

Supporting Information

for

Facile Fabrication of TiO₂ Quantum Dots-Anchored g-C₃N₄ Nanosheets as 0D/2D Heterojunction Nanocomposite for Accelerating Solar-Driven Photocatalysis

Jin-Hyoek Lee ^{1,†}, Sang-Yun Jeong ^{1,†}, Young-Don Son ² and Sang-Wha Lee ^{1,*}

¹ Chemical and Biological Engineering Department, Gachon University, , Seongnam-si 13120, Republic of Korea; 71in.cmsal@gmail.com (J.-H.L.); wjdtkddb762@naver.com (S.-Y.J.)

² Department of Biomedical Engineering, College of IT Convergence, Gachon University, Seongnam-si 13120, Republic of Korea; ydson@gachon.ac.kr

* Correspondence: lswha@gachon.ac.kr; Tel.: +82-10-2635-5360

† These authors contributed equally to this work.

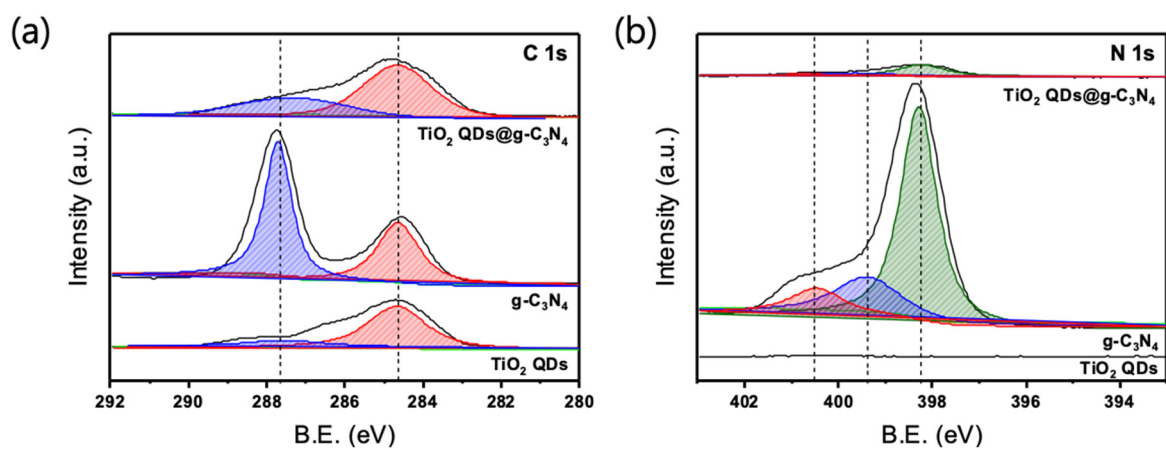


Figure S1. Core-level spectra of TiO_2 QDs, $\text{g-C}_3\text{N}_4$ and TiO_2 QDs@g- C_3N_4 by XPS (a) C 1s, (b) N 1s.

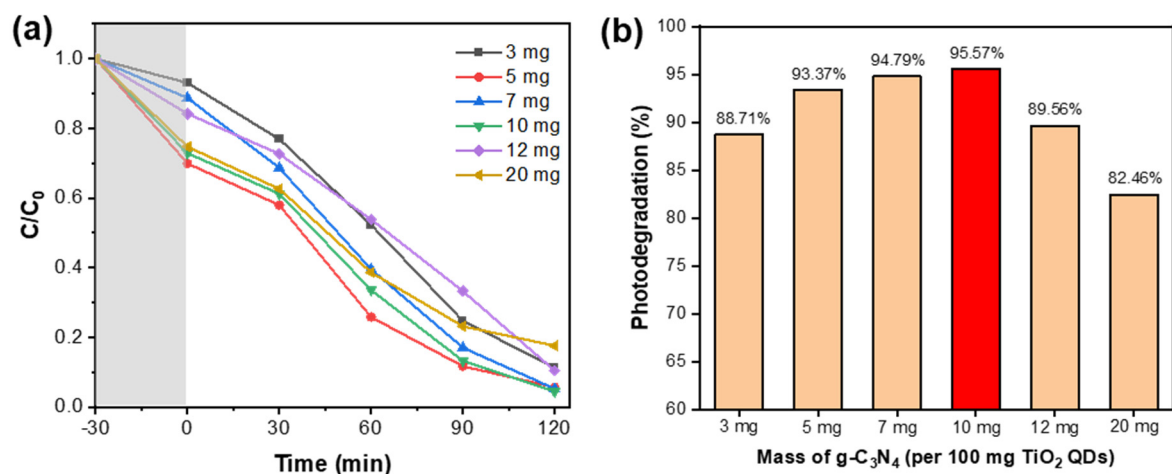


Figure S2. Photodegradation rate of MO dye over the TiO₂ QDs@g-C₃N₄ with different g-C₃N₄ contents under simulated solar light.

