Electronic Supplementary Information

Fabrication of highly visible-light-responsive $ZnFe_2O_4/TiO_2$ heterostructures for the enhanced photocatalytic degradation of organic dyes

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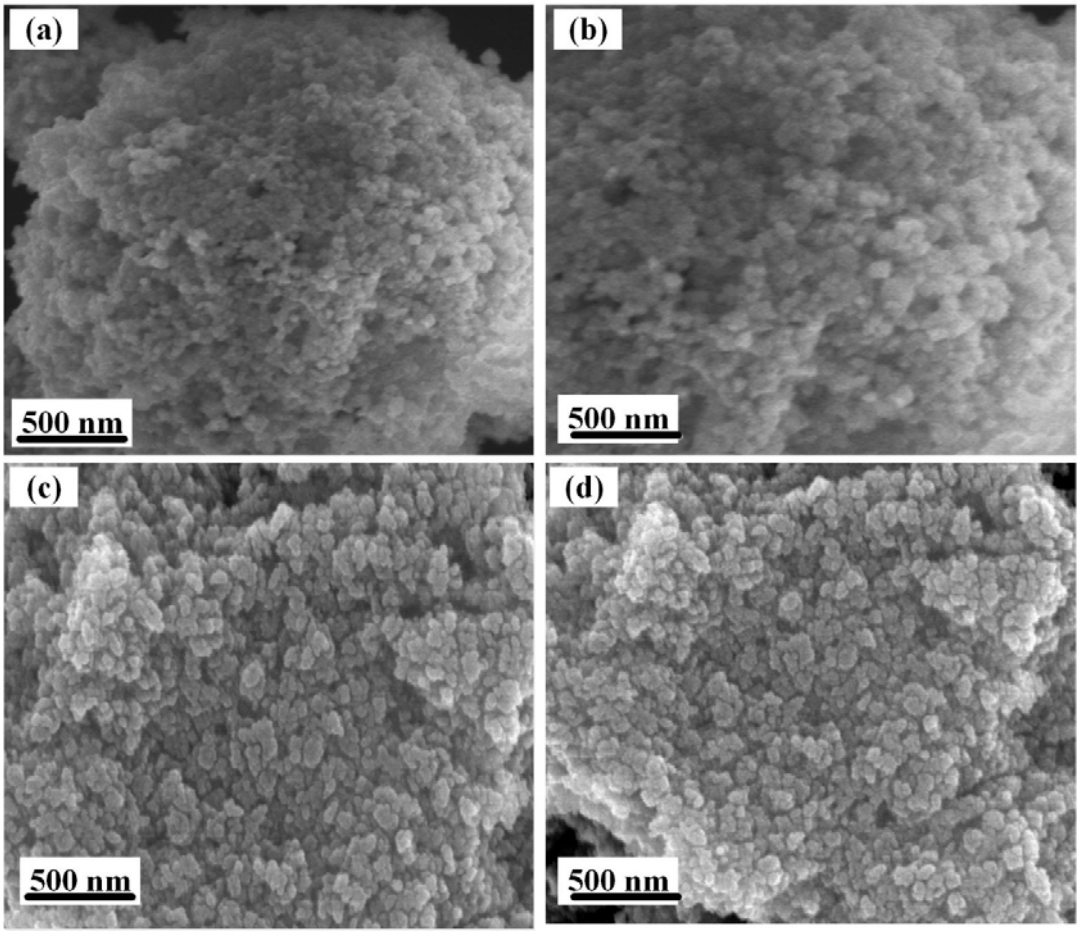

Fig. S1. SEM images of $ZnFe_2O_4$-TiO_2 nanocomposites at various $ZnFe_2O_4$ loadings of (a) 0.2, (b) 0.5 (c) 1 and (d) 2 wt%.

