Synthesis, Structure, Magnetism and Photocatalysis of α-Fe_2O_3 Nanosnowflakes *

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A list of the contents for all the Supporting Information

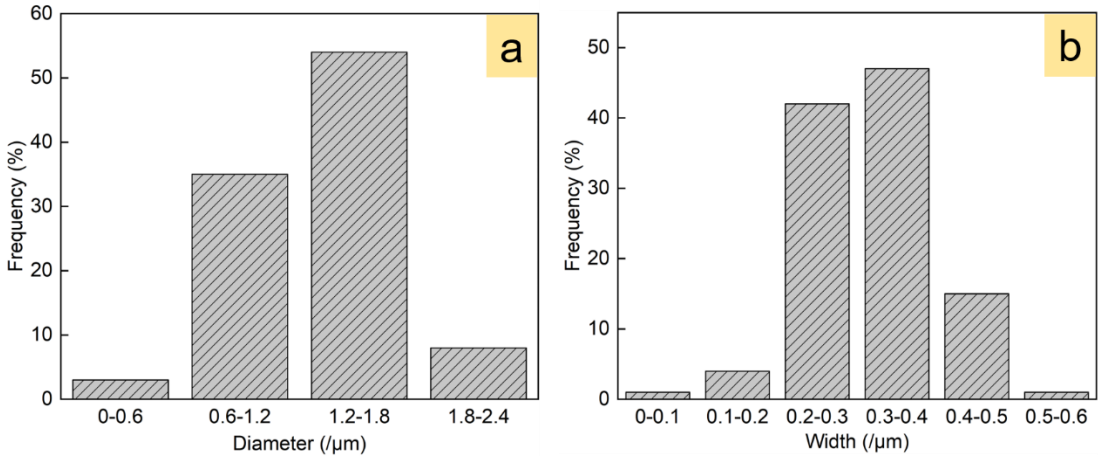

Figure S1. (a) The average diameter size distribution of the compelete nanosnowflakes; (b) the average width size distribution of the petals.

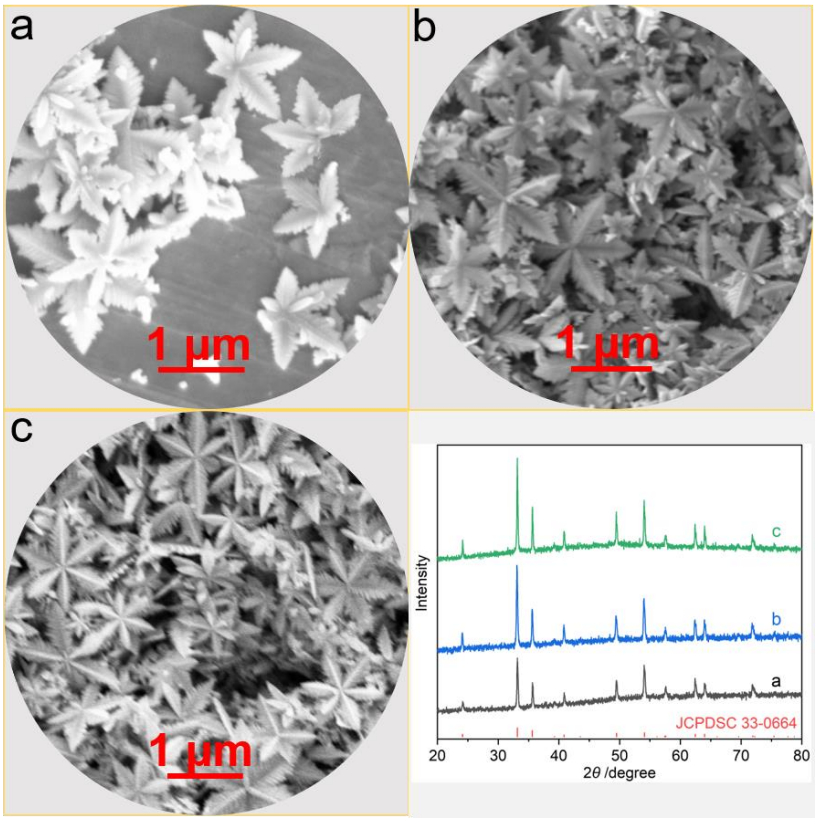

Figure S2. The SEM images and XRD patterns of the α-Fe_2O_3 samples obtained by a hydrothermal process of a) PVP/PF-3, b) -4 and c) -6 at 393 K for 6 h.

