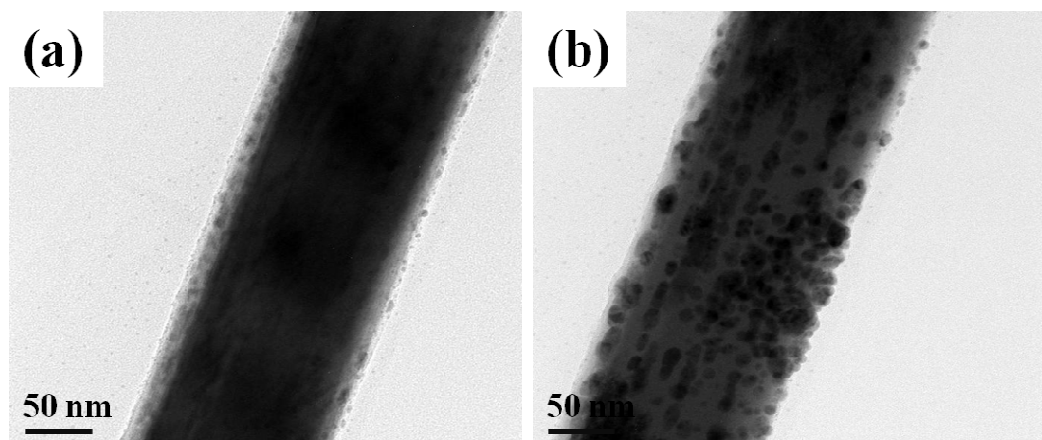
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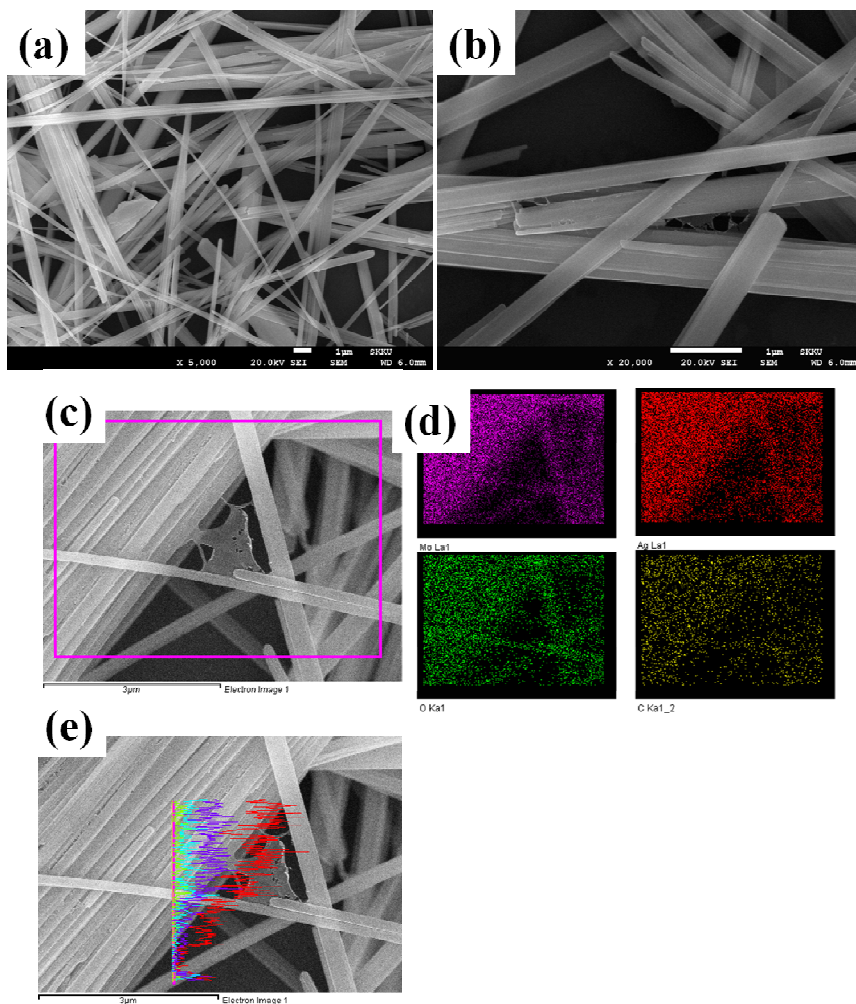
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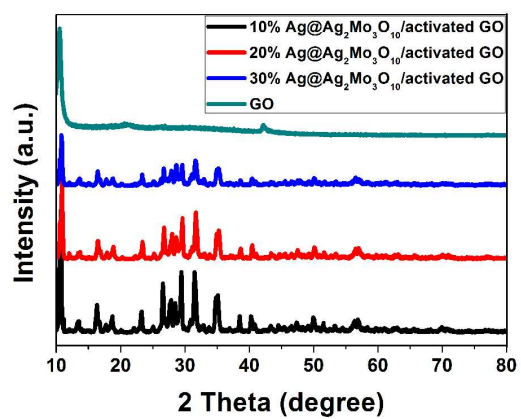
**Fig. S1.** XRD patterns of the  $\text{Ag}_2\text{Mo}_3\text{O}_{10}$  Ws (a) and  $\text{Ag}@\text{Ag}_2\text{Mo}_3\text{O}_{10}$  Ws (b).



