

# **Synthesis of one-dimensional $\text{Bi}_2\text{O}_2\text{CO}_3\text{-Bi}(\text{OHC}_2\text{O}_4)\cdot 2\text{H}_2\text{O}$ heterojunctions with excellent adsorptive and photocatalytic performance**

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Fig. S1 FE-SEM images of pure  $\text{Bi}(\text{OHC}_2\text{O}_4)\cdot 2\text{H}_2\text{O}$ .

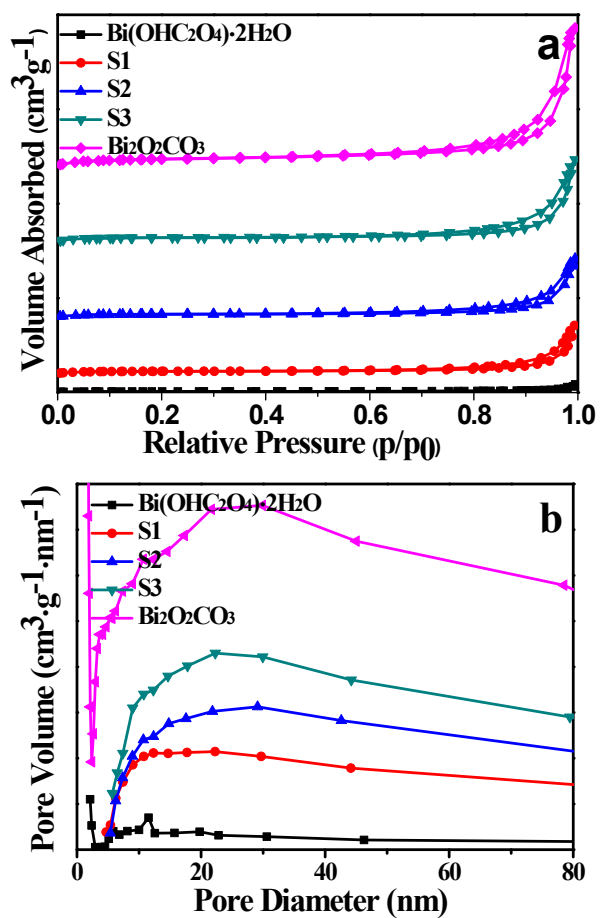
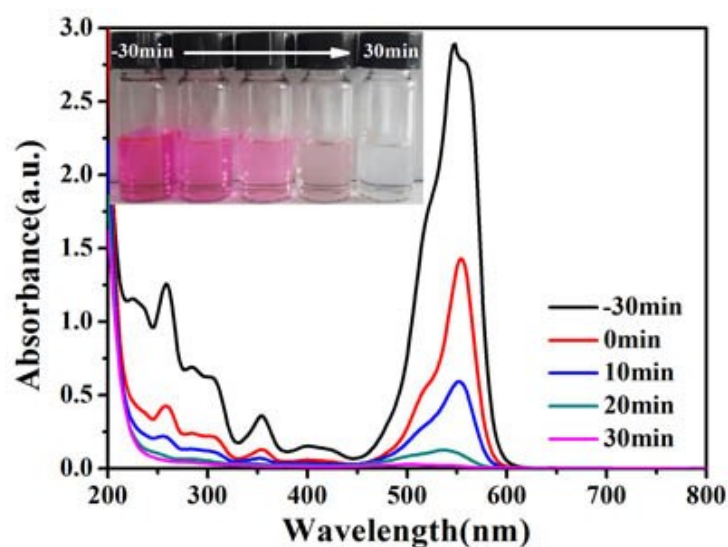
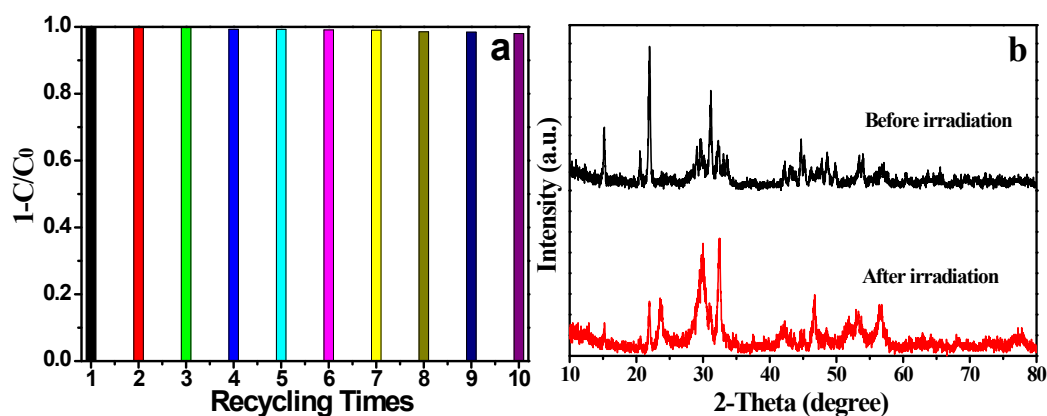


