Supplementary material:

Towards understanding of the photocatalytic activity enhancement of ordered mesoporous Bi2MoO6 crystals prepared via a novel vacuum-assisted nanocasting method

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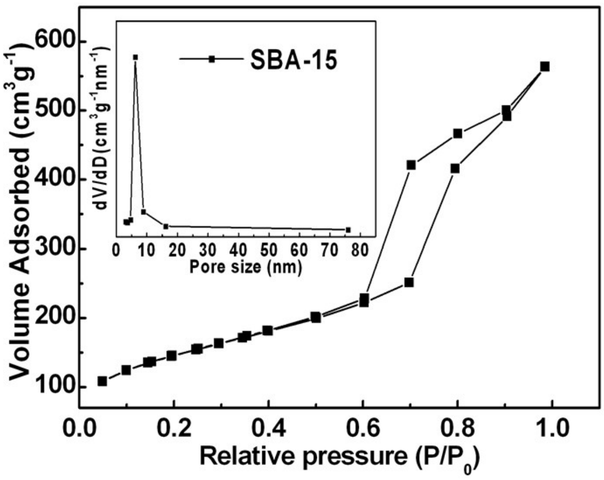

Fig. S1 The N_2-sorption isotherm and the pore size distributions (inset) of SBA-15.

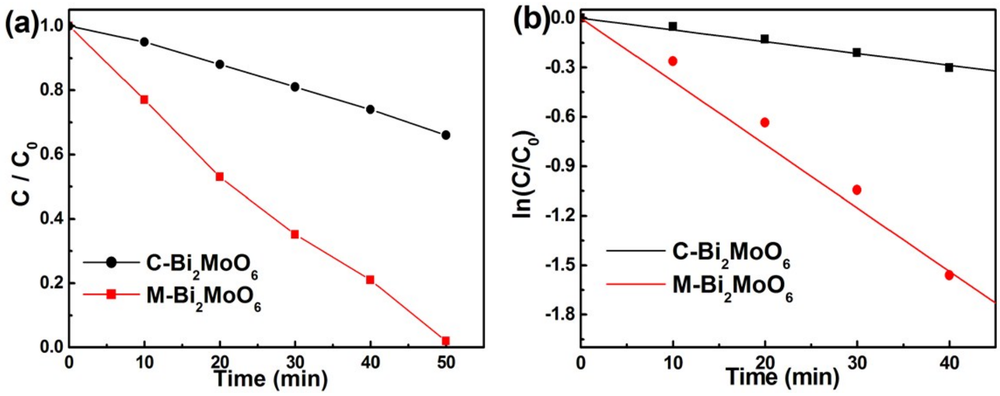

Fig. S2 (a) $C/C_0$and (b) $\ln(C/C_0)$ of RhB versus time for different photocatalysts under simulated sunlight irradiation.

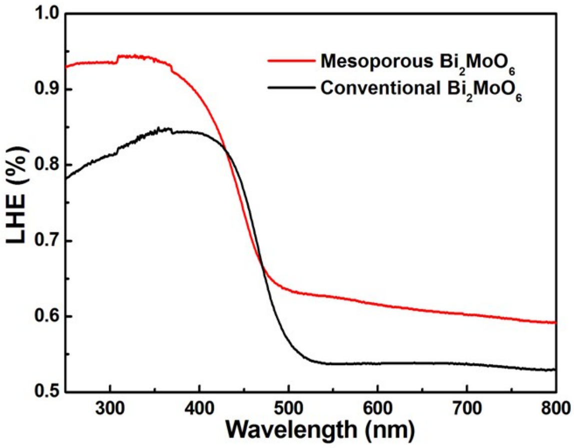

Fig. S3 The LHE spectrum of as-prepared M-Bi_2MoO_6 and C-Bi_2MoO_6.

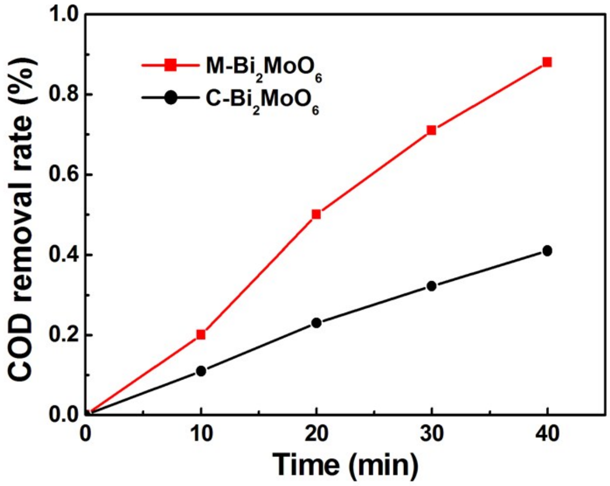

Fig. S4 COD removal rate of the RhB solution

Chemical oxygen demand (COD) is the oxygen equivalent to form H_2O and CO_2 during the mineralization of organic pollutants. It has been considered as one of importantwater pollution parameters. The COD was determined by using potassium dichromate oxidation method.The COD removal rate was estimatedby: $\eta(\%)=(C_0-C_t)/C_0\times100\%$,where$\eta$is the COD removal rate, C_0 (mg/L) is the concentration of COD before the photocatalytic reaction, and C_t (mg/L) is the concentration of COD after the photocatalytic reaction[1-2]. Fig. S3 clearly reveals that the COD removal rate of M-Bi_2MoO_6 is much higher than that of C-Bi_2MoO_6, which indicates that the organic substance mineralization rate of M-Bi_2MoO_6during the photooxidation process is much higher than that of C-Bi_2MoO_6.