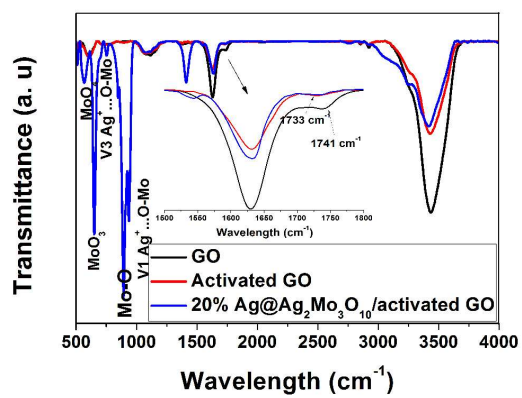
**Fig. S2.** TEM images of the  $\text{Ag}_2\text{Mo}_3\text{O}_{10}$  Ws (a) and  $\text{Ag}@\text{Ag}_2\text{Mo}_3\text{O}_{10}$  Ws (b).



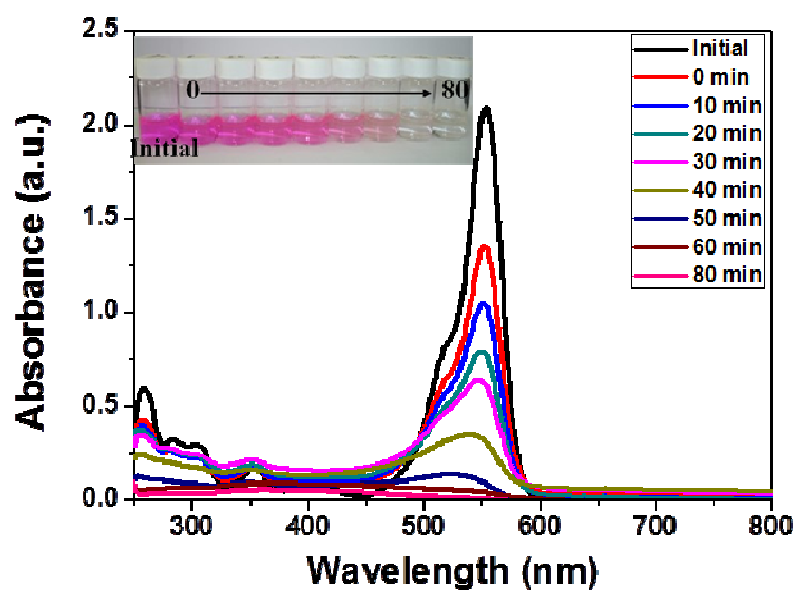
**Fig. S3.** SEM images of the Ag@Ag<sub>2</sub>Mo<sub>3</sub>O<sub>10</sub>/GO (a) and (b), element mapping (c) and (d), and EDS line analysis (e).



