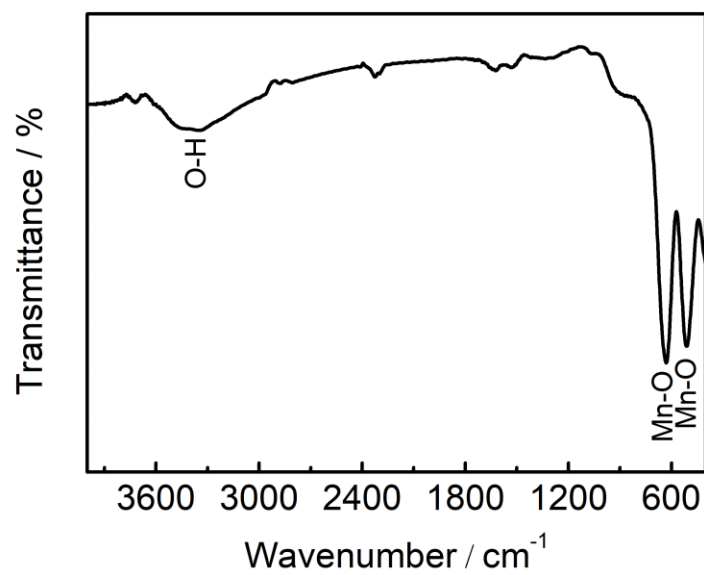
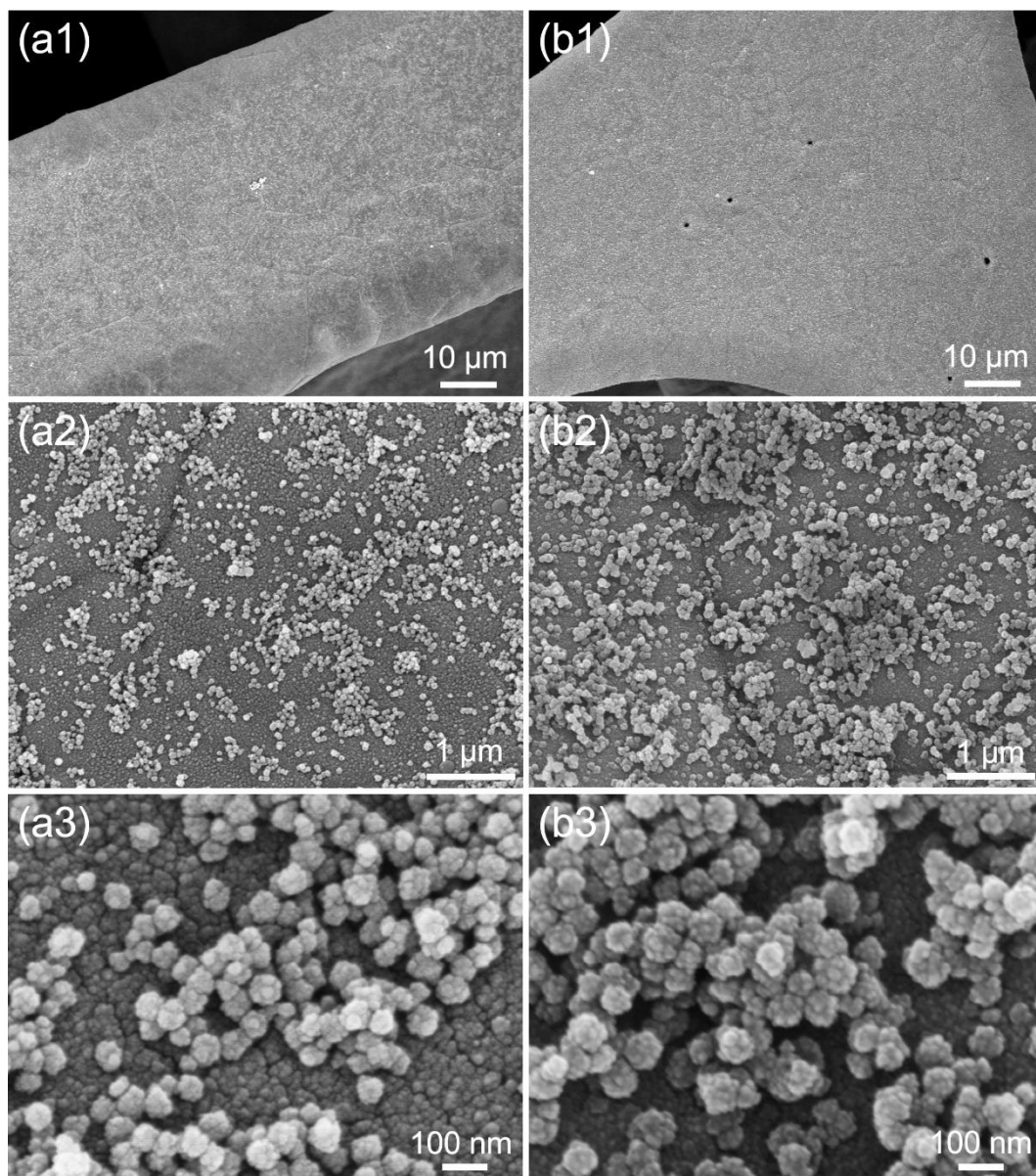


