## **Supplementary information**

## Hydrothermal construction of WO<sub>3</sub>·0.33H<sub>2</sub>O/g-C<sub>3</sub>N<sub>4</sub> nanocomposites

## with enhanced adsorption and photocatalytic activity

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Fig. S1 TG curves of WO $_3$ ·0.33H $_2$ O, g-C $_3$ N $_4$  and WG-4 nanocomposite.



Fig. S2 Adsorption and photocatalytic degradation of RhB (a), plot of -ln(C/C<sub>0</sub>) versus time t and k values (b) of WO<sub>3</sub>·0.33H<sub>2</sub>O, g-C<sub>3</sub>N<sub>4</sub> and WG-4.



Fig. S3 Adsorption rate of MO (25 mg/L) by WG-4 nanocomposite.



Fig. S4 PL spectra of WO<sub>3</sub>·0.33H<sub>2</sub>O, g-C<sub>3</sub>N<sub>4</sub>-H and WO<sub>3</sub>·0.33H<sub>2</sub>O/g-C<sub>3</sub>N<sub>4</sub> nanocomposites.



Fig. S5 XPS valence band edge spectra of  $WO_3 \cdot 0.33H_2O$  and  $g-C_3N_4$ .

Table S1 Specific surface area, pore volume, zeta potential a	d TRPL lifetime values of WO <sub>3</sub> ·0.33H <sub>2</sub> O, g-C <sub>3</sub> N <sub>4</sub> and WG-4 nanocomposite.
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Sample	Specific surface	Pore	Zeta	$\tau_l/ns$	$\tau_2/ns$
	areas/m <sup>2</sup> g <sup>-1</sup>	volume/cm <sup>3</sup> g <sup>-1</sup>	potential/mV		
WO <sub>3</sub> ·0.33H <sub>2</sub> O	2.50	0.01	-46.6	1.51	9.17
g-C <sub>3</sub> N <sub>4</sub>	31.65	0.20	-14.0	1.83	7.91
WG-4	73.69	0.40	-40.4	7.87	2.24