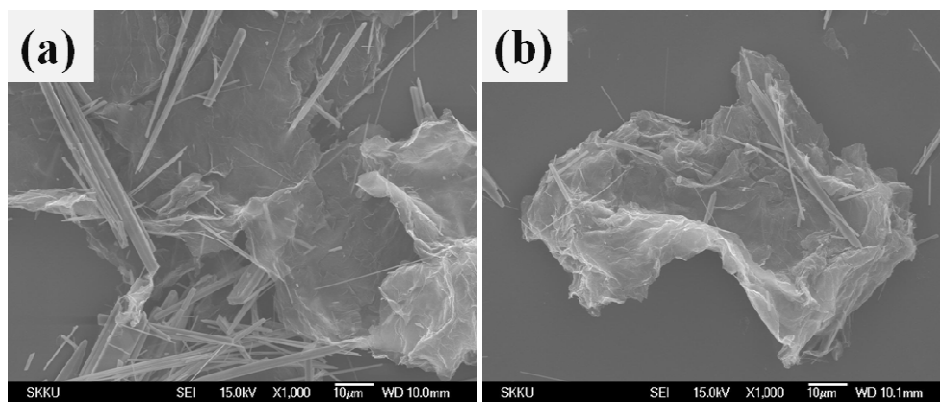
**Fig. S4.** XRD patterns of the GO and Ag@Ag<sub>2</sub>Mo<sub>3</sub>O<sub>10</sub>/activated GO composite.



**Fig. S5.** FT-IR spectra of the GO, activated GO and 20% Ag@Ag<sub>2</sub>Mo<sub>3</sub>O<sub>10</sub>/activated GO composite. Inset is magnification of the peaks from 1500 to 1800 cm<sup>-1</sup>.

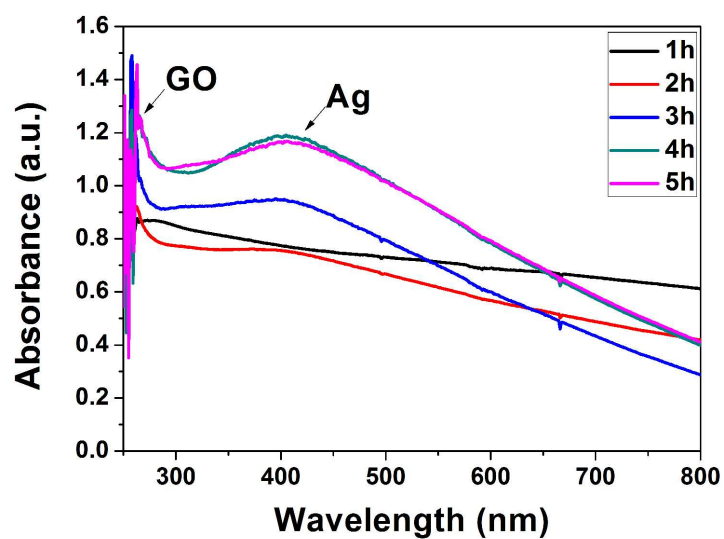


**Fig. S6.** UV-vis absorption spectra change of Rh.B concentration against the 20%  $\text{Ag@Ag}_2\text{Mo}_3\text{O}_{10}$ /activated GO composite under solar light (Insets show the fade of the Rh.B)