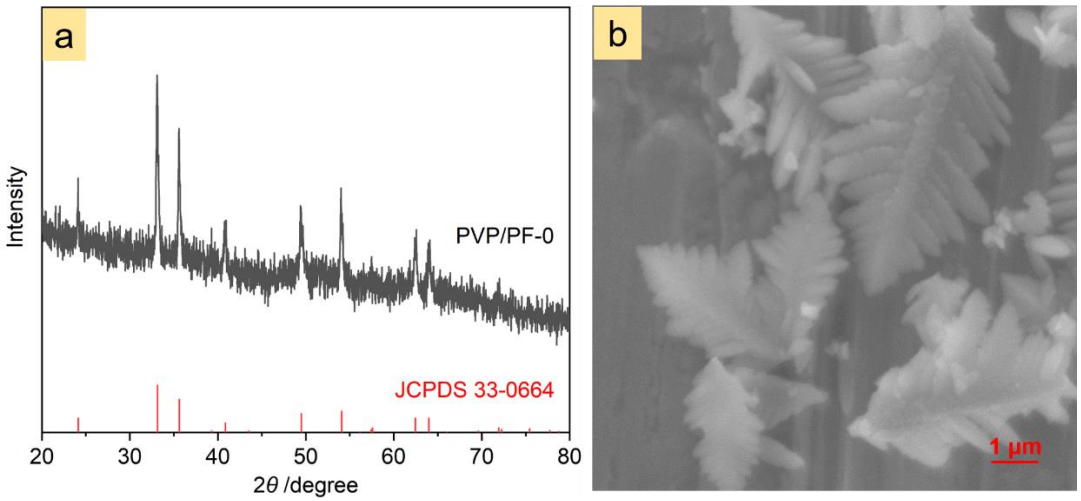

Figure S3. (a) The XRD pattern and (b) FE-SEM of the α-Fe_2O_3-2 crystal with a branched dendritic-like nanostructure obtained from the hydrothermal process of the PVP/PF-0.

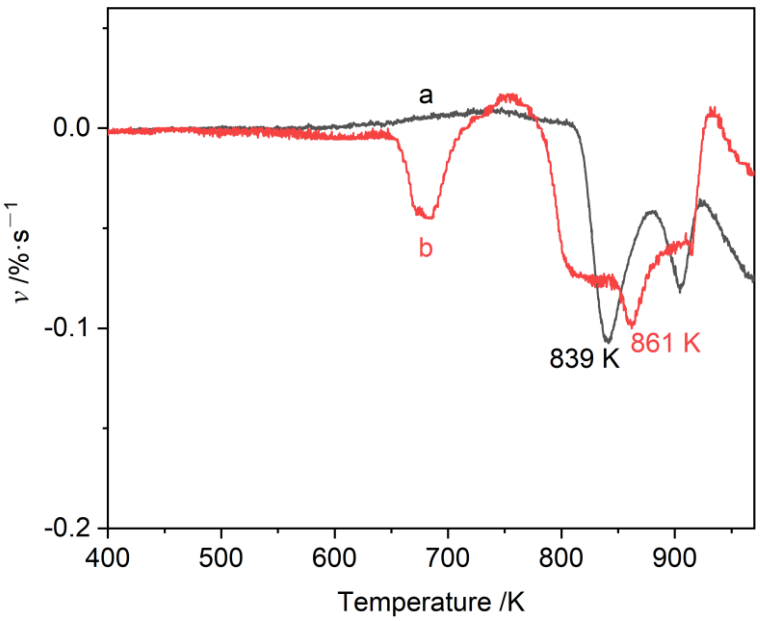

Figure S4. The fractional mass loss per second (v, %·s^{-1}) as a function of temperature for (a) PF and (b) PVP/PF-5 at heating rate of 10 K·min^{-1}.

