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New Journal of Chemistry

Supporting Information

Fabrication of hybrid phase TiO_2/g-C_3N_4 heterojunction composite with enhanced adsorption and photocatalytic degradation of MB under visible light

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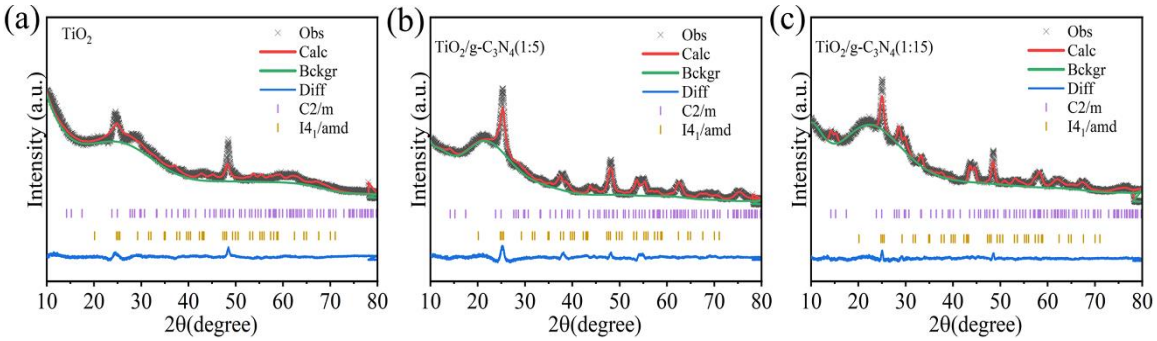

Fig. S1. Rietveld refinement of (a)TiO_2, (b) TiO_2/g-C_3N_4(1:5) and (c)TiO_2/g-C_3N_4(1:15) composite.

