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Article

Development of Heavy Metal-Free Photocatalytic RhB Decomposition System Using a Biodegradable Plastic Substrate

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Table S1. Comparison of photocatalyst and substrate environmental friendliness.

Substrate+photocatalyst	Environmental friendliness	Ref.
Stainless steel +TiO_2	×	[18]
Pebbles + TiO_2	△	[16]
Galass+TiO_2	△	[14]
Plastic+Ag	×	[19]
PLA+C_3N_4	○	This work

Table S2. Experimental conditions for degradation RhB by batch method under visible light irradiation.

Sample	Rhodamine B (5 ppm, 42 ml)
Temperature	Room temperature (25 ℃)
Photocatalyst	M-500 or NT-500 (30 mg)
Light source	Xenon lamp with cut filter (6000-7000 μW/cm², λ≧420 nm)
Irradiation time	0-60min
Analysis	UV-visible spectrometer (554 nm)

Table S3. BET areas, total pore volume and average pore diameter of M-500 and NT-500.

Photocatalyst	S_{BET} (cm^2/g)	V_p (P/P_0 =0.99, cm^3/g)	d_p (nm)
M-500	14.1	0.11	30.9
NT-500	52.4	0.20	15.6

Table S4. Comparison of photocatalytic performance under continuous flow conditions.

Photocatalyst	Irradiation light source	Target material	Flow rate (mL/min)	Degradation result (%)	Ref.
BiOI/porous g-C_3N_4/graphene	Xenon lamp $\lambda \geq 420$ nm	Methylene blue 1×10^{-5} mol/L	1	28.1	[46]
TiO_2/ACF	UV-C lamp $\lambda = 254$ nm	Methylene blue 10 mg/L	10	75	[47]
WO_3/graphene - oxide/TiO_2	high-pressure mercury lamp	RhB 1.2×10^{-4} mol/L	5	66.7	[48]
TiO_2/ Glass plate	UV-A lamps $\lambda \leq 365$ nm	Carbamazepine 50 μg/L	2.7	87	[49]
C_3N_4/PLAring	Xenon lamp $\lambda \geq 420$ nm	RhB 5 mg/L	0.35	50	This work

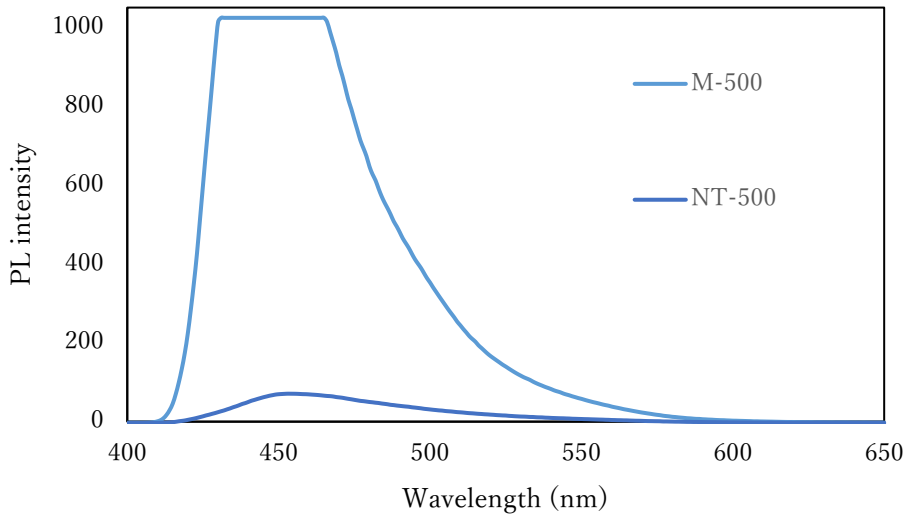

Figure S1. Photoluminescence spectra of M-500 and NT-500.

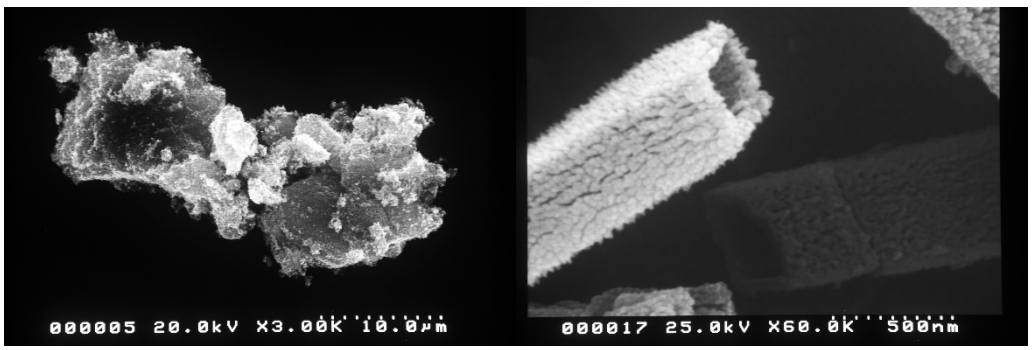

Figure S2. SEM images of (**a**) M-500 and (**b**) NT-500.

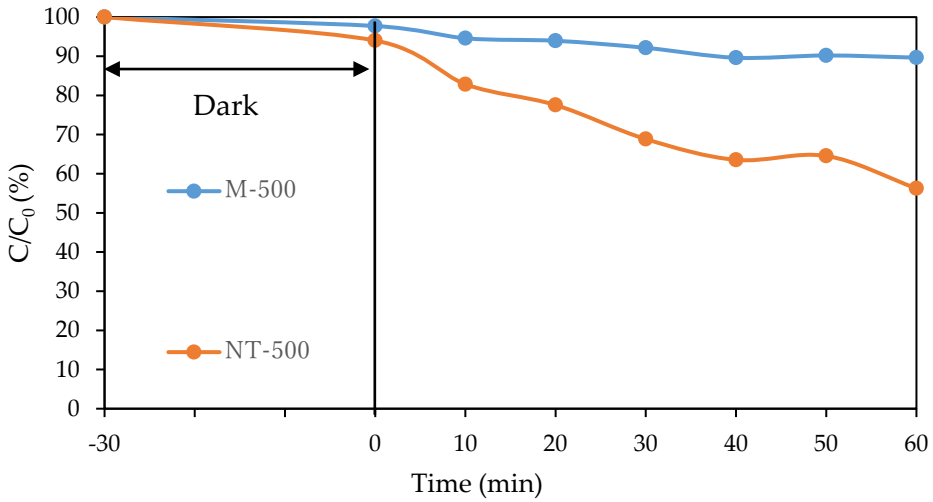

Figure S3. Photocatalytic RhB degradation of the C_3N_4 (M-500 and NT-500).