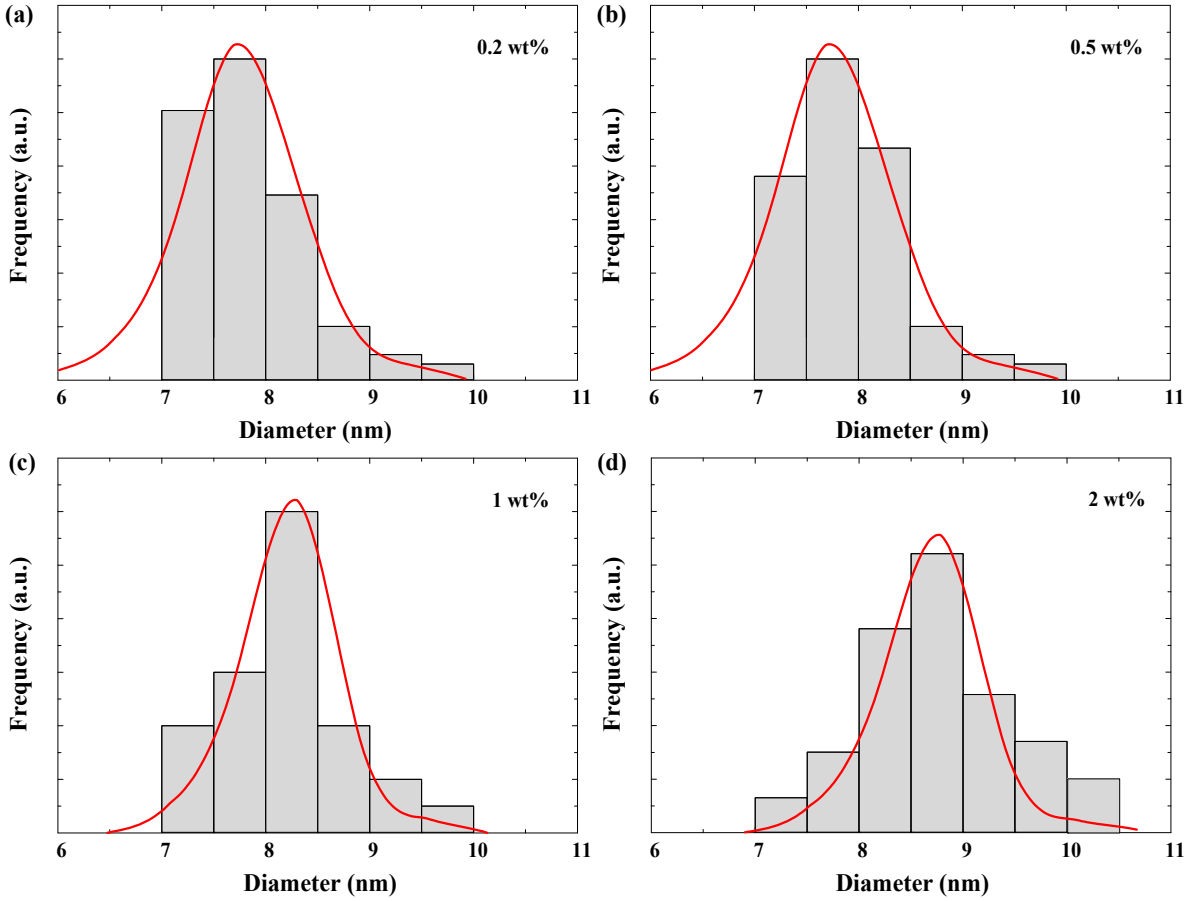

Fig. S2. Particle size distribution histogram of (a) 0.2, (b) 0.5, (c) 1 and 2 wt% $ZnFe_2O_4$-TiO_2 nanocomposites.