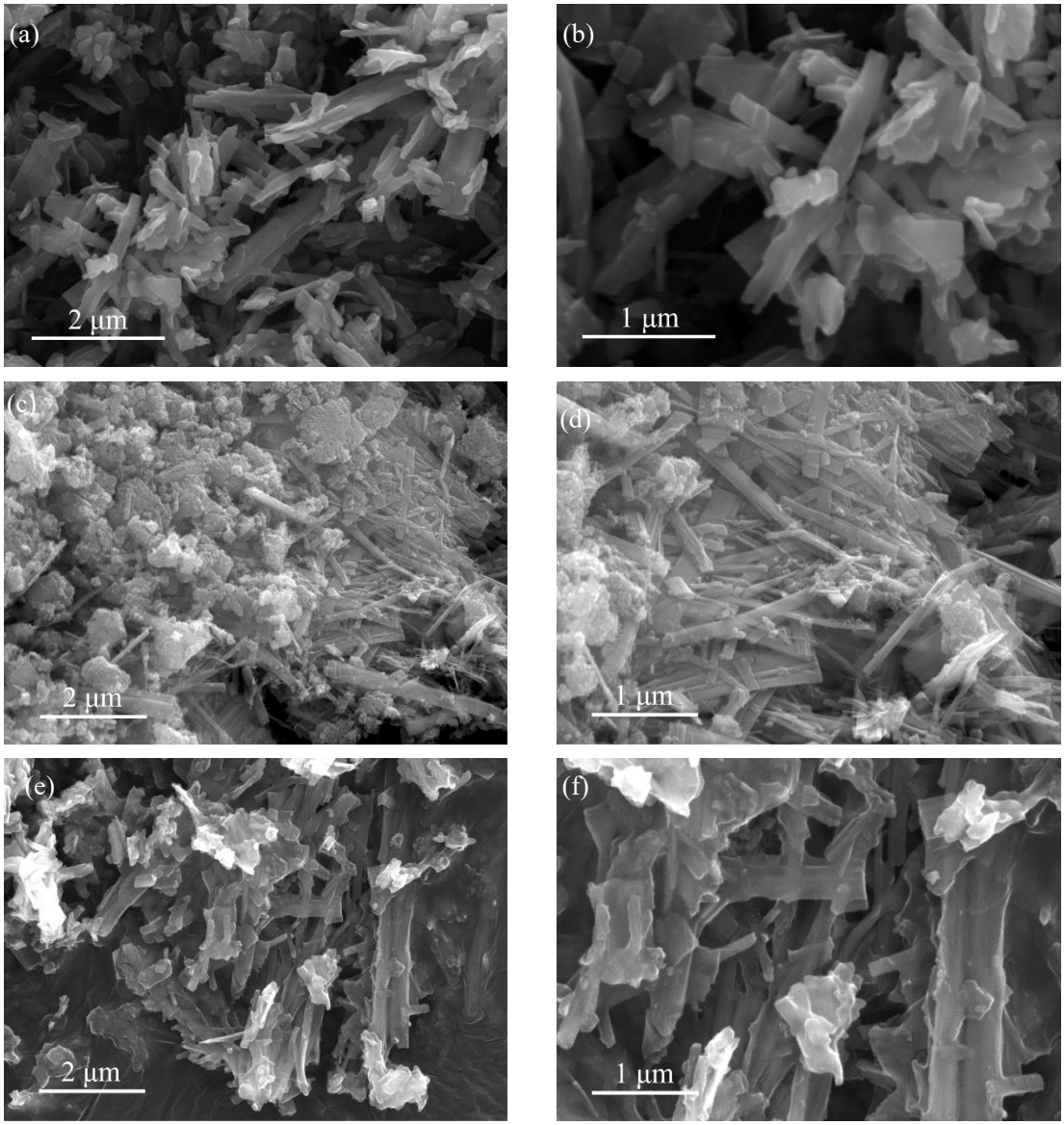

Fig. S2 SEM of (a, b) TiO_2, (c, d) TiO_2/g-C_3N_4(1:5), (e, f) TiO_2/g-C_3N_4(1:15).

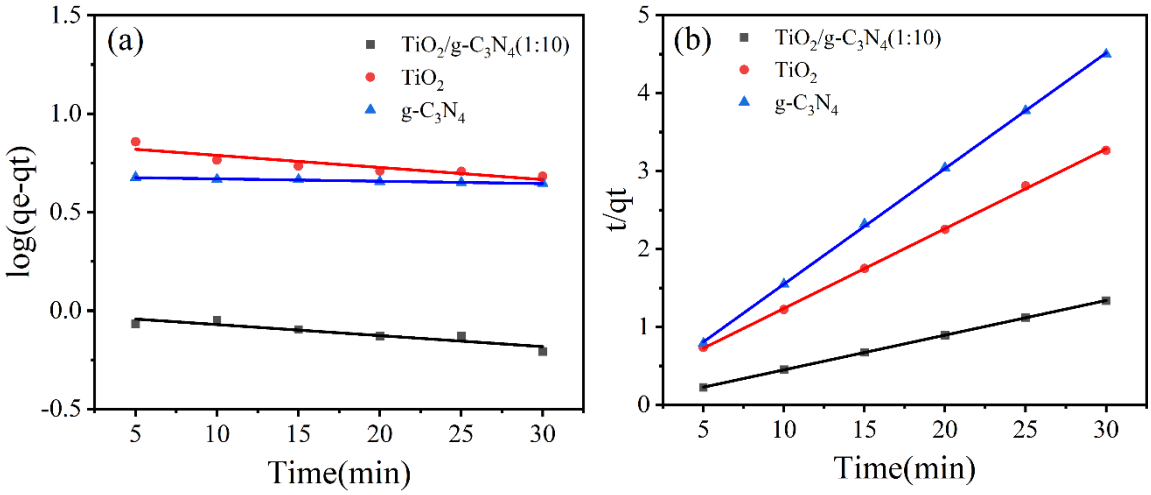

Fig. S3. (a) Pseudo-first order kinetics plot, (b) pseudo-second order kinetics plot for the adsorption of MB onto TiO_2/g-C_3N_4(1:10).

