

Supporting Information

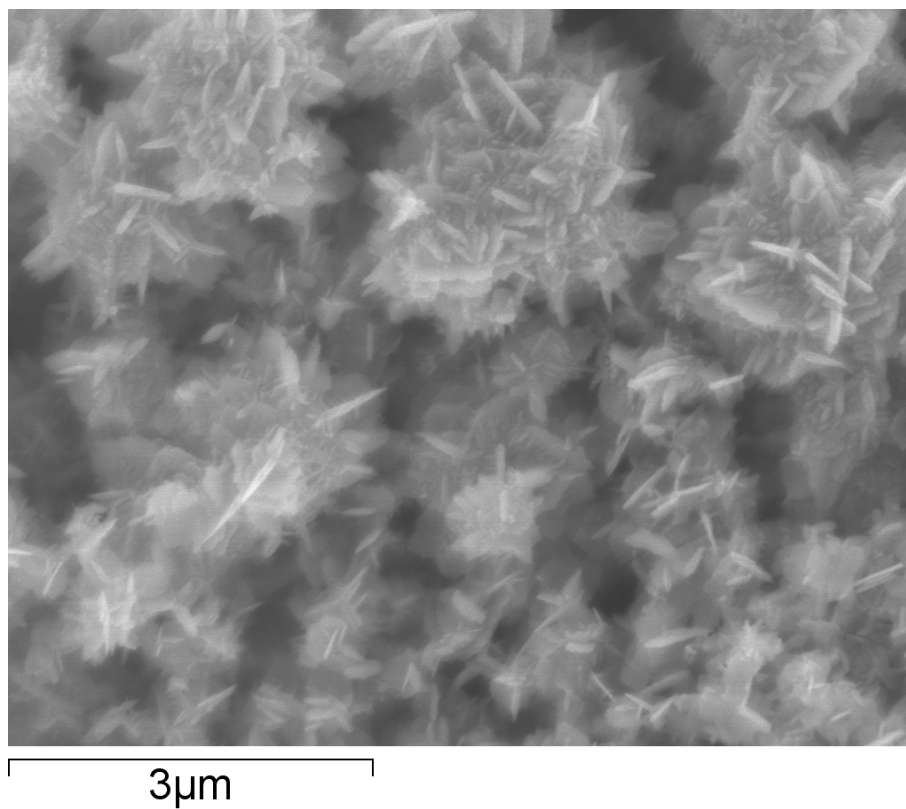


Fig. S1. SEM image of ZnO 3D hierarchical structure synthesized in 4.0 mol L⁻¹ KOH solution for 30 min. It shows that the coexistence of nanoneedles and nanosheets in the product.

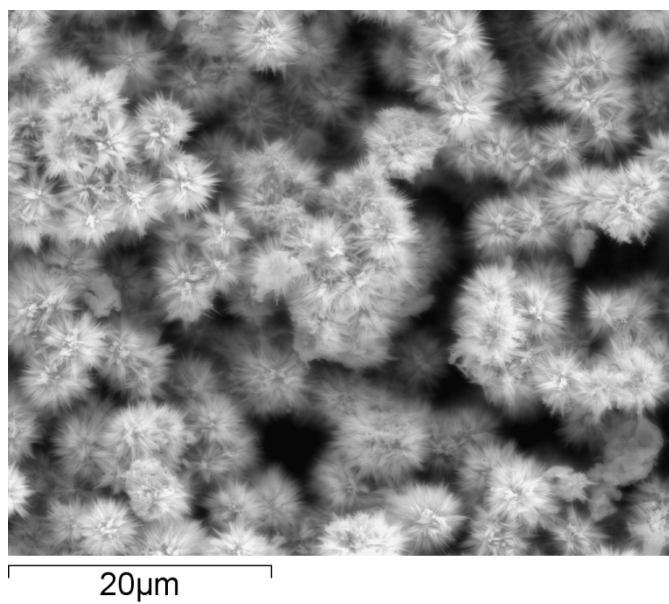


Fig. S2. SEM image of ZnO 3D hierarchical structure synthesized in 8.0 mol L⁻¹ KOH solution for 30 min without using zinc foil.

