Supporting Information

Solvothermal Synthesis Of g-C_3N_4 – TiO_2 Hybrid Photocatalyst With a Broaden Activation Spectrum

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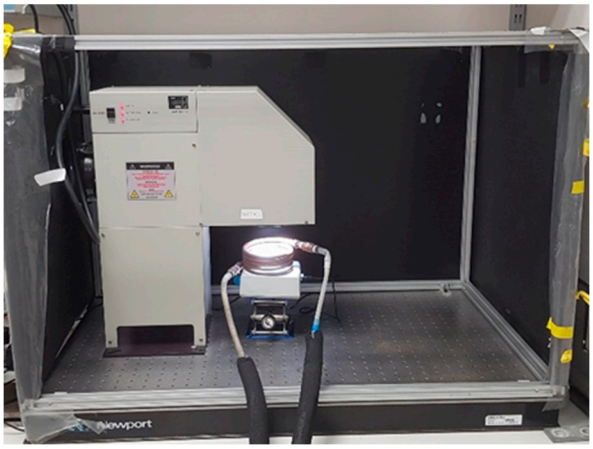

Figure S1. Newport solar simulator with 70 × 50-mm crystalline bowl surrounded by chiller coil. Inset: crystalline bowl with suspended catalyst after sonication in AG-25 solution.

