

Supplementary Materials

Indium Tin-Oxide Wrapped 3D rGO and TiO₂ Composites: Development, Characterization, and Enhancing Photocatalytic Activity for Methylene Blue

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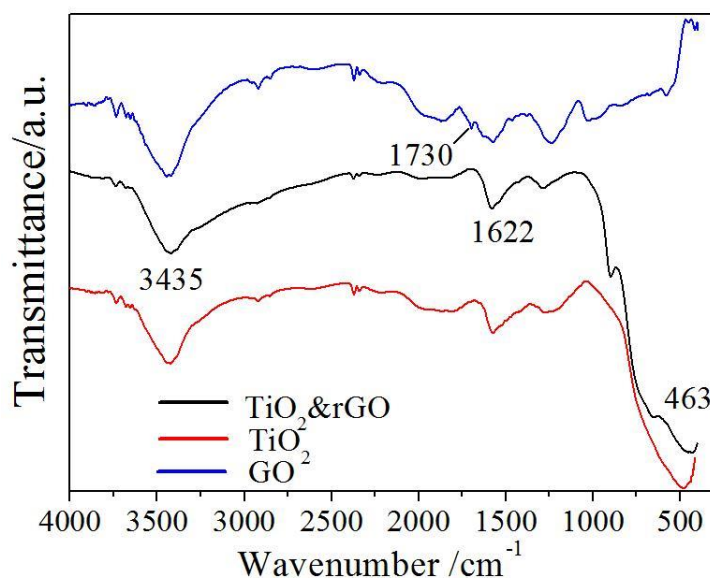


Figure S1. FTIR of GO, TiO₂ and ITO-rGO and TiO₂.

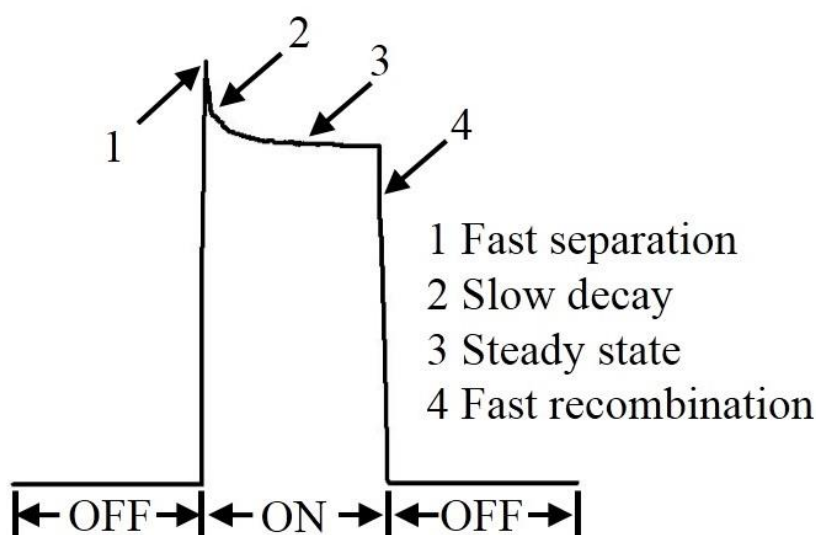


Figure S2. Graph of an ideal photocurrent response.