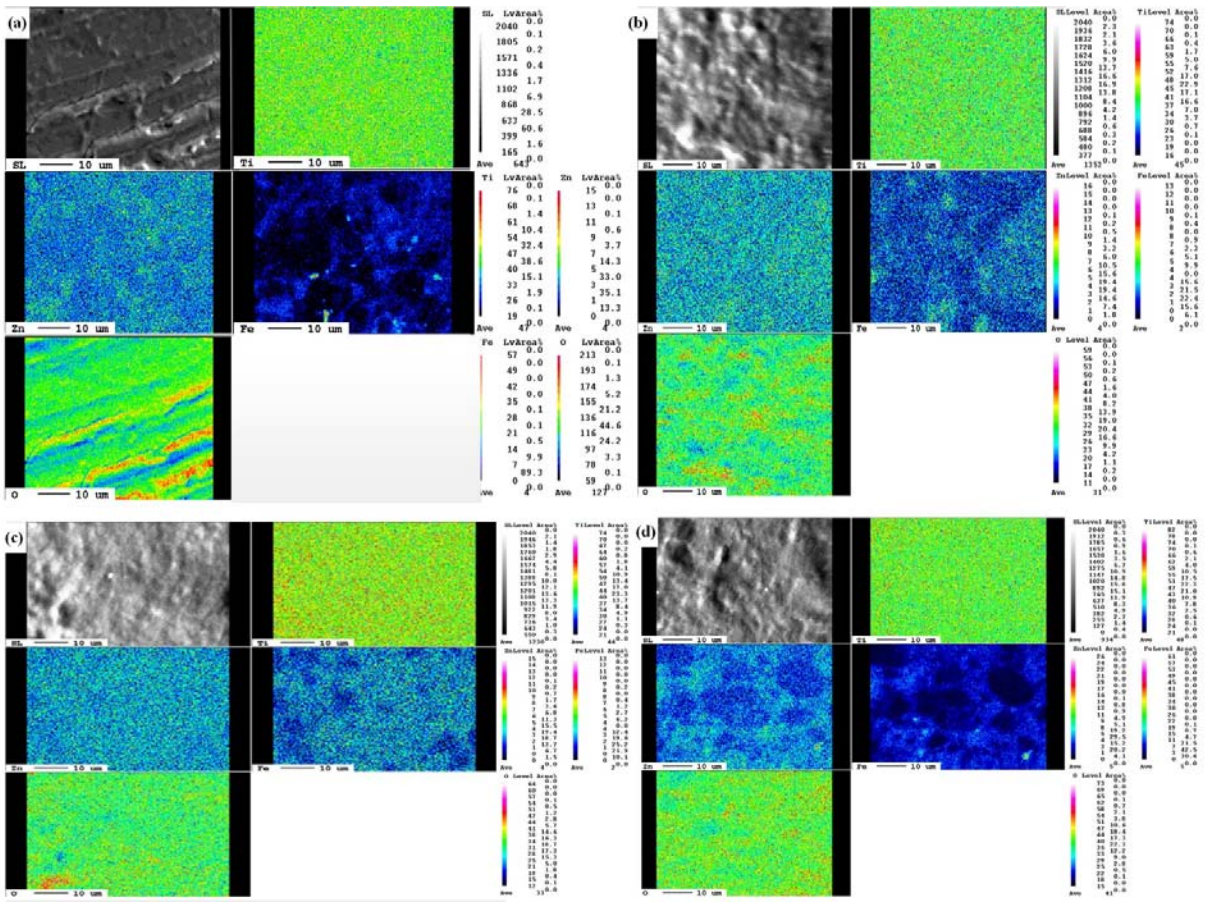

Fig. S3. EPMA images of $ZnFe_2O_4$-TiO_2 nanocomposites at various $ZnFe_2O_4$ loadings of (a) 0.2, (b) 0.5, (c) 1 and (d) 2 wt%.