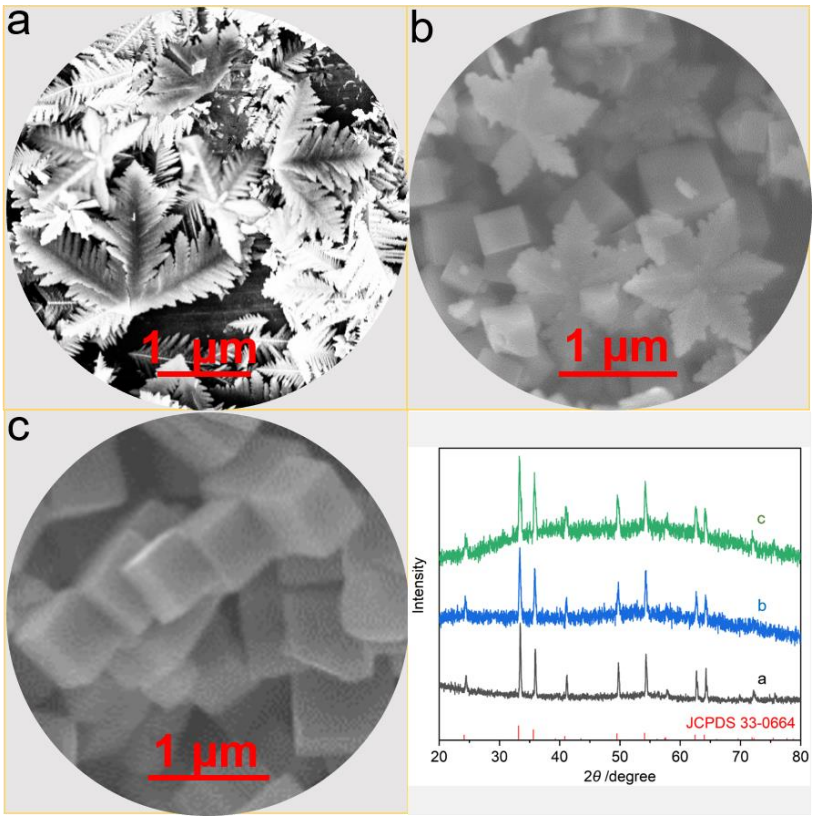

Figure S5. The SEM images and XRD patterns of the α-Fe_2O_3 samples obtained by a hydrothermal process of PVP/PF-5 for 6 h at a) 373, b) 413 and c) 433 K.

