

## Supporting Information

### **Persimmon-Like (BiO)<sub>2</sub>CO<sub>3</sub> Microstructures: Hydrothermal Preparation, Photocatalytic Properties and their Conversion into Bi<sub>2</sub>S<sub>3</sub>**

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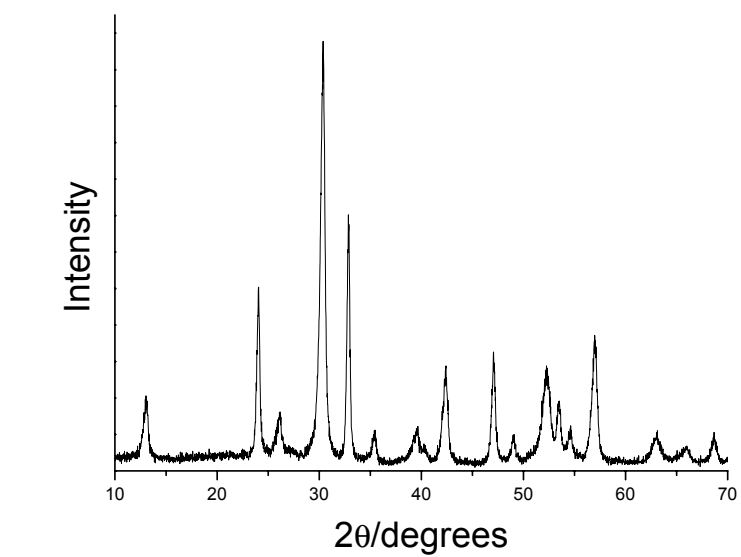
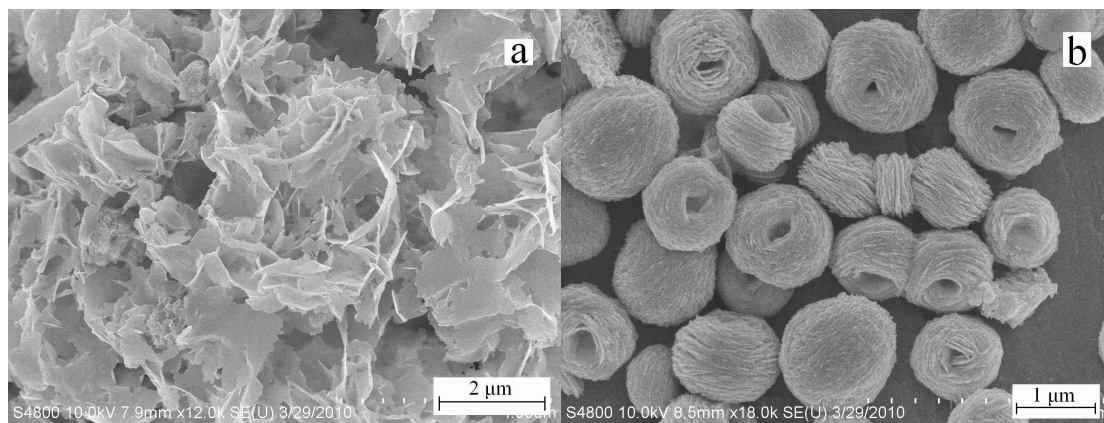


Fig. S1 FE-SEM images of  $(\text{BiO})_2\text{CO}_3$  obtained with different amount of  $\text{Na}_3\text{Cit}$ . (a) in the absence of  $\text{Na}_3\text{Cit}$ ; (b) with 1.5 mmol  $\text{Na}_3\text{Cit}$ . The XRD pattern of the product obtained in the absence of  $\text{Na}_3\text{Cit}$  (c).