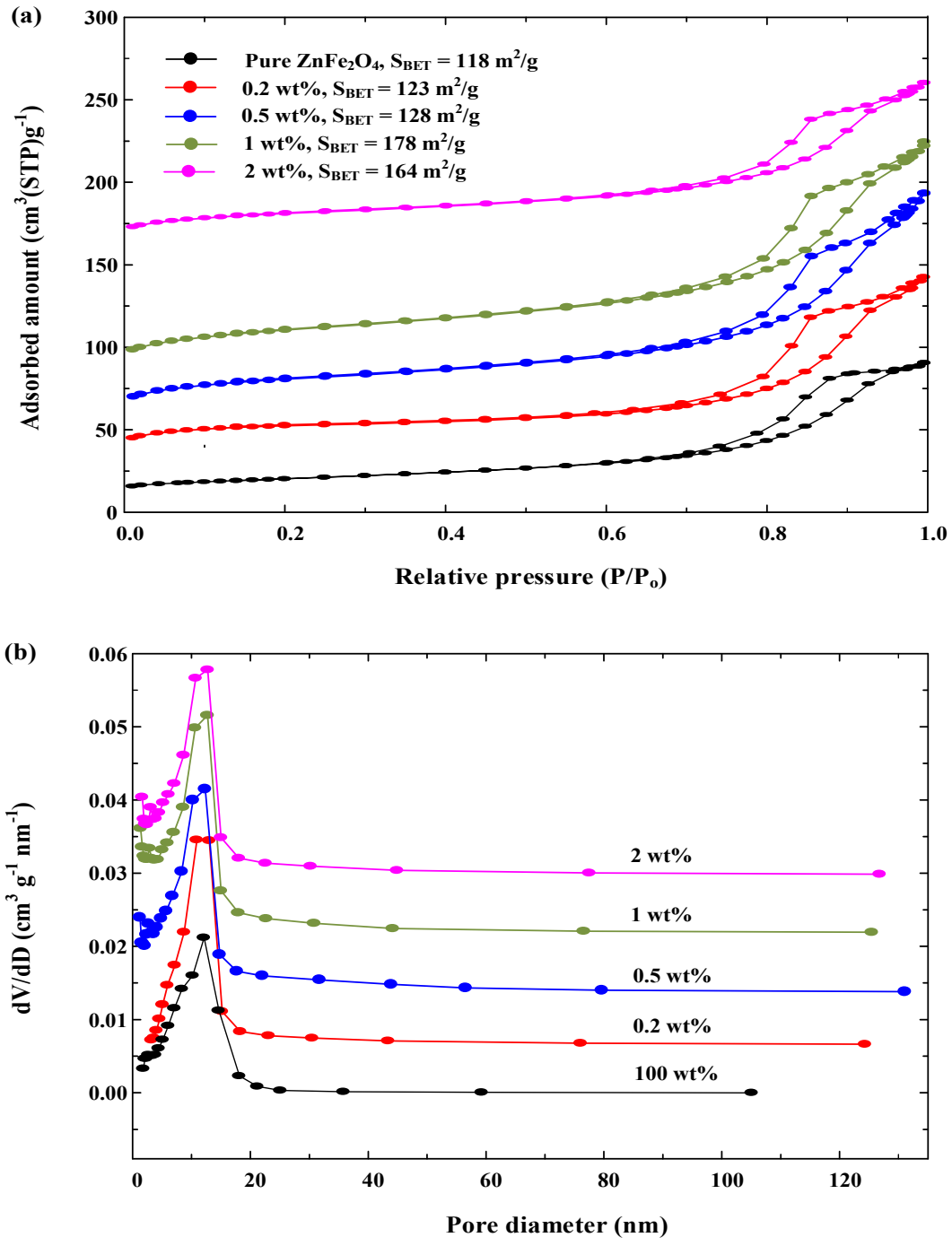

Fig. S4. (a) Nitrogen adsorption-desorption isotherms and (b) pore size distribution of $ZnFe_2O_4$ and $ZnFe_2O_4$-TiO_2 nanocomposites at various loadings of 0.2-2 wt%.