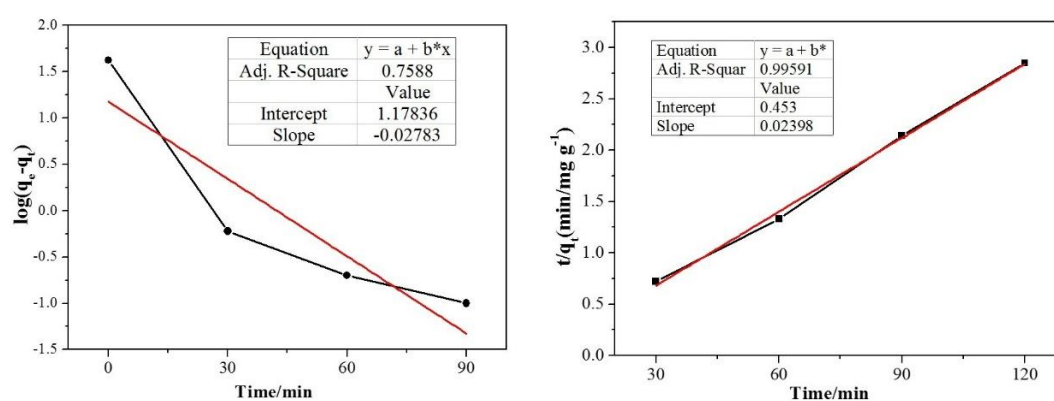
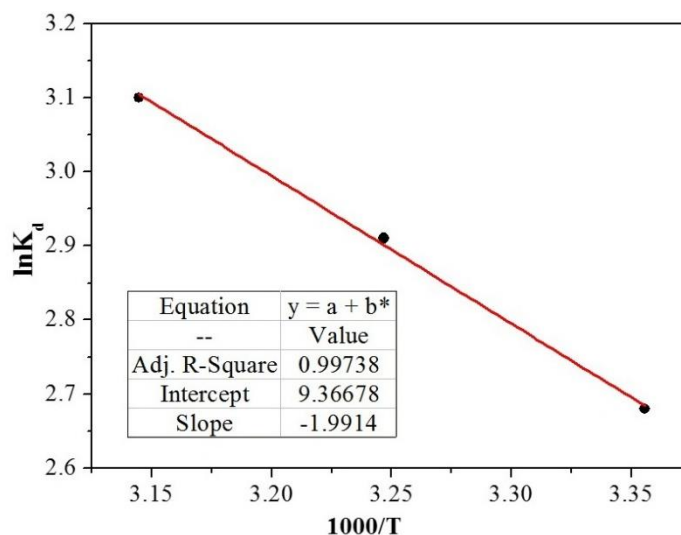


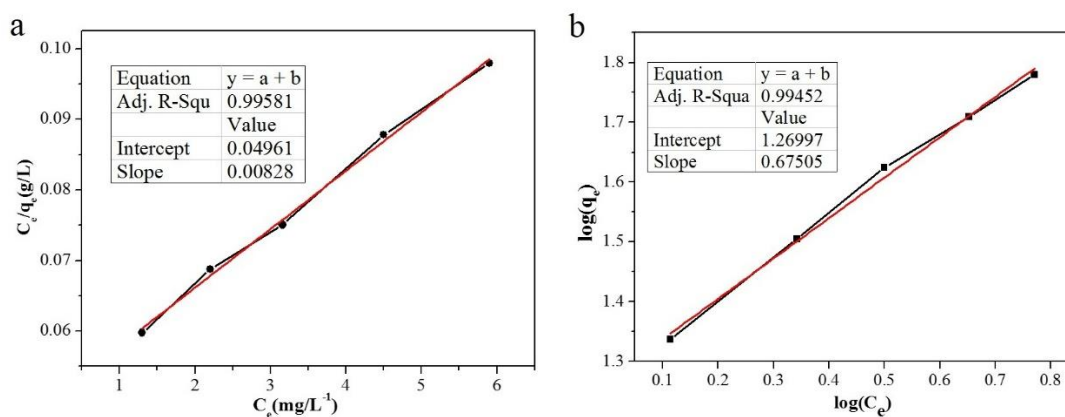
Figure S3. Pseudo-first-order kinetics and pseudo-second-order kinetics of MB adsorption on the ITO-rGO and TiO₂ composite (prepared by 9mol/L DEG concentrations at 25 °C).

Table S1. Adsorption isotherm parameters for MB adsorption on the TiO₂ and rGO composite.

C_0 (mg/L)	Pseudo-first-order kinetics				Pseudo-second-order kinetics		
	k_1 (min ⁻¹)	$q_{e,cal}$ (mg/g)	$q_{e,exp}$ (mg/g)	R^2	k_2 (g/mg*min)	$q_{e,cal}$ (mg/g)	R^2
20	0.0641	15.1	42.1	0.759	0.0013	41.7	0.996

Figure S4. Van't Hoff plot of $\ln K_d$ vs. $1/T$.Table S2. Adsorption thermodynamic parameters for MB adsorption on the TiO_2 and rGO composite.

