



Research article

Novel ZnWO₄/RGO nanocomposite as high performance photocatalyst

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Supporting Information

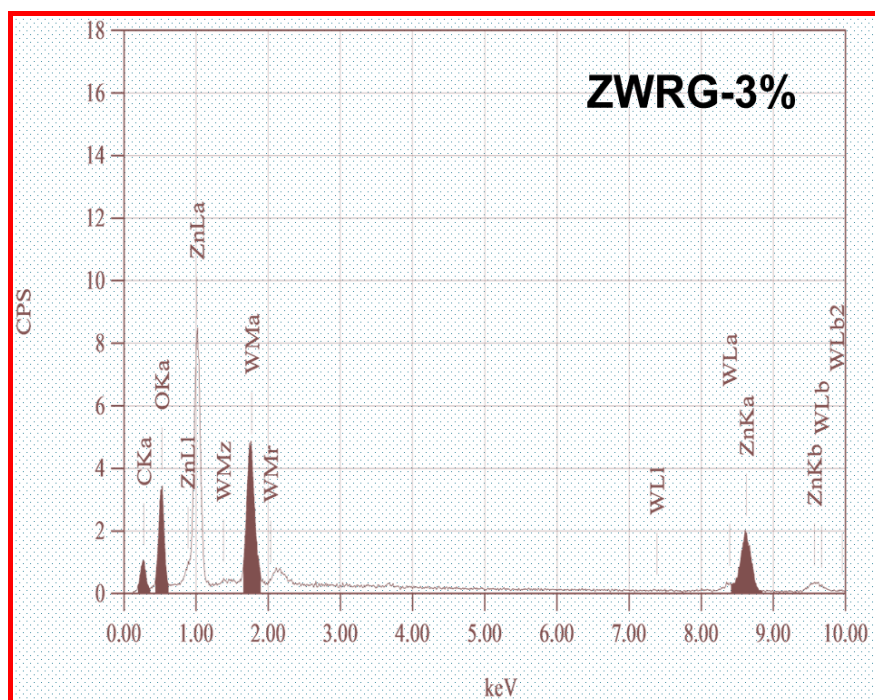


Figure S1. EDX spectra of ZWRG-3%.

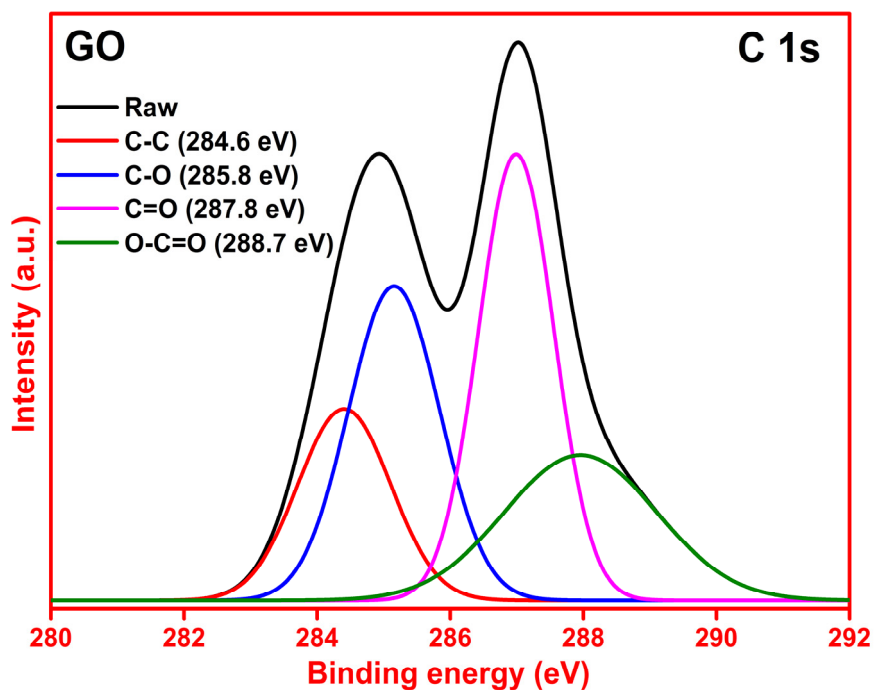


Figure S2. High resolution XPS spectra of C 1s in GO.