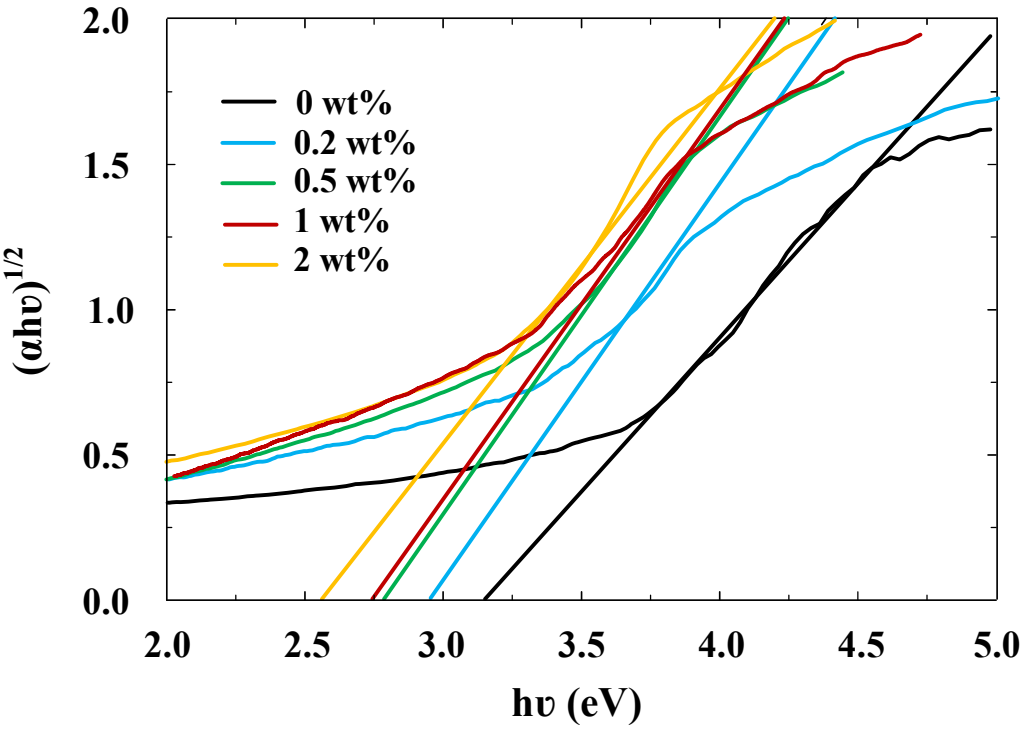

Fig. S5. Plots of $(\alpha h\upsilon)^{1/2}$ vs. photon energy $h\upsilon$.