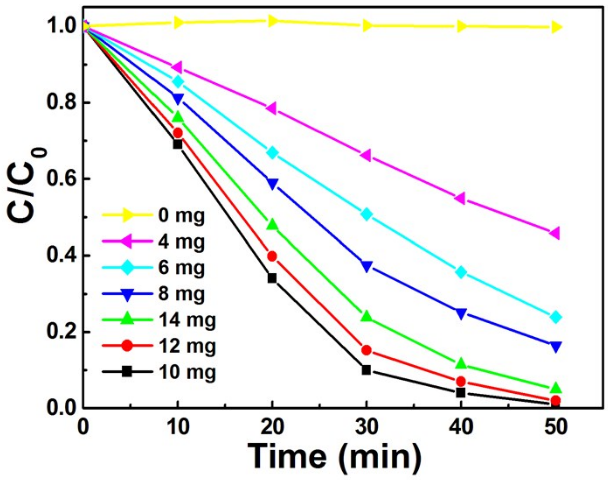

Fig. S5 Influence of the photocatalyst dosage on photodegradation rate of BPA solution.

To evaluate the influence of different dosage of photocatalyst on photocatalytic efficiency, a series photodegradation experiments has been conducted to find out the optimal value by varying thedosage ofM-Bi_2MoO_6 photocatalyst. As shown in Fig. S3, the photodegradation rate of BPA first obviously enhanced with increasing the G-BM amount, which is mainly owing to the increase of the photoreaction activity area. However, if the amount of the catalyst is too high (more than 12 mg), the photodegradation rate would inversely decrease, which mainly due to the aggregation between the photocatalysts.

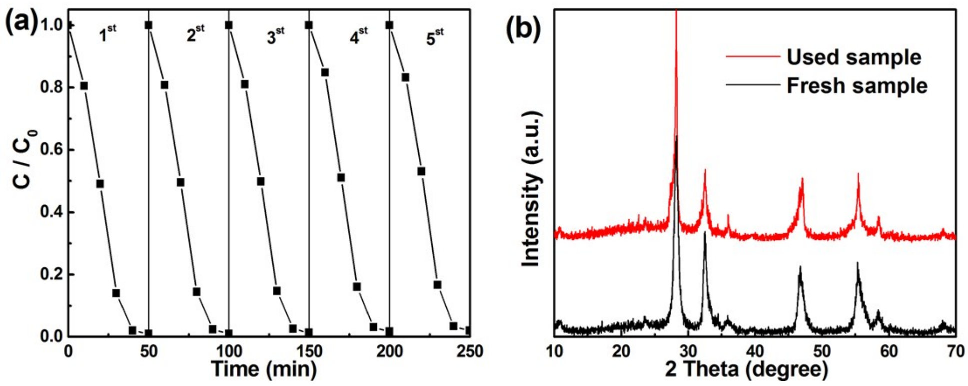

Fig. S6 Photocatalytic cycling runs of the M-Bi_2MoO_6 (a), XRD patterns of M-Bi_2MoO_6 before and after photo-degradation of RhB (b).

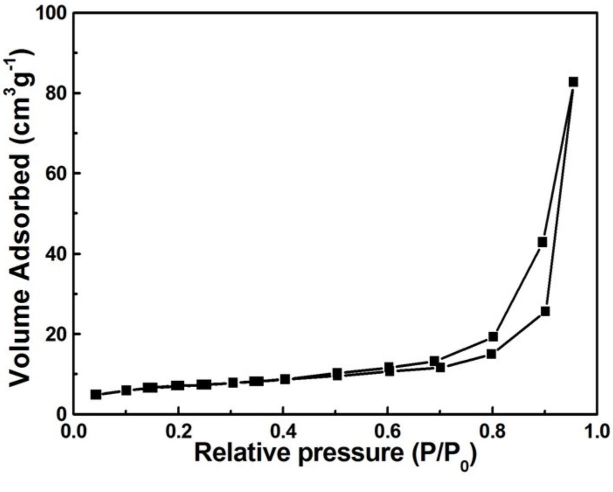

Fig. S7 N_2-sorption isotherm of M-Bi_2MoO_6 after photo-degradation of RhB.

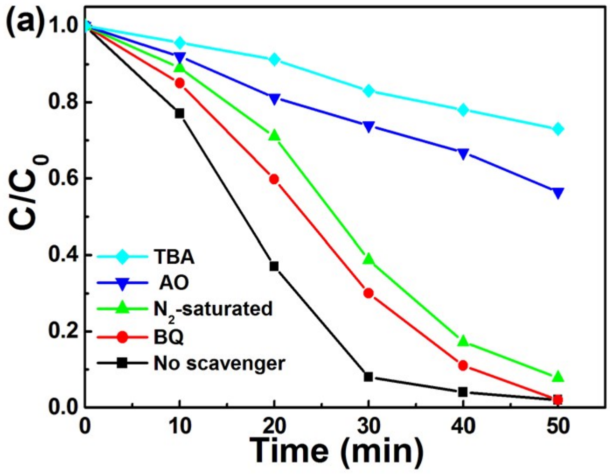

Fig. S8 Trapping experiments of active species during the photocatalytic degradation of RhB by M-Bi_2MoO_6under the simulated sunlight irradiation.

References

1. Z. F. Ye, Q. L. Zhao, M. H. Zhang, Y. C. Gao, *J. Hazard. Mater.,* 2011, 186, 1351.
2. N. Mohaghegh, E. Rahimi, M. R. Gholami, *Mater. Sci. Semicond. Process.*, 2015, 39, 506.