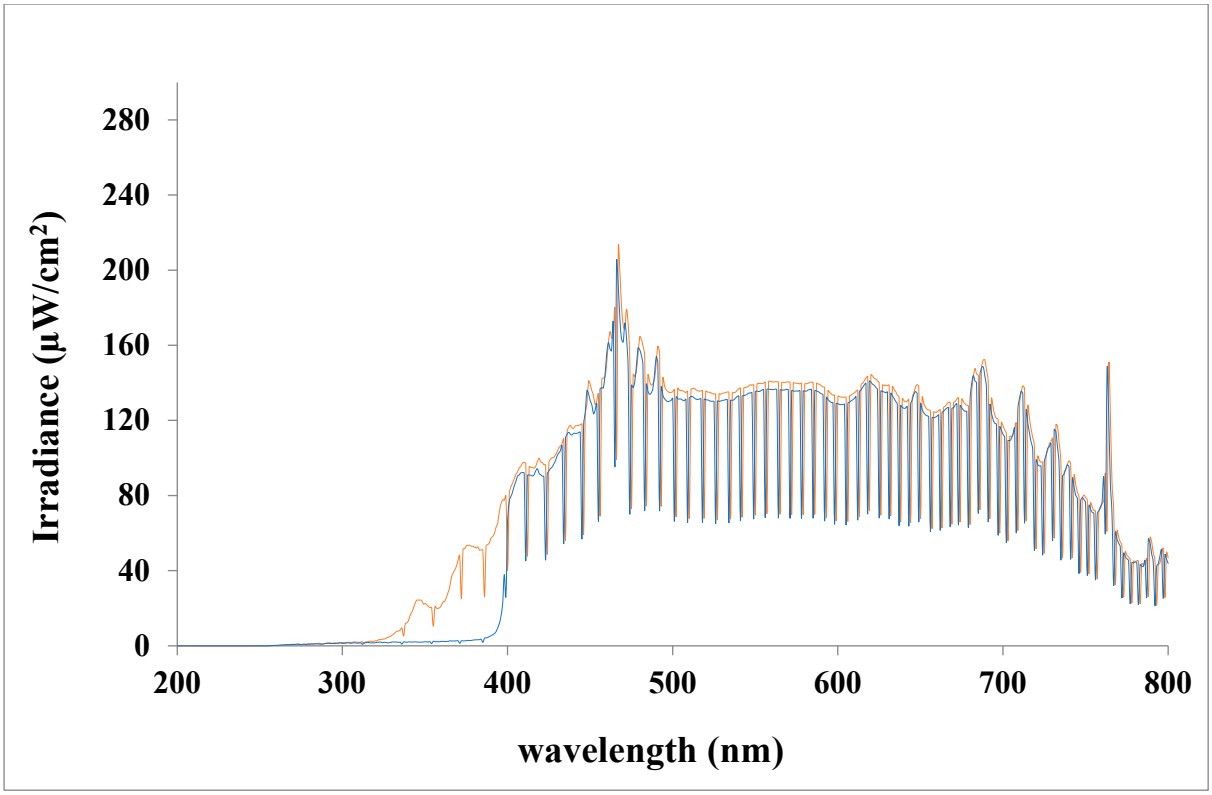

Figure S2: Spectral incident irradiance for solar simulator by a spectroradiometer. With (in blue) and without (in orange) LP400 UV filter

Table S1: Grain size and crystallographic directions of the different systems and phases.

Catalyst	Phase	Crystallographic direction	System	Chrystal size (nm)
Composite	TiO_2	<200>	Anatase	326.6
		<101>		208.0
	$g\text{-}C_3N_4$	<002>	Orthorhombic	8.4
TiO_2		<200>	Anatase (94%)	131.8
		<101>	Rutile (6%)	
$g\text{-}C_3N_4$		<002>	Orthorhombic	55