ΔH^0 (kJ/mol)	ΔS^0 (J/mol K)	ΔG^0 (kJ/mol)		
		298K	308K	318K
16.56	77.88	-6.64	-7.45	-8.20

Figure S5. Isotherms of MB adsorption on the ITO-rGO and TiO_2 composite.Table S3. Adsorption isotherm parameters for MB adsorption on the on the TiO_2 and rGO composite.

Langmuir Isotherm			Freudlich Isotherm		
b (L/mg)	q_m (mg/g)	R^2	K_f	n	R^2
0.167	120.8	0.996	18.6	1.48	0.995

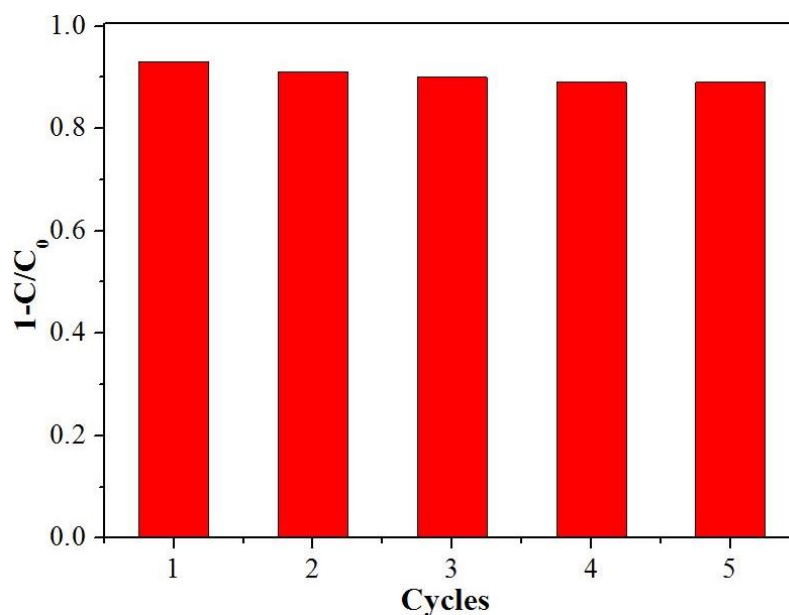


Figure S6. Degradation ratio of MB on ITO-rGO and TiO₂ in five successive cycles of complete photocatalytic process.

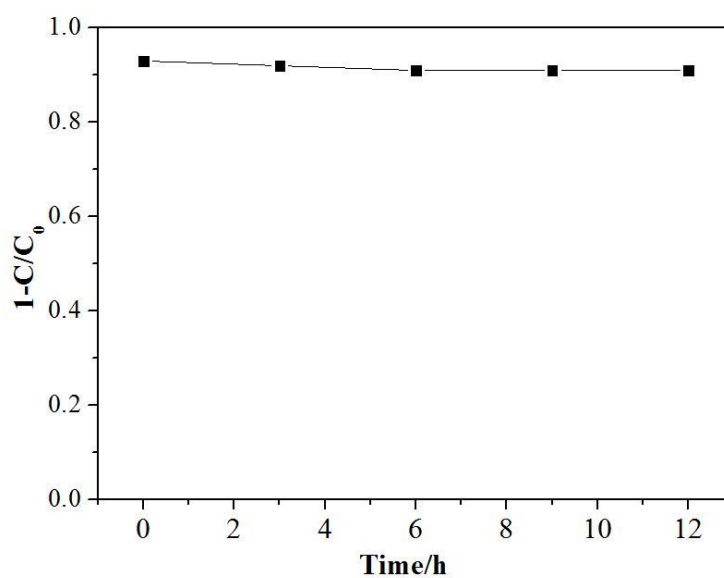


Figure S7. Degradation rate of each interval test sample after the end of the photocatalytic degradation.



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