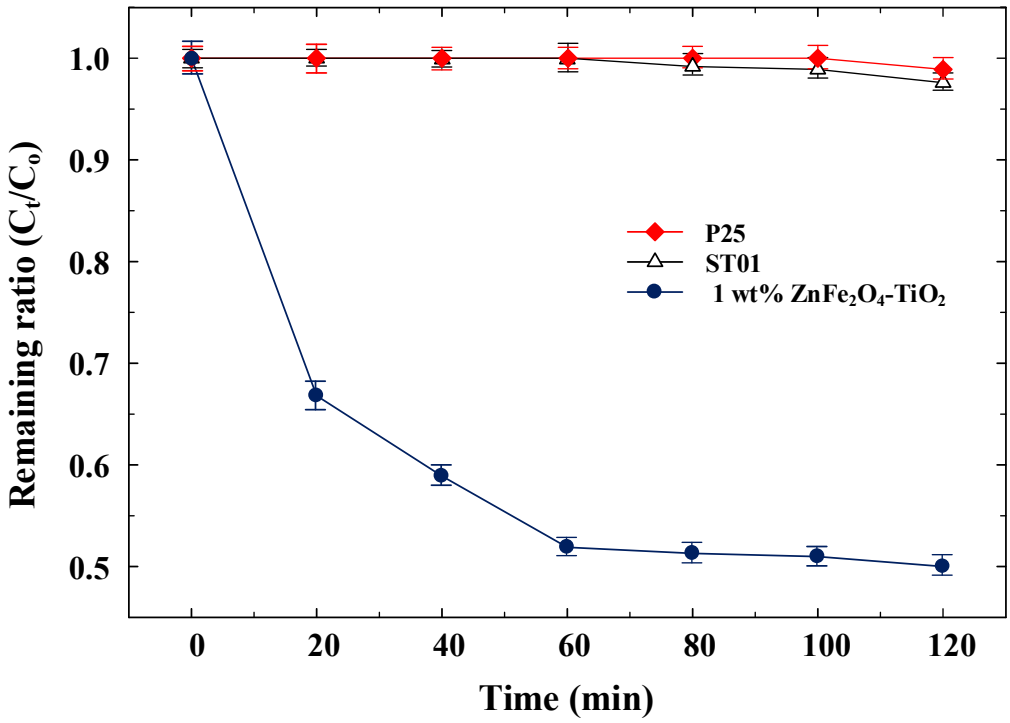

Fig. S6. The adsorption of RhB by various TiO_2-based nanomaterials.