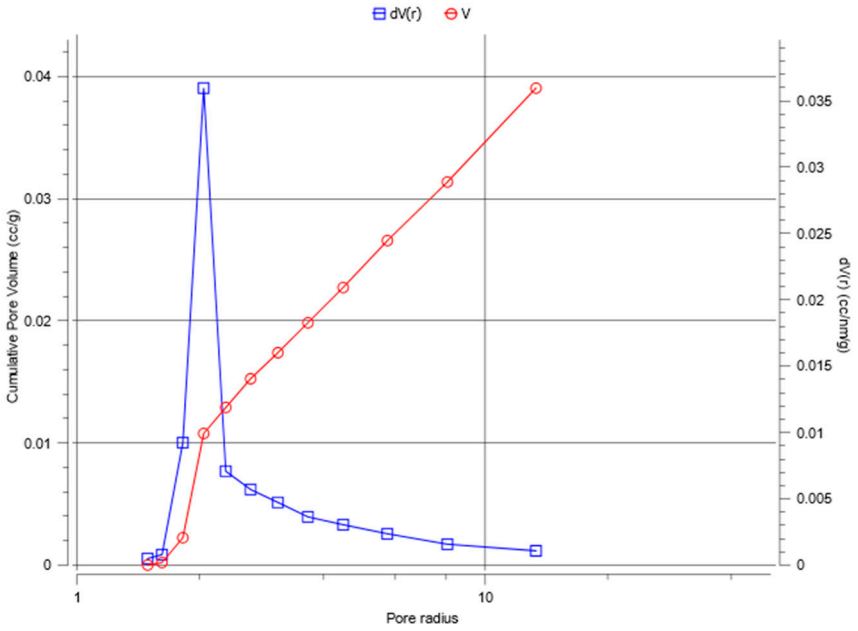

Figure S3: Pore size distribution and volume curves of the composite catalyst

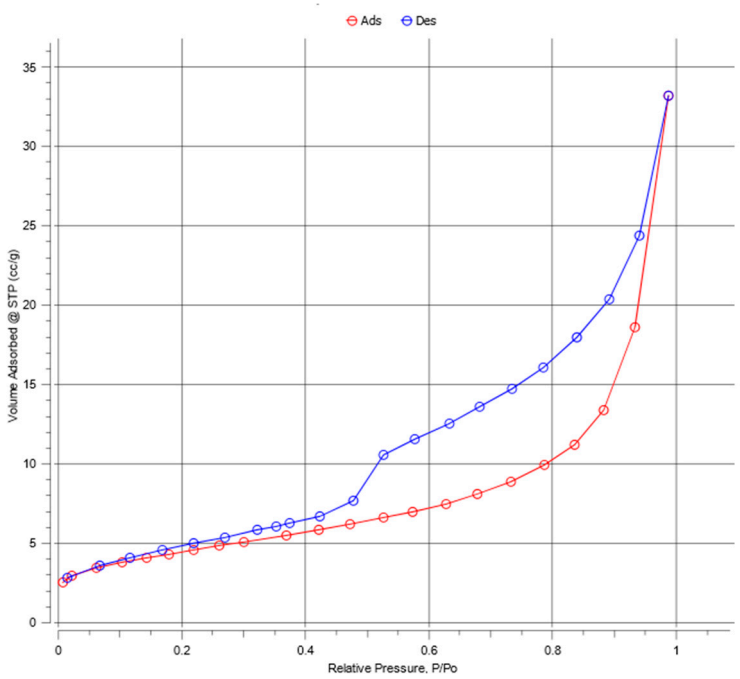

Figure S4: BET sorption\desorption curves of the composite catalyst