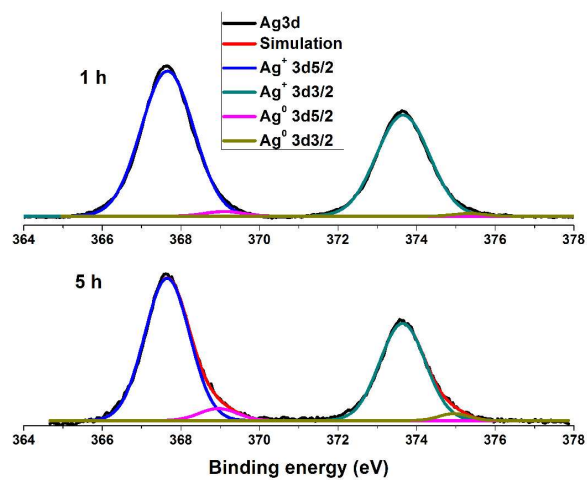


**Fig. S7.** SEM images of the Ag@Ag<sub>2</sub>Mo<sub>3</sub>O<sub>10</sub>/RGO.

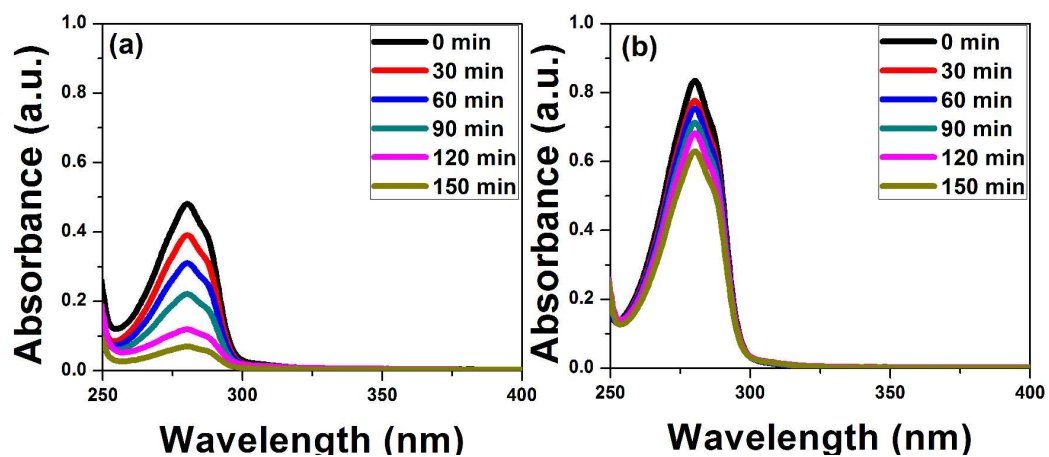




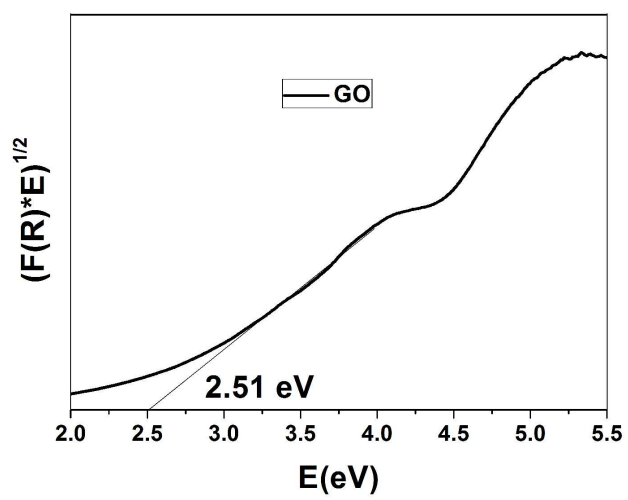
**Fig. S8.** UV absorption spectra of Ag@Ag<sub>2</sub>Mo<sub>3</sub>O<sub>10</sub>/activated GO composite with different photo-irradiated time.



**Fig. S9.** Deconvolution of Ag (3d) XPS spectra of the Ag@Ag<sub>2</sub>Mo<sub>3</sub>O<sub>10</sub>/activated GO composite at 1 and 5 h solar irradiation time.



**Fig. S10.** UV absorption spectra of 4-CP over 20% Ag@Ag<sub>2</sub>Mo<sub>3</sub>O<sub>10</sub>/activated GO (a) and Ag@Ag<sub>2</sub>Mo<sub>3</sub>O<sub>10</sub> (b) under solar light irradiation as function time.



**Fig. S11.** Plots of  $(\alpha E)^{1/2}$  against the photon energy ( $E$ ) for GO.