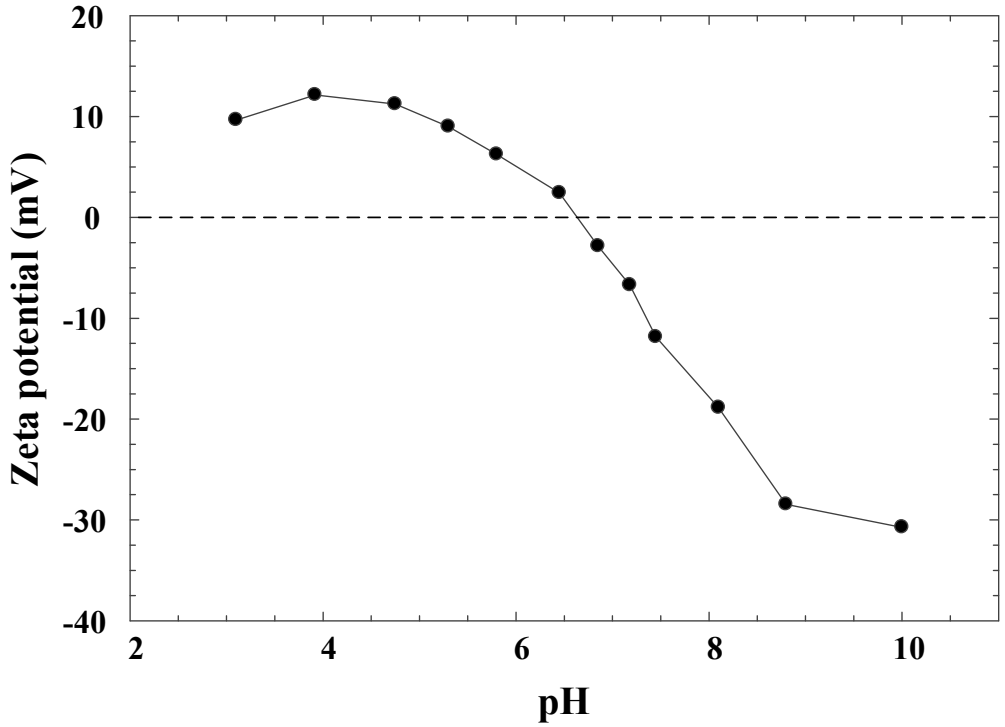

Fig. S7. Zeta potential of 1 wt% $ZnFe_2O_4$-TiO_2 as a function of pH value

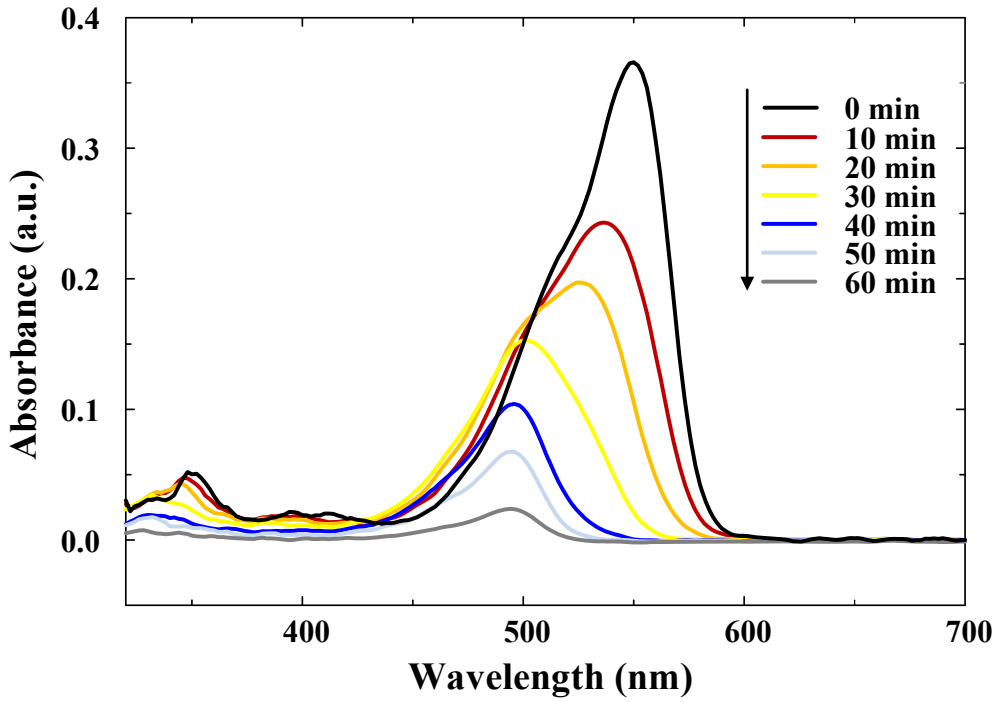

Fig. S8. UV-Vis absorption spectra of RhB in the presence of 1 wt% $ZnFe_2O_4$-TiO_2 at different photocatalytic degradation times.