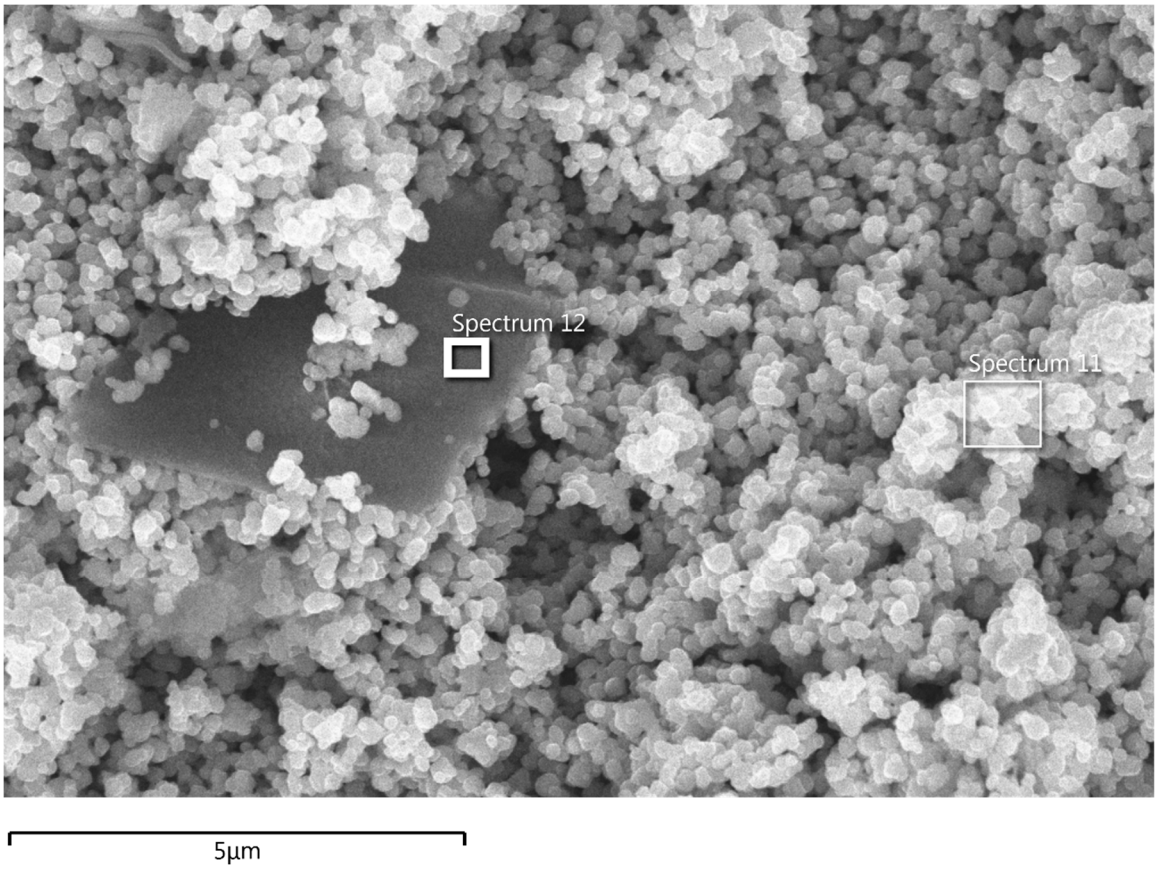

Figure S5: EDX elemental analysis sampling points

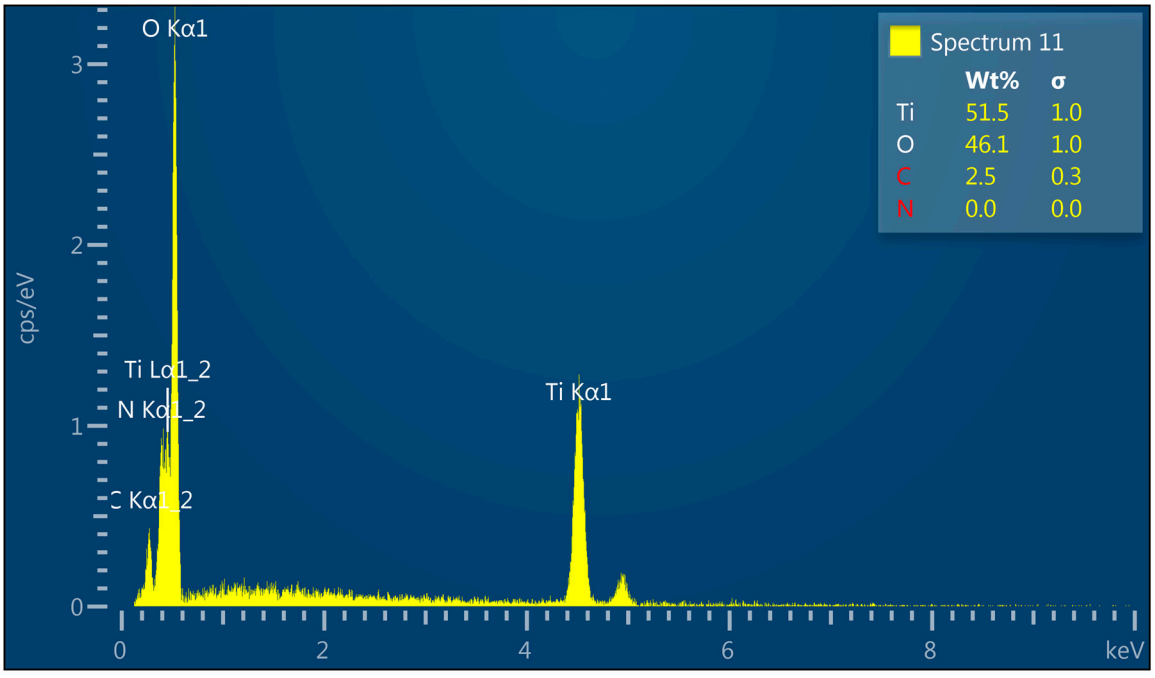

Figure S6: EDX elemental analysis spectrum 11

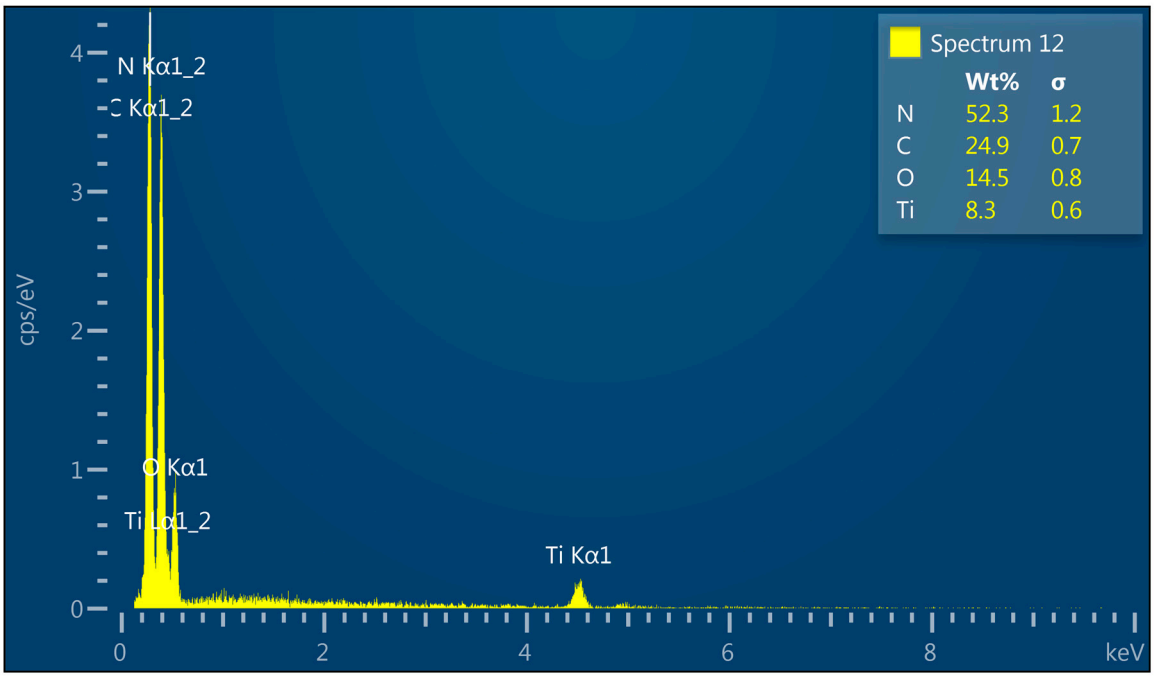