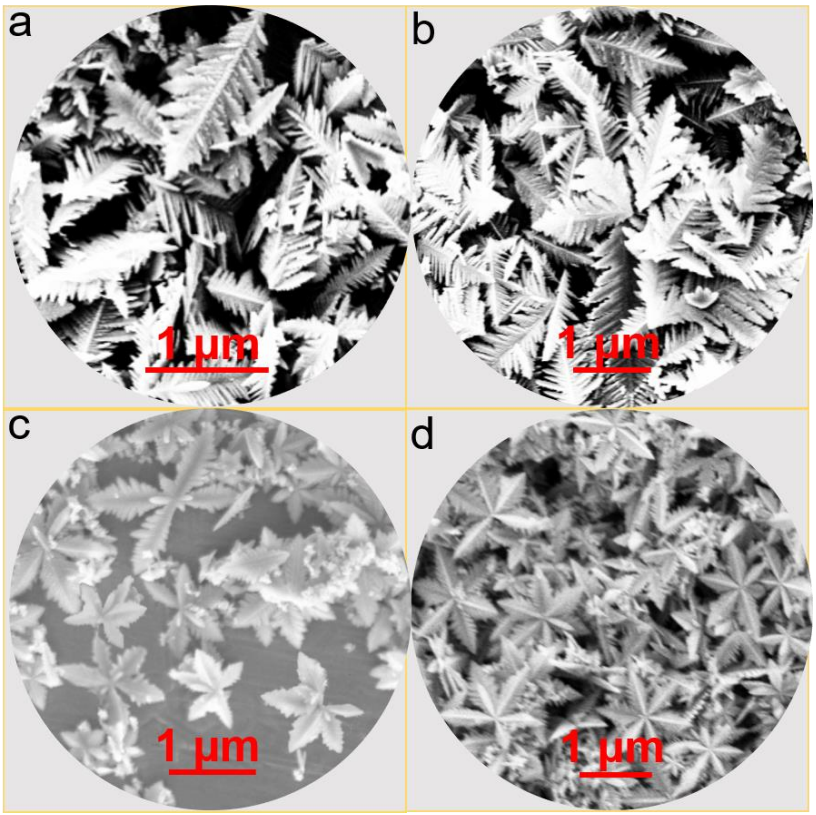

Figure S6. The SEM images of the α-Fe_2O_3 samples obtained by a hydrothermal process of PVP/PF-5 at 393 K for a) 3, b) 4, c) 5 and d) 7 h.

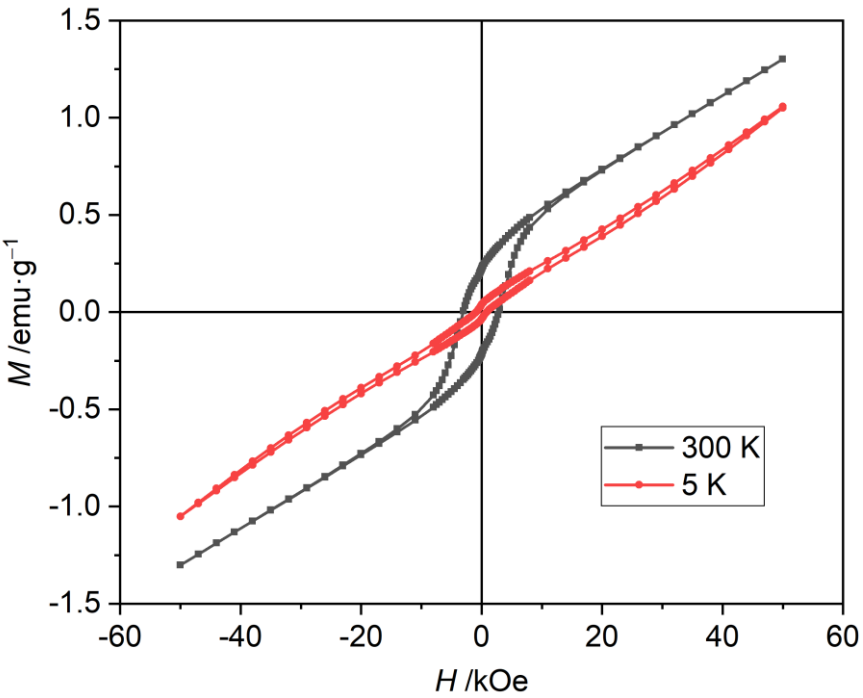

Figure S7. The field dependence of magnetization at 5 and 300 K of the α-Fe_2O_3-2.

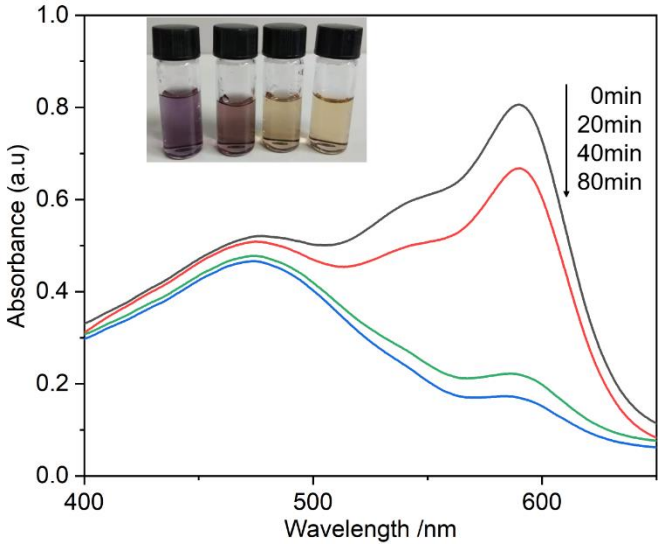

Figure S8. The absorption spectra of the mixed dyes (MO and CV) solutions on the α-Fe_2O_3-1 in the presence of H_2O_2 with different illumination times: 0~80 min. 20 mg of the α-Fe_2O_3-1 was added to a solution of the mixed dyes (40 mL MO and 40 mL CV, 10 mg·L^{-1}).