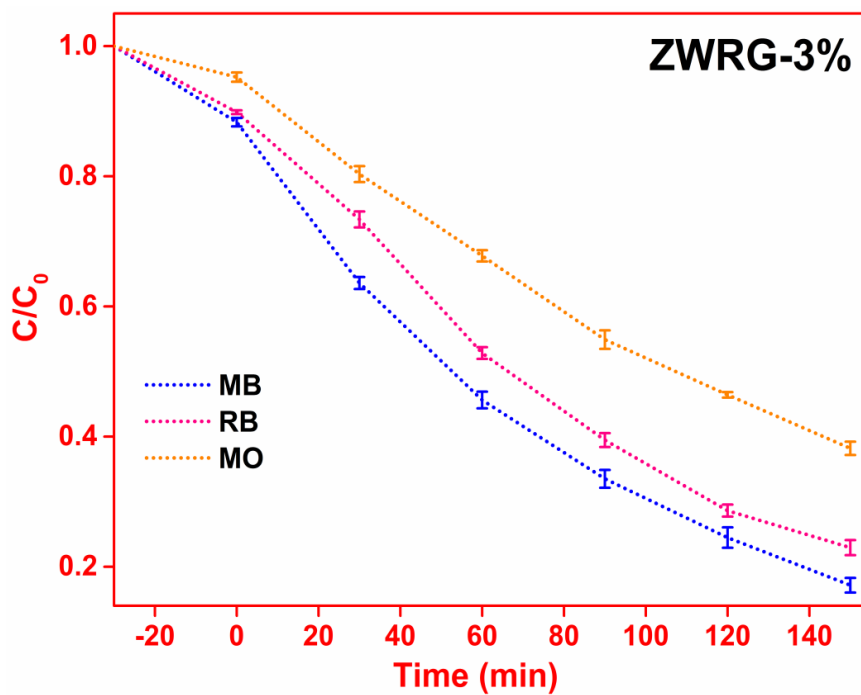


Figure S3. Photocatalytic degradation MB, RB and MO by ZWRG-3%.

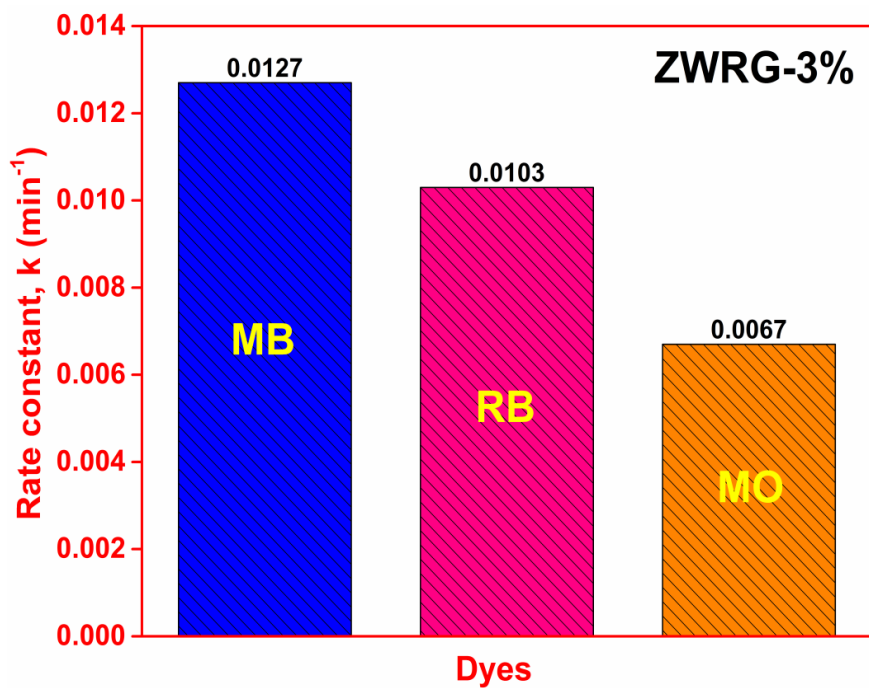


Figure S4. First order rate constants for degradation of MB, RB and MO by ZWRG-3%.