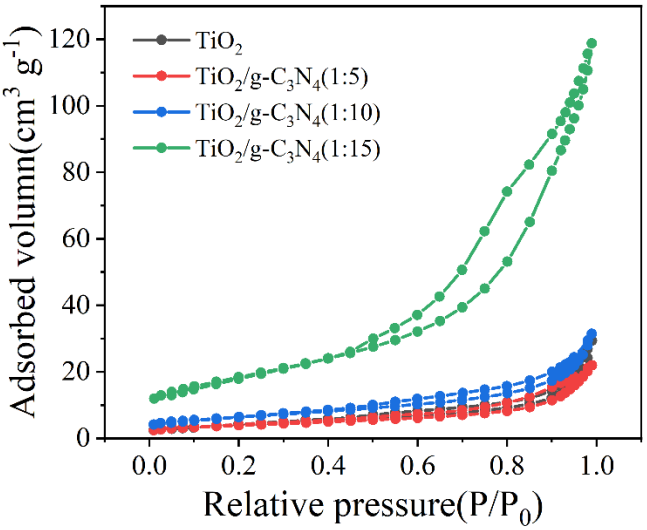

Fig. S4. N_2 adsorption-desorption isotherms of TiO_2, TiO_2/g-C_3N_4(1:5), TiO_2/g-C_3N_4(1:10), TiO_2/g-C_3N_4(1:15).

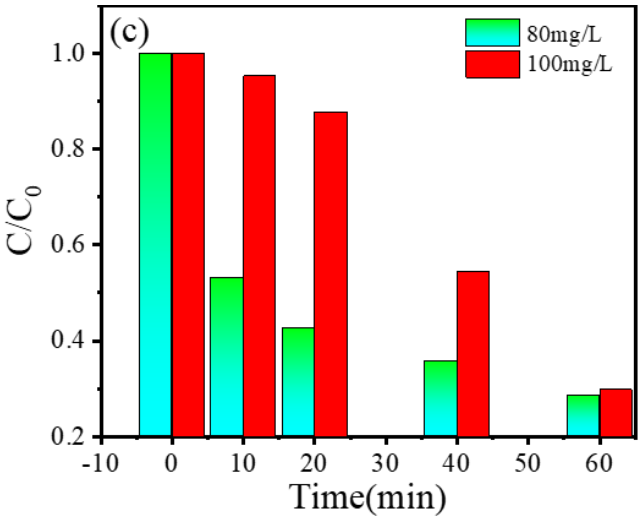

Fig. S5. The photodegradation performance of TiO_2/g-C_3N_4(1:10).

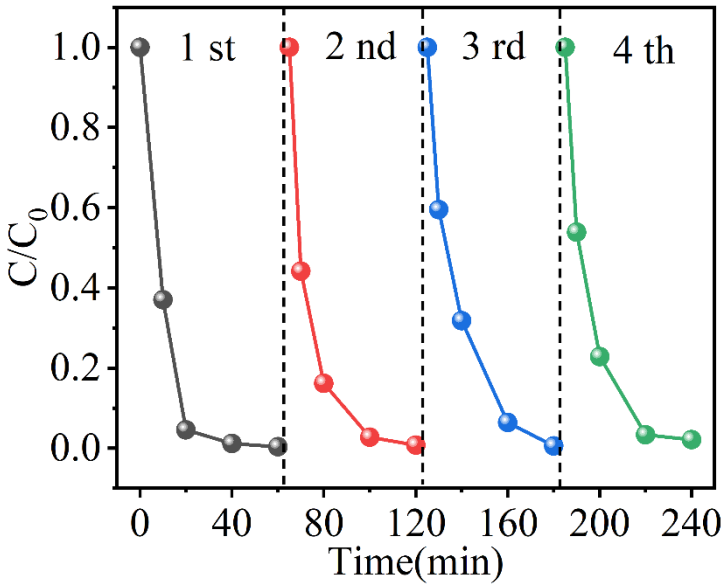

Fig. S6. Cycling experiments of MB degradation by TiO_2/g-C_3N_4(1:10) under visible light..