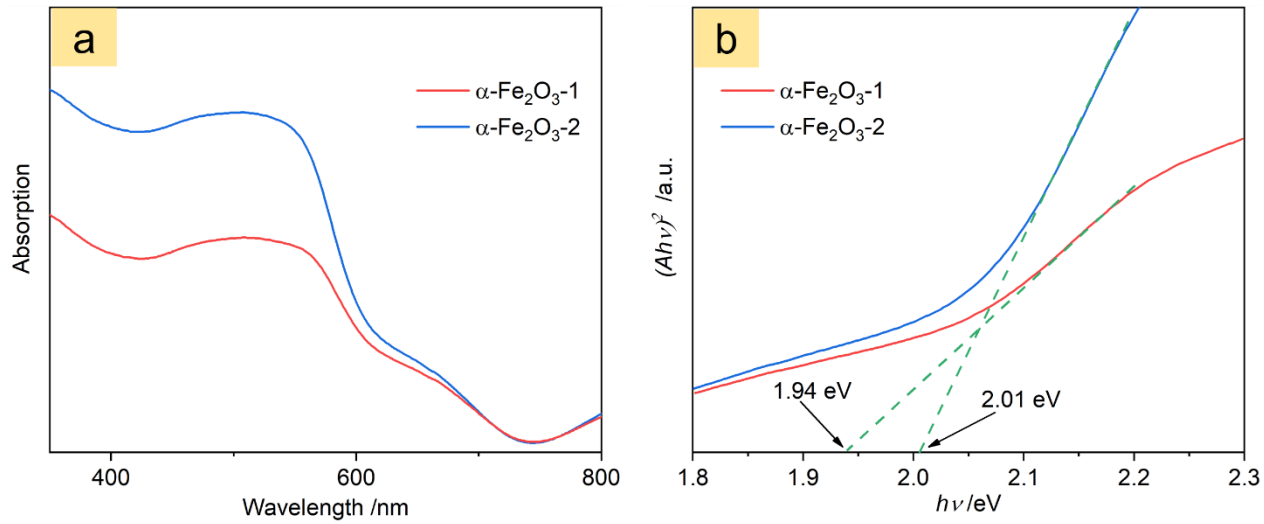

Figure S9. The room temperature UV/Vis DRS (a) and plots of $(Ahv)^2$ *vs* hv (b) of the α-Fe_2O_3-1 and -2.

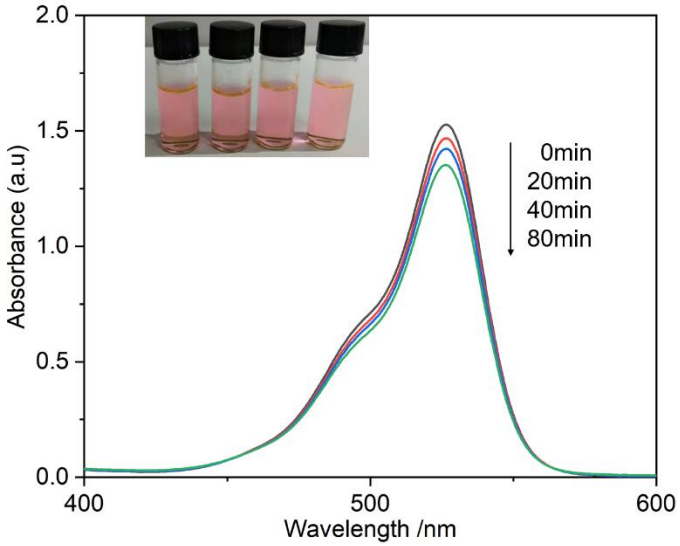

Figure S10. The absorption spectra of R6G on the α-Fe_2O_3-1 in the absence of H_2O_2 with different illumination times: 0~80 min.