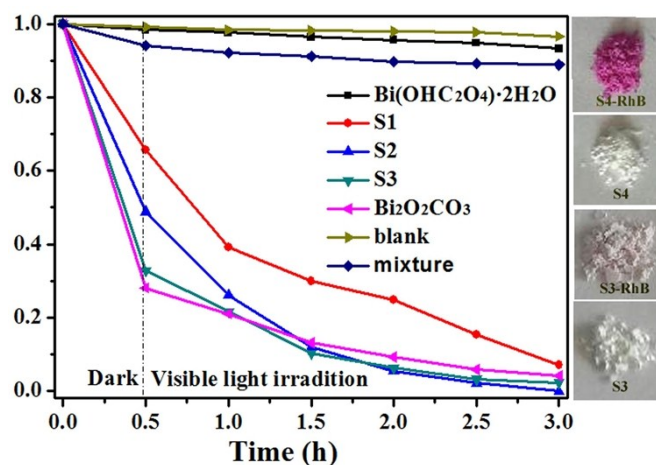
Fig. S2 (a) Nitrogen adsorption-desorption isotherm and (b) the corresponding pore size distribution of the different samples.



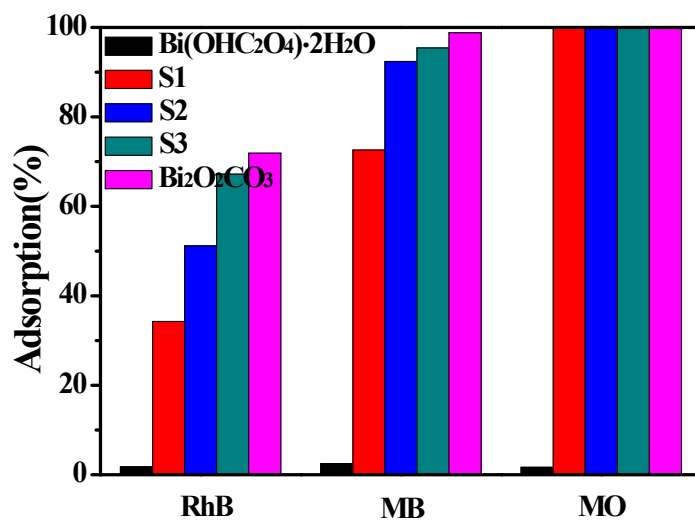
**Fig. S3** UV-Vis absorption spectra of RhB aqueous solutions using S2 as photocatalyst under solar light irradiation. Inset in b is photographs of RhB solutions by different reaction time.



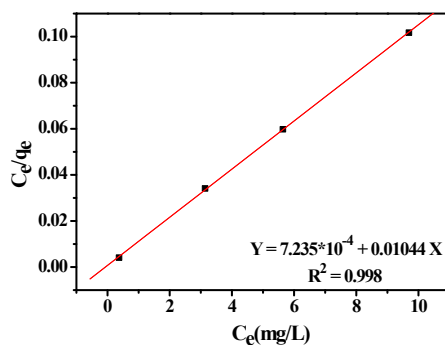
**Fig. S4** Cycling runs in the photodegradation of RhB in the presence of S2 heterostructure under solar light irradiation.



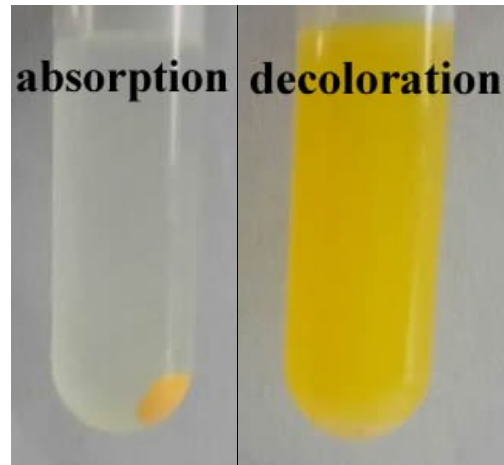
**Fig. S5** The degradation curve of RhB in the presence of different photocatalysts under visible light irradiation, the photographs of  $\text{Bi}_2\text{O}_2\text{CO}_3$  and S3 before and after photocatalysis inset in Fig.4S.



**Fig. S6** The adsorption bars of RhB, MB and MO using different samples as adsorbents, adsorptive time is 30 min and the concentration of dyes is 20 mg/L.



**Fig. S7** Langmuir isotherm models of S3.



**Fig. S8** The adsorbent can be discolored in the ethanol solution.