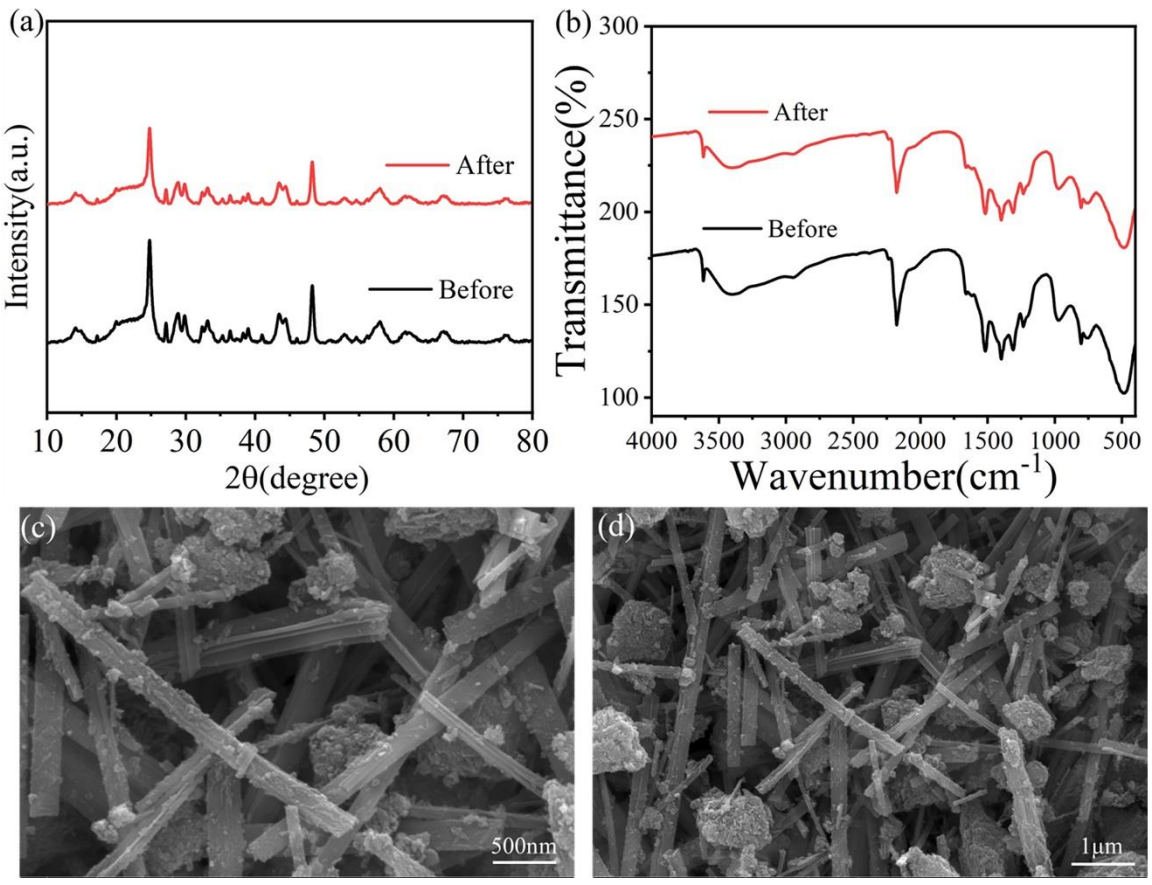

Fig. S7. XRD diffraction pattern (a), FT-IR spectra (b), SEM (c-pristine, d-used) of the TiO_2/g-C_3N_4 (1:10) composite before and after photodegradation of MB.