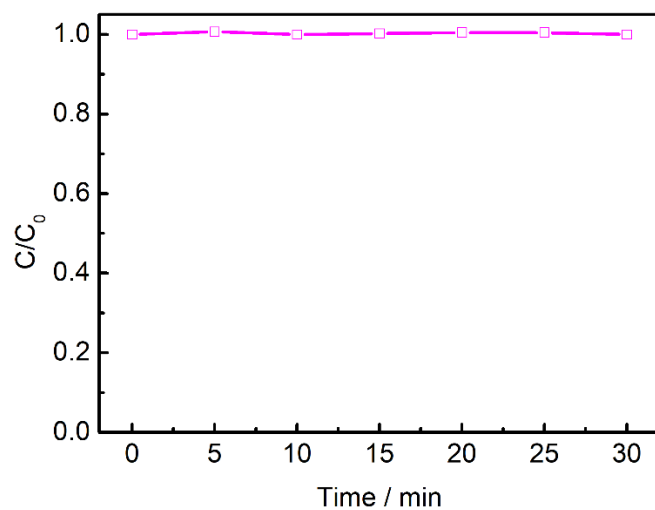
## Supplementary Information



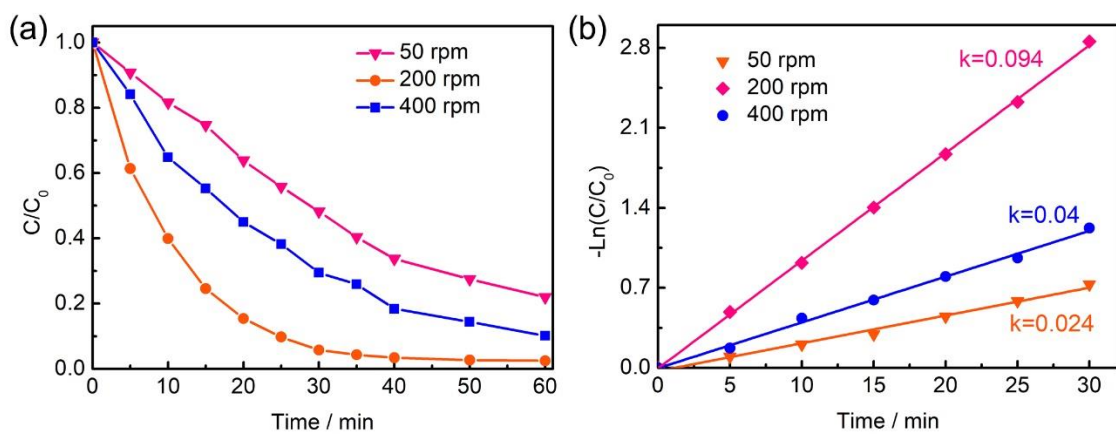
**Figure S1.** FT-IR spectrum of the as-prepared Mn<sub>3</sub>O<sub>4</sub> sample.



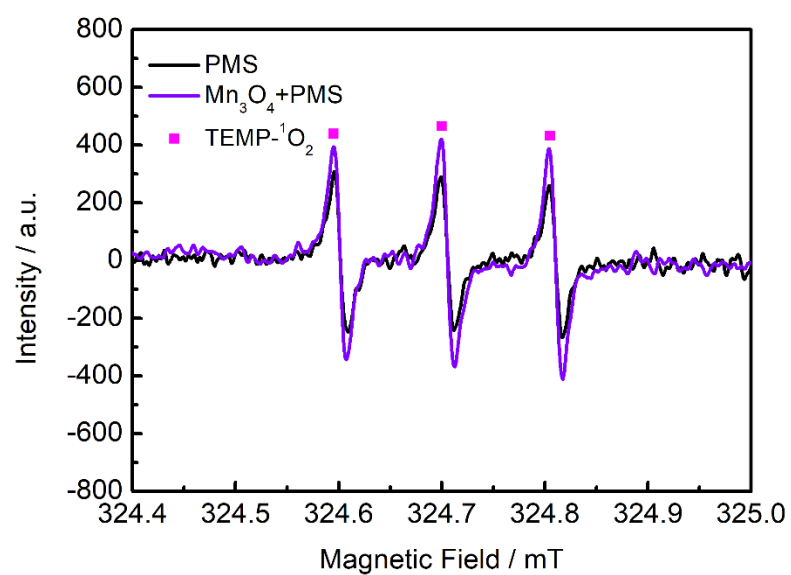
**Figure S2.** SEM images of (a1-a3) Mn<sub>3</sub>O<sub>4</sub>/NF-0.12 and (b1-b3) Mn<sub>3</sub>O<sub>4</sub>/NF-0.24.



**Figure S3.** The adsorption of AO7 on  $\text{Mn}_3\text{O}_4/\text{NF-0.48}$ .



**Figure S4.** (a) AO7 degradation efficiency and (b) kinetic curves of  $\text{Mn}_3\text{O}_4/\text{NF-0.48}/\text{PMS}$  system under different stirring rates. Conditions:  $[\text{AO7}]_0=20 \text{ mg/L}$ ,  $[\text{oxone}]_0=1 \text{ mM}$ .



**Figure S5.** EPR spectra of Mn<sub>3</sub>O<sub>4</sub>/NF-0.48/PMS system captured by TEMP.