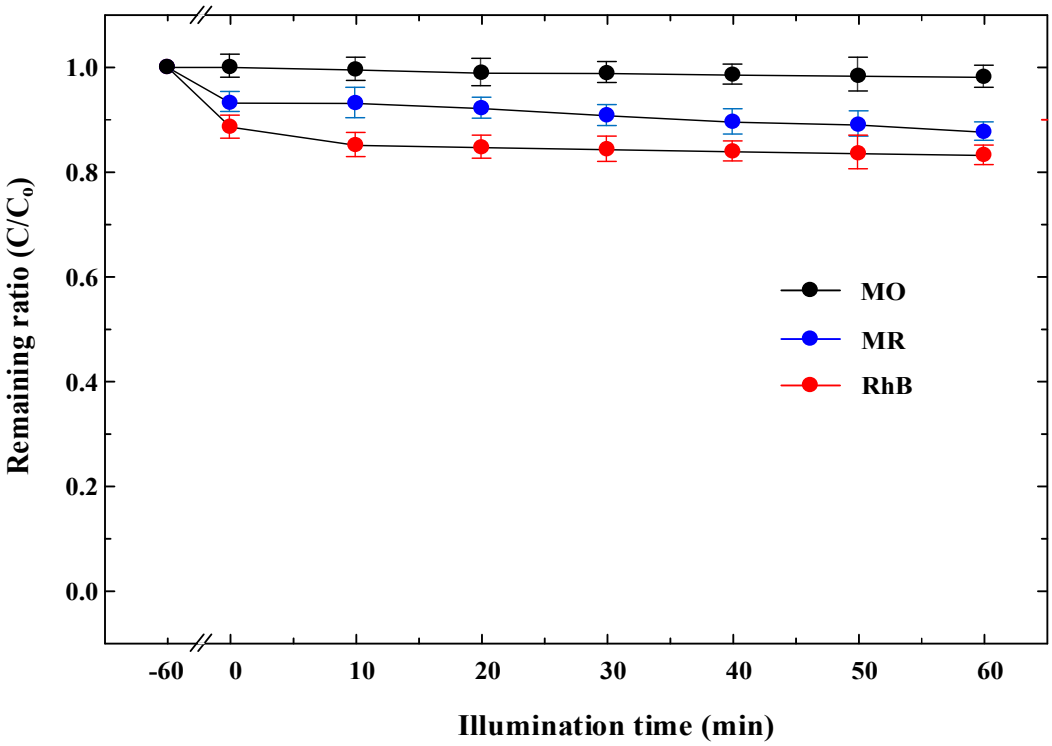

Fig. S9. Photocatalytic activity of $ZnFe_2O_4$ toward dyes decomposition.

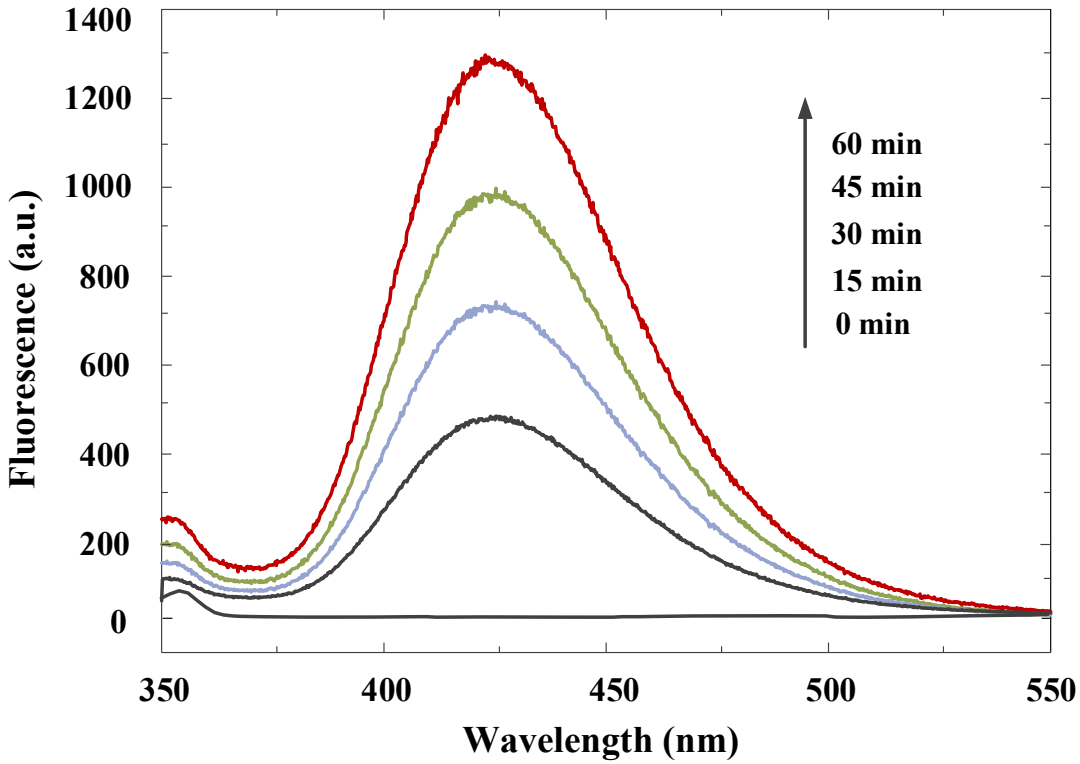

Fig. S10. Change in PL spectra with irradiation time for 1 wt% $ZnFe_2O_4$-TiO_2 in a 5×10^{-4} M basic solution of terephthalic acid (excitation at 315 nm) under visible light irradiation.