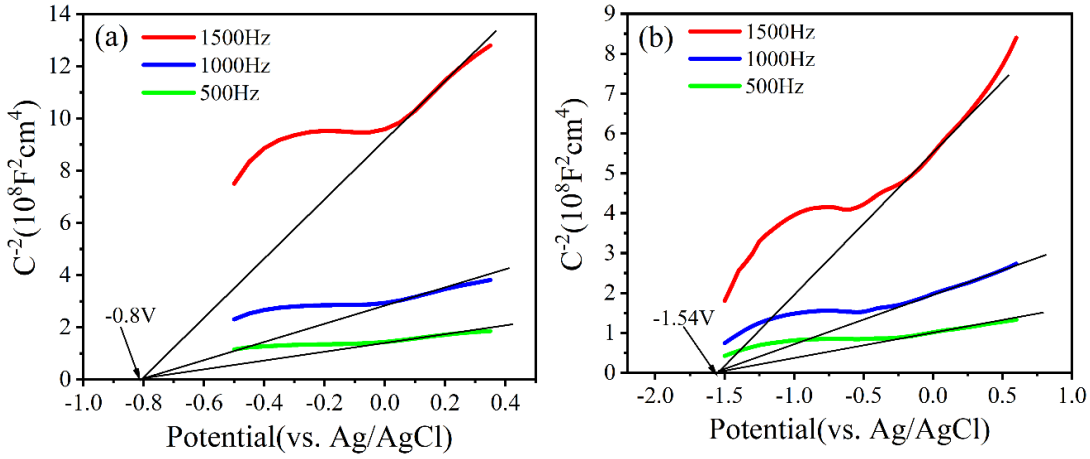

Fig. S8. Motto-Schottky plots of (a)TiO_2 and (b)g-C_3N_4.

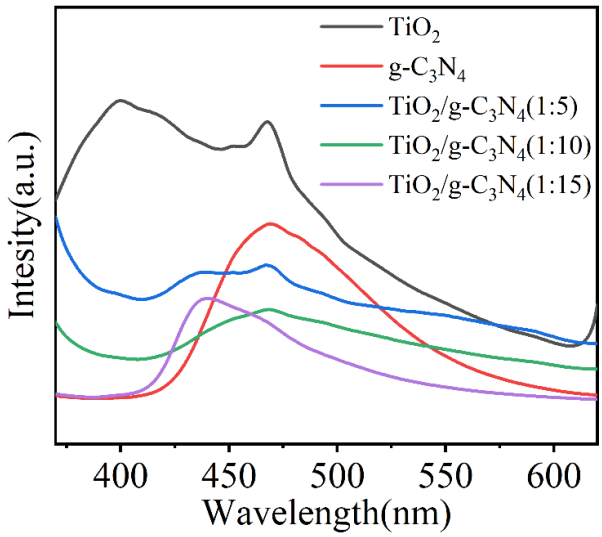

Fig. S9. Photoluminescence (PL) spectra of different samples.

Table S1 Microstructural parameters deduced from the Rietveld refinement analysis of the XRD patterns for the TiO_2 and TiO_2/g-C_3N_4 catalysts.

Samples	Component (TiO_2)	Space Group	Mass content/wt%	a/Å	b/Å	c/Å	Rw/%
TiO_2	Brookite Anatase	C2/m $I4_1/amd$	74.0% 26.0%	12.05 3.78254	3.770 3.78254	6.604 9.61502	7.13
TiO_2/g-C_3N_4(1;5)	Brookite Anatase	C2/m $I4_1/amd$	43.5% 56.5%	12.10141 3.78254	3.8099 3.78254	6.5557 9.61502	6.74
TiO_2/g-C_3N_4(1;10)	Brookite Anatase	C2/m $I4_1/amd$	93.6% 6.4%	12.18 3.78254	3.761 3.78254	6.495 9.61502	6.86
TiO_2/g-C_3N_4(1;15)	Brookite Anatase	C2/m $I4_1/amd$	91.9% 8.1%	12.19409 3.78254	3.75433 3.78254	6.51884 9.61502	4.538