Figure S7: EDX elemental analysis spectrum 12

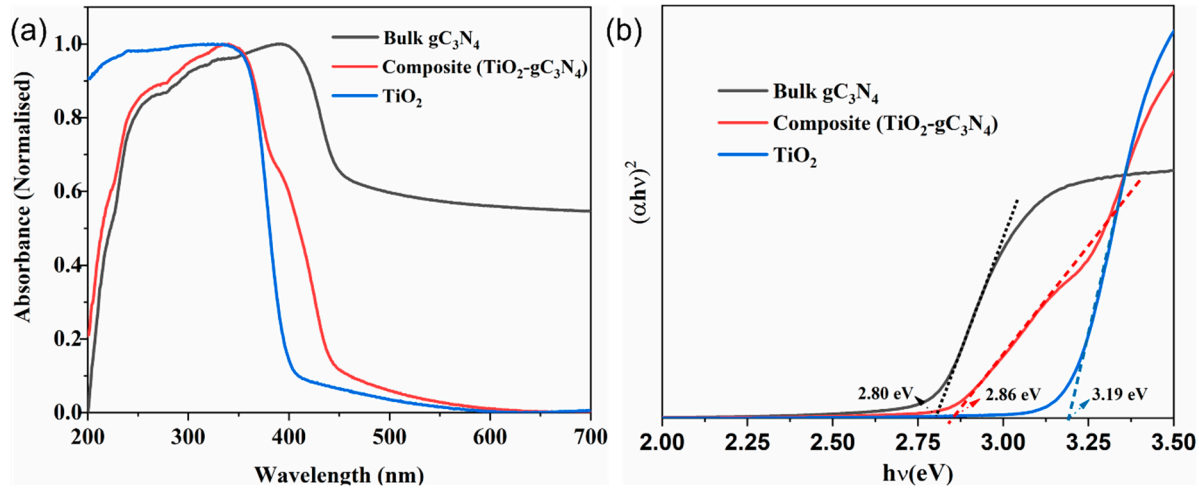

Figure S8: UV−visible DRS spectra and (a) plots of $(\alpha h\nu)^{1/2}$ versus photon energy ($h\nu$) of the bulk g-C_3N_4, TiO_2 and the composite (b).