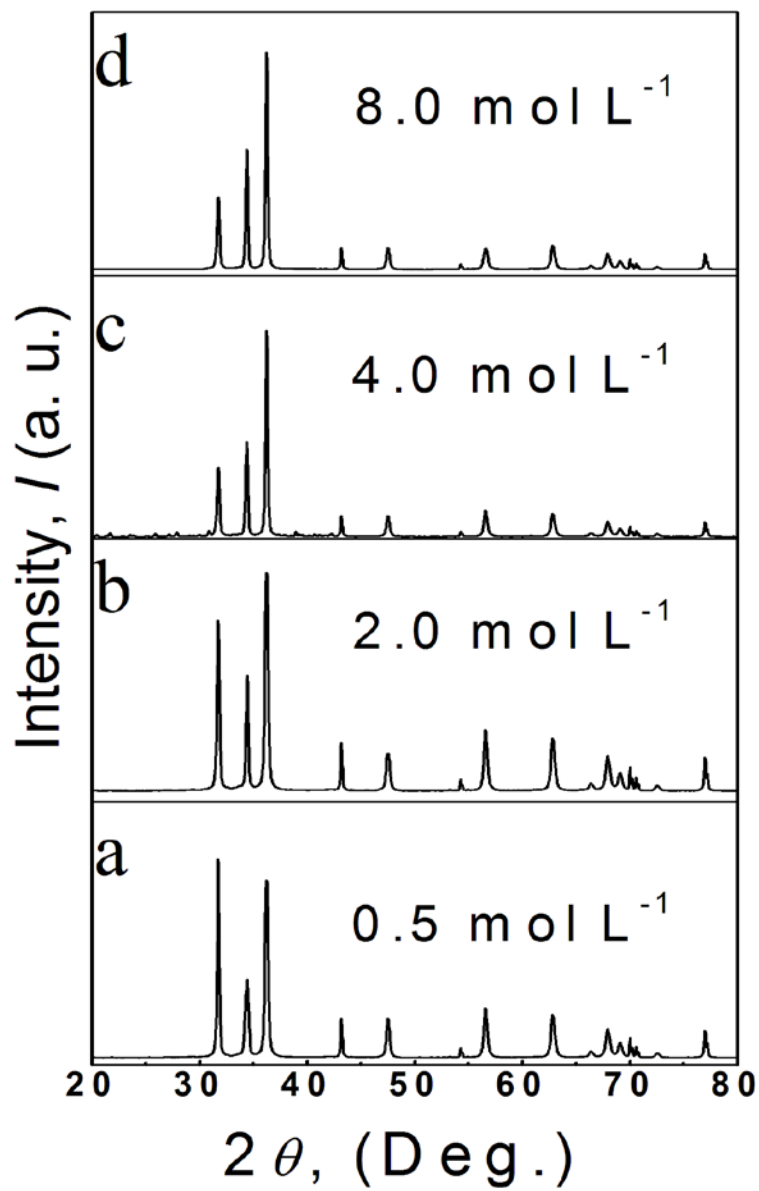


Fig. S3 XRD pattern of the ZnO product obtained at room temperature using different KOH concentrations.

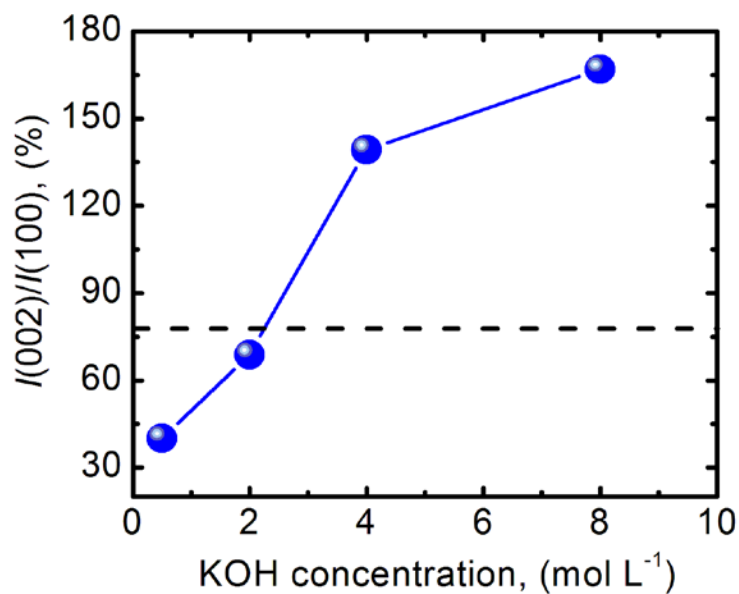


Fig. S4. Change in the relative ratio of the (002) peak intensity to that of the (100) peak with the KOH concentrations. The dash line in the figure is for the value from standard card.