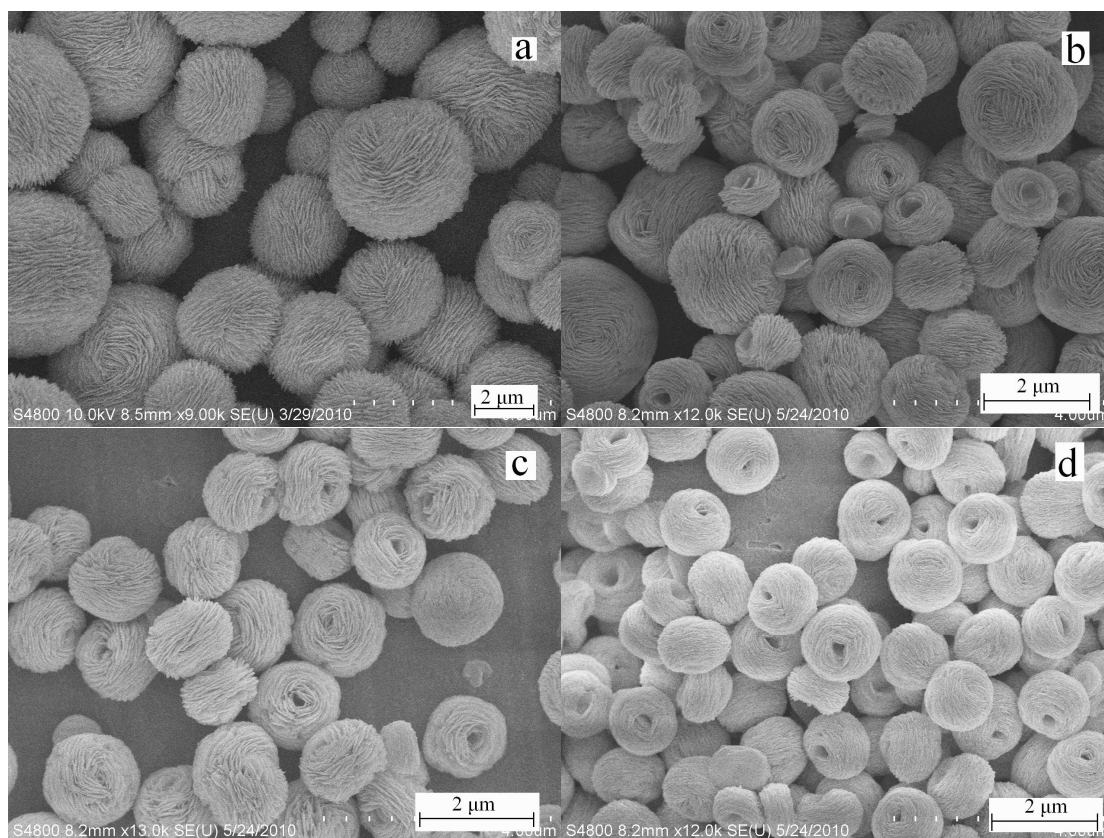


Fig. S2 FE-SEM images of  $(\text{BiO})_2\text{CO}_3$  obtained with different amount of PAM. (a) in the absence of PAM; (b) with 0.25 g PAM; (c) with 0.75 g PAM; and (d) with 1 g PAM.

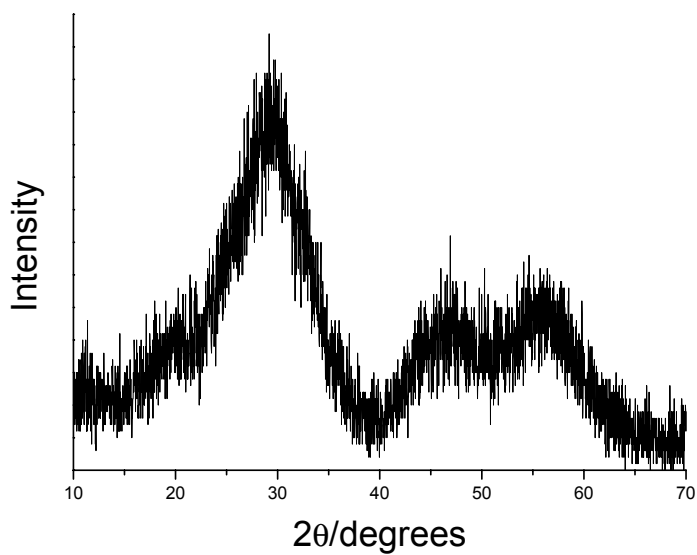
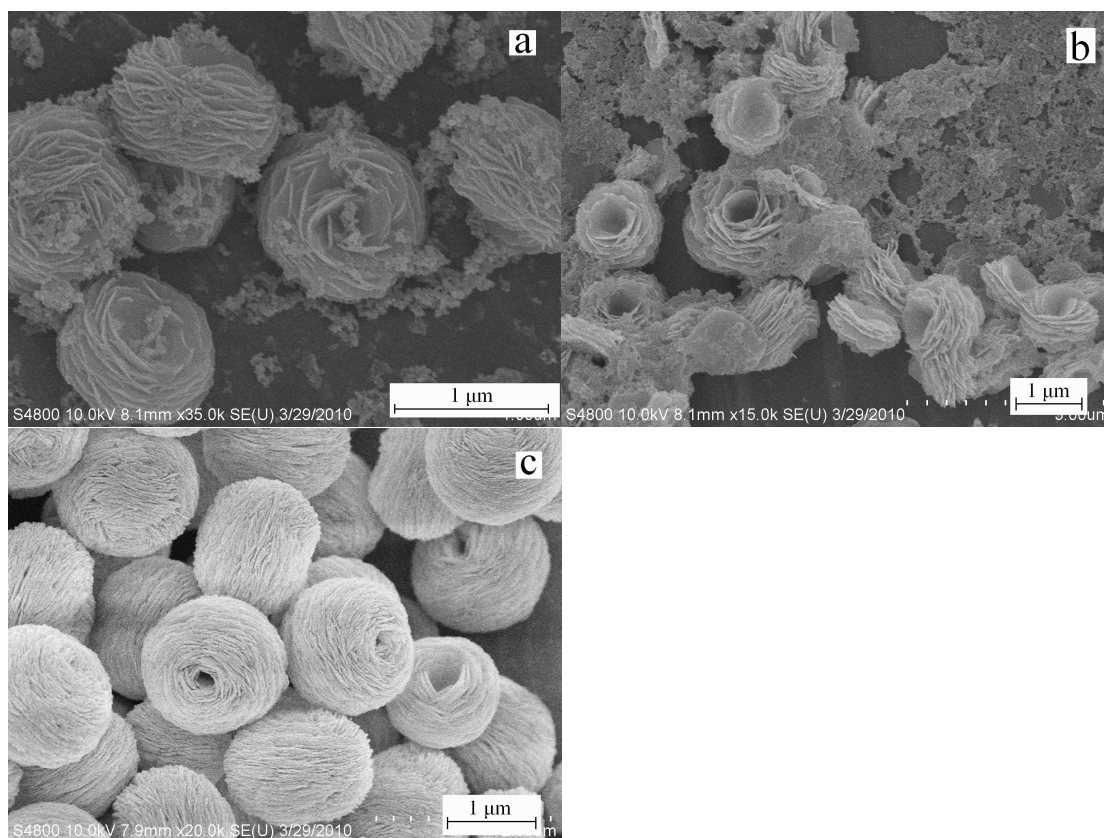


