

Supporting Information

Fig. S1 The RhB concentration as a function of keeping time before UV irradiation over the flower-like product (prepared with 0.06 M CH_3COONa)

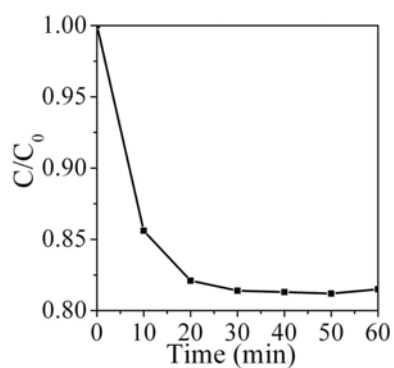


Fig. S2 SEM and XRD patterns of the products prepared with 0.15 M CH_3COONa .

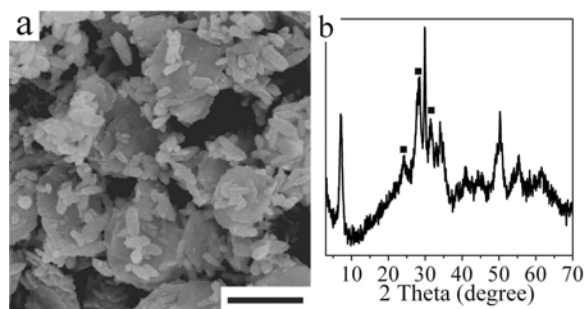


Fig. S3 TG curves of the samples obtained at different CH_3COONa concentrations.

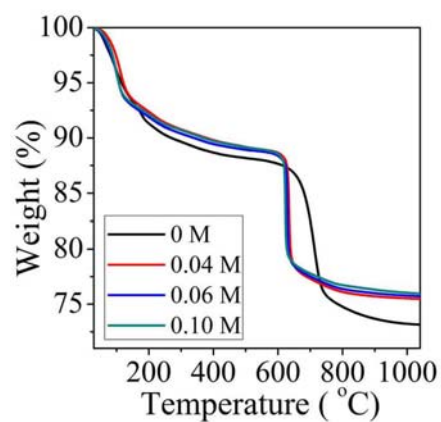


Fig. S4 SEM images of the products after calcination prepared at different CH_3COONa concentrations (a) 0, (b) 0.04 M, (c) 0.06 M, (d) 0.10 M, and XRD patterns of the corresponding products. Scale bar: 500 nm.