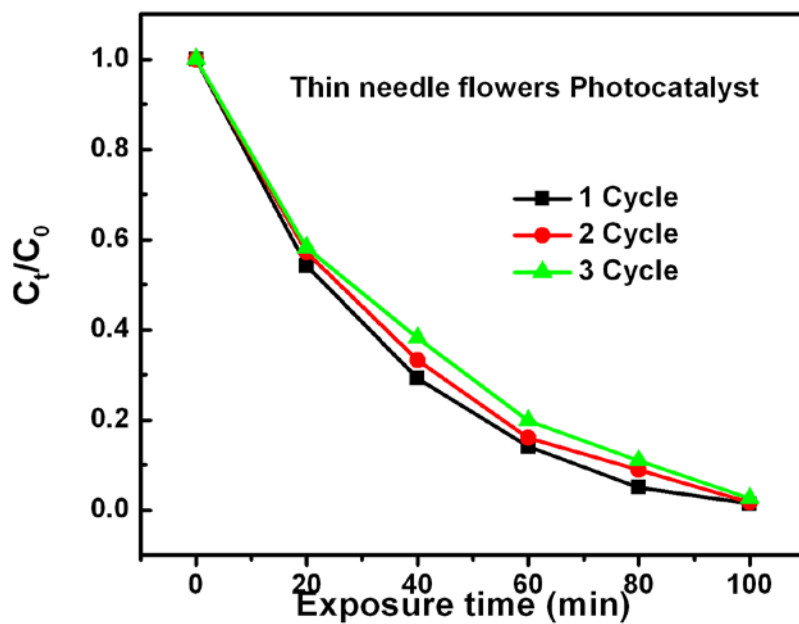


Fig. S5. Time profile of the change in concentration of RhB aqueous solution for the three cycles in the presence of ZnO thin needle flowers structure as photocatalyst.

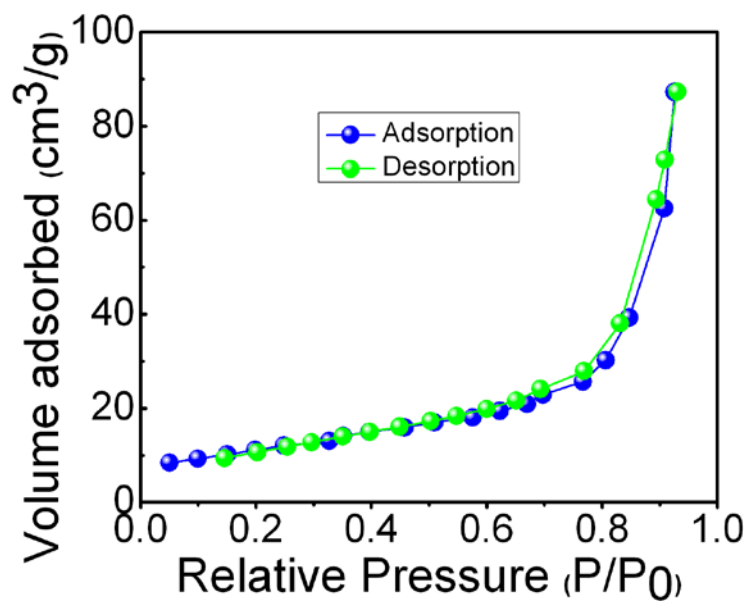


Figure S6. Adsorption-desorption isotherm of the sheet flower sample

Table 1.

KOH concentration	I (002)	I (100)	I (002)/ I (100) (%)
0.5 mol L ⁻¹	15445	38679	39.9
2.0 mol L ⁻¹	18702	27220	68.7
4.0 mol L ⁻¹	58378	41904	139.3
8.0 mol L ⁻¹	42296	25340	166.9
Standard card	44	57	77.2