Table S2: Summary of the Valence, conduction, and band gap of photocatalyst obtained by XPS analysis.

Catalyst	Valence Band (eV)	Conduction Band (eV)	Band Gap (eV)
Composite	2.23	-0.63	2.86
TiO_2	1.5	-1.69	3.19
g-C_3N_4	1.97	-0.83	2.8

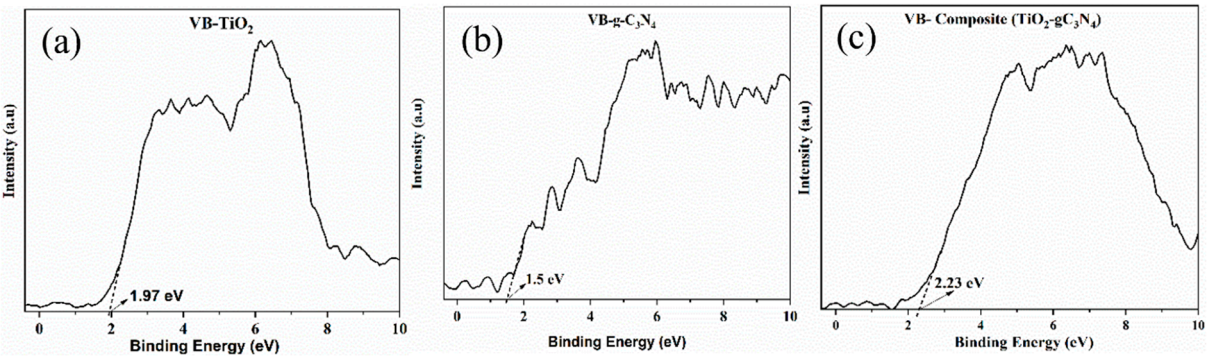

Figure S9: XPS Valence band spectra of (a) TiO_2 (b) composite (c)g-C_3N_4.

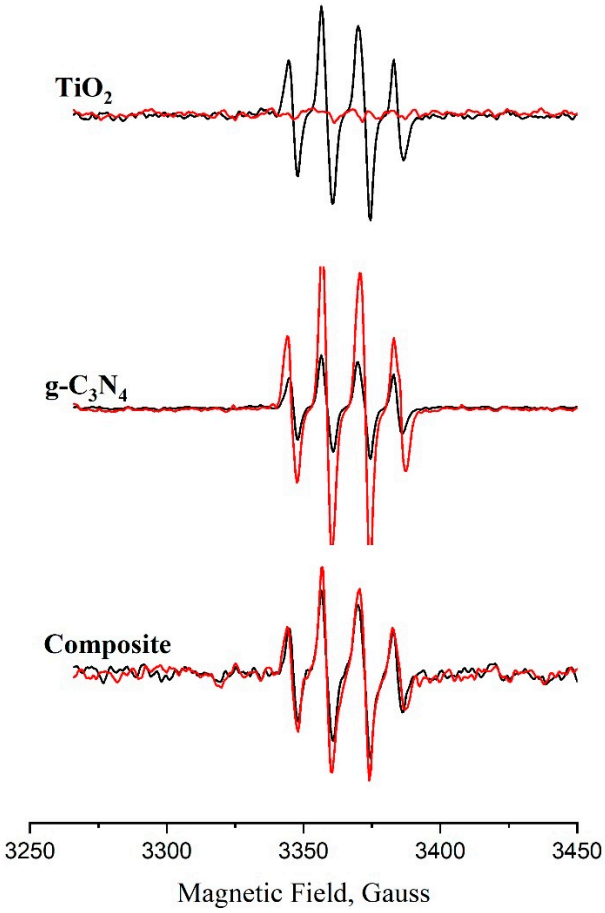

Figure S10: BMPO-OOH with (red line) and without (black line) DMSO signal from the suspension of g-C_3N_4, TiO_2 and the composite.