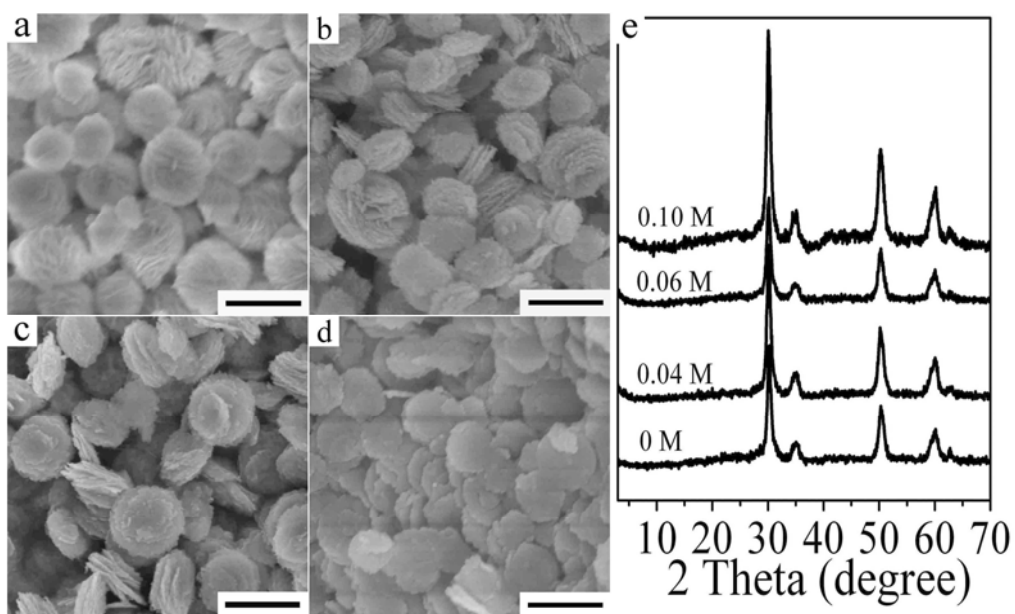


Fig. S5 SEM images of hydrothermal precursor prepared at different KOH concentrations: (a) 0.0, (b) 0.04 M, (c) 0.06 M, (d) 0.10 M. Scale bar: 500 nm.

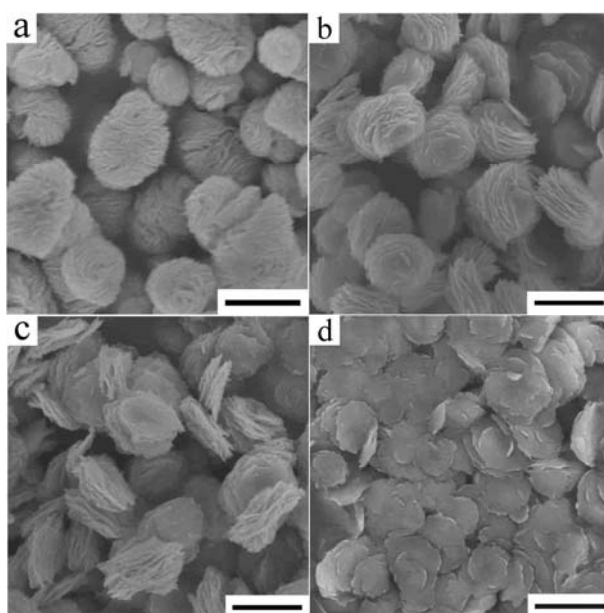
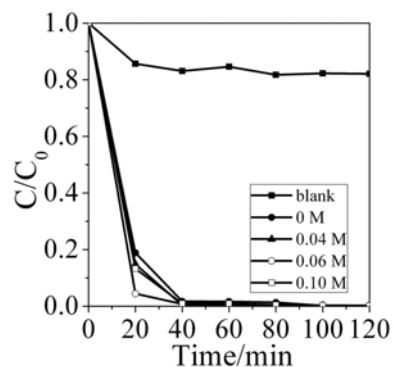


Fig. S6 The RhB concentration as a function of UV irradiation time over ZrO₂ products prepared at different CH₃COONa concentrations.



Preparation of tetragonal ZrO₂ nanoparticles: Tetragonal ZrO₂ nanoparticles were prepared according to the literature.¹¹ Initially, 2.58 g ZrOCl₂·8H₂O and 4.80 g urea were dissolved in 20.0 mL CH₃OH under stirring to form a colorless solution. The solution was transferred to a 20-mL Teflon-lined stainless steel autoclave, which was heated to 200 °C and maintained at that temperature for 20 h. The obtained white product was post-treated with sulphuric acid solution (0.167 mmol), and then calcined at 645 °C.

Fig. S7 TEM image and XRD pattern of tetragonal ZrO₂ nanoparticles.

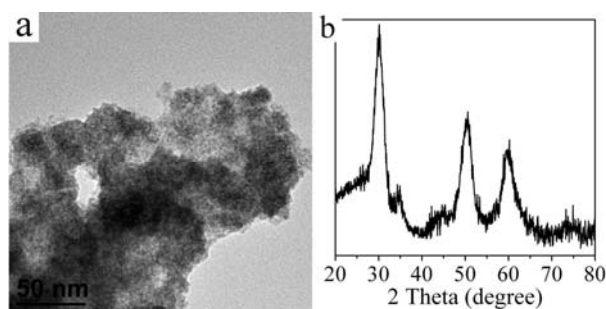


Fig. S8 UV-vis absorption spectra of the flower-like product (prepared with 0.06 M CH₃COONa) and ZrO₂ nanoparticles.