Fig. S3 FE-SEM images of  $(\text{BiO})_2\text{CO}_3$  obtained with different amount of urea. (a) in the absence of urea; (b) with 1.5 mmol urea; and (c) with 4.5 mmol urea. The XRD pattern of the product obtained in the absence of urea (e).



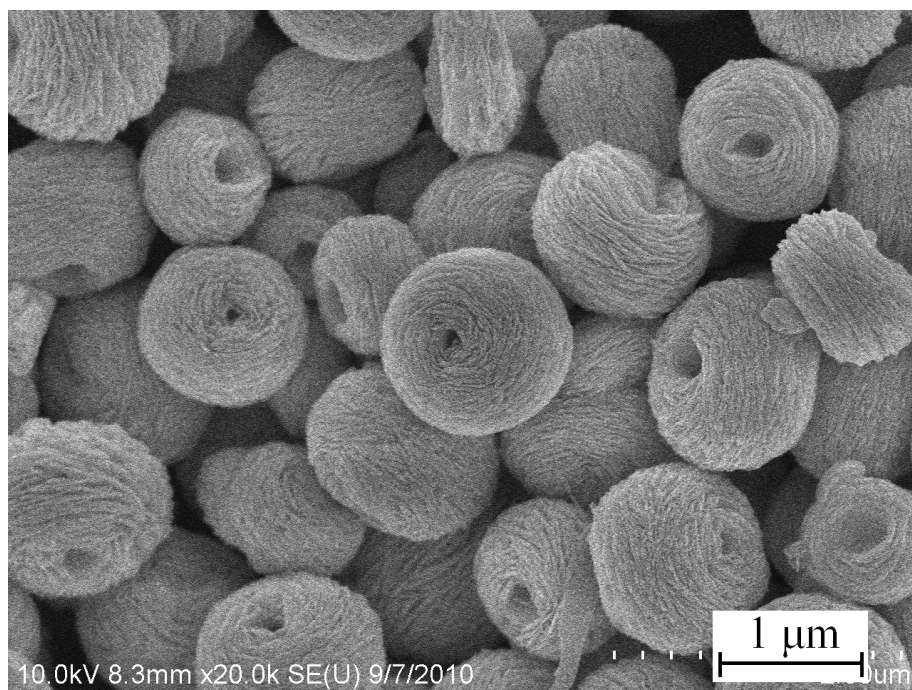


Fig. S4 FE-SEM image of persimmon-like  $(\text{BiO})_2\text{CO}_3$  at the end of the repeated photocatalysis experiment.