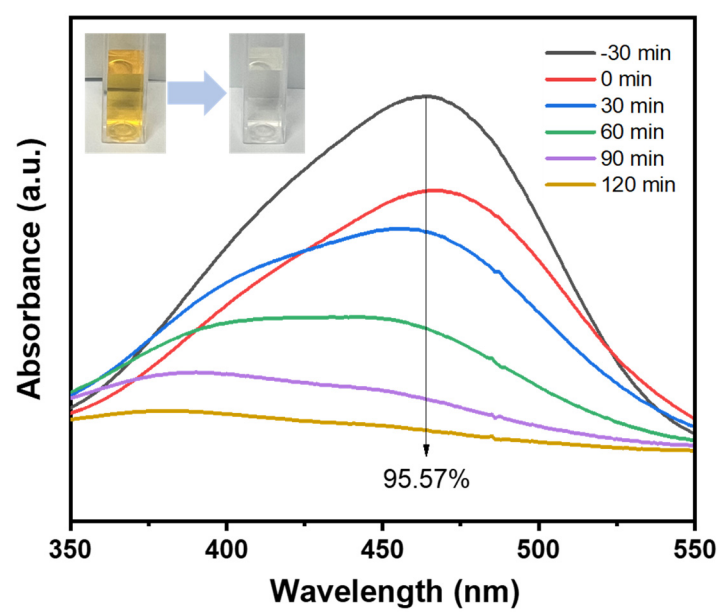


Figure S3. UV-absorbance of MO dye over TiO_2 QDs@g- C_3N_4 under simulated solar light.

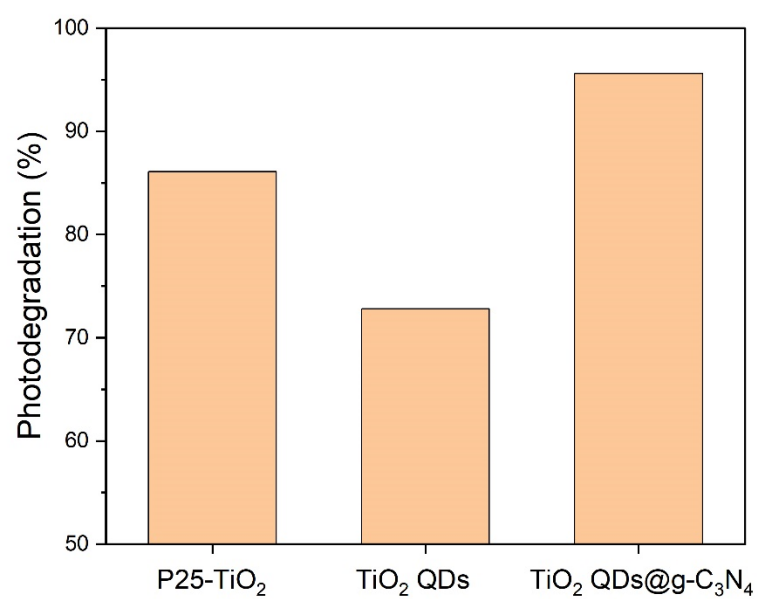


Figure S4. The comparison of photodegradation over as-prepared samples after 120 min irradiation.

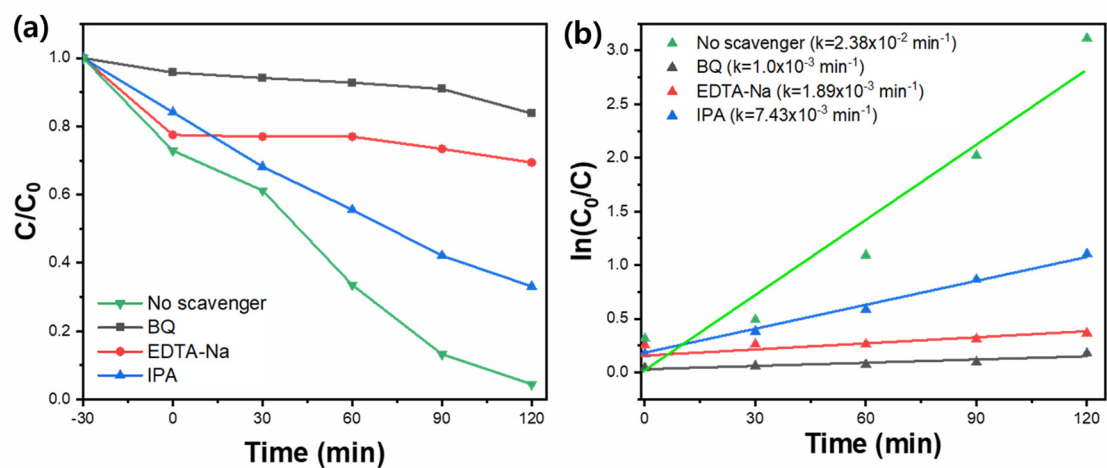


Figure S5. (a) Photodegradation rate of MO dye over the TiO₂ QDs@g-C₃N₄ in the presence of scavengers, (b) Kinetic plot for the photodegradation of MO in (a).

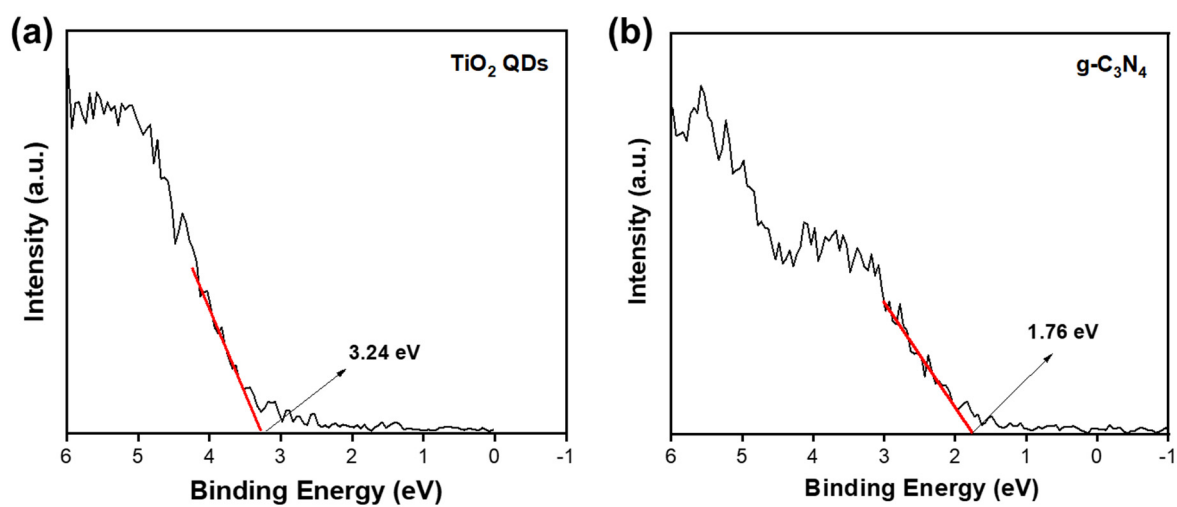


Figure S6. Low-energy XPS VB spectra of (a) TiO_2 QDs, (b) $\text{g-C}_3\text{N}_4$ samples.

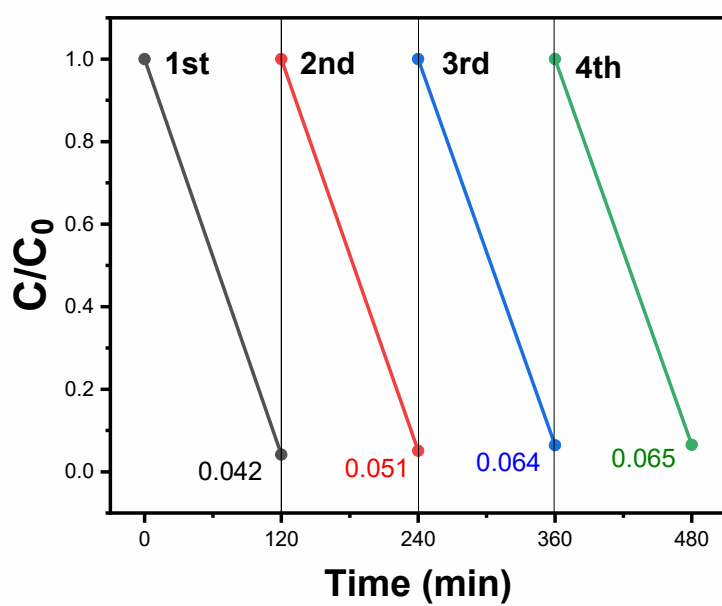


Figure S7. The degradation rate of MO dye after 120 min irradiation using the TiO_2 QDs@g- C_3N_4 photocatalyst that was recycled four times.

Table S1. Elemental composition of TiO₂ QDs@g-C₃N₄ by XPS analysis

Elemental	TiO ₂ QDs@g-C ₃ N ₄	
	at. %	wt. %
C	41.55	26.39
N	4.40	3.26
Ti	14.97	37.25
O	39.08	33.10

Table S2. Elemental composition of g-C₃N₄ by XPS analysis

Elemental	g-C ₃ N ₄
	at %
C	51.39
N	42.52
O	6.08