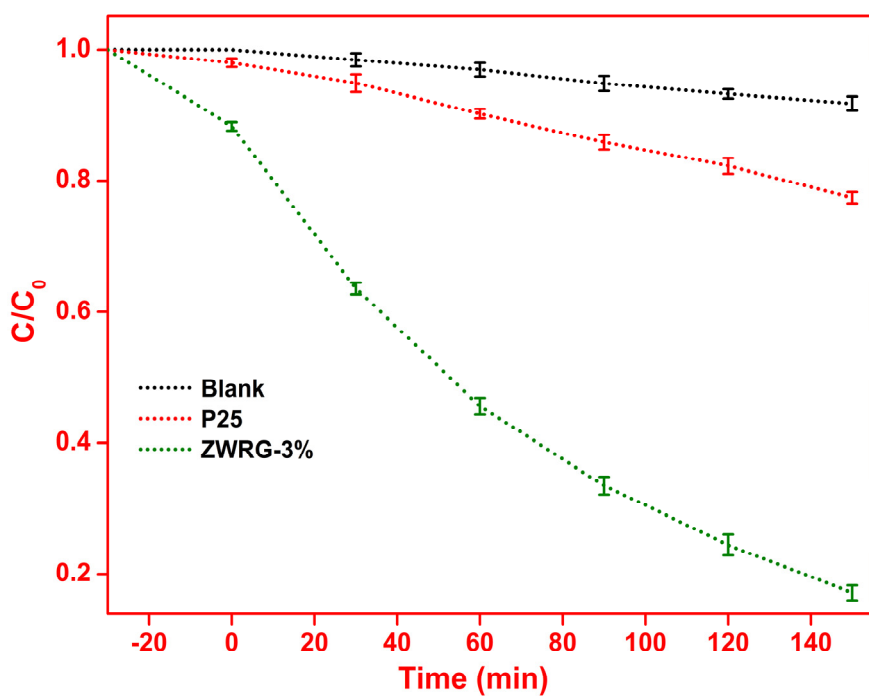


Figure S5. Comparison of photocatalytic degradation efficiency between ZWRG-3% and P25.

Table S1. Comparison of photocatalytic efficiency of ZWRG-3% nanocomposite with other photocatalysts.

Photocatalysts	Lamp Source	Dye Concentration	Degradation Percentage	References
10 mg of ZWRG-3%,	Visible Light (250 W Hg lamp, $\lambda = 400$ nm)	MB (100 mL, 10 mg/L) RB (100 mL, 10 mg/L) MO (100 mL, 10 mg/L)	82.85% for 150 minutes 77.06% for 150 minutes 61.81% for 150 minutes	Present Work
0.15 g 70 wt% g-C ₃ N ₄ /Bi ₂ WO ₆	Visible Light (500 W Xe lamp, $\lambda = 420$ nm)	MO (50 mL, 10 mg/L)	MO could be decomposed after 180 minutes	[1]
50 mg of RC/TiO ₂ /ZnO nanocomposites	Ultraviolet irradiation (PHILIPS, 365 nm)	RhB (100 mL, 2×10^{-5} M)	97% for 200 minutes	[2]
200 mg of NiW4SG	UV light (125 W high pressure mercury lamp, wavelength range of 295–390 nm)	MB, (350 ml, 20 ppm)	92.5% for 400 minutes	[3]
1.5 g/L of ZnO-RGO-CNT composite	UV light (500W high pressure Hg lamp, $\lambda = 365$ nm)	MB (100 mL, 5 mg/L)	96% for 260 minutes	[4]
100 mg of 4% Eu ³⁺ -doped ZnWO ₄	Four 4 W UV lamps ($\lambda = 254$ nm)	RB (100 mL, 1.0×10^{-5} mol/L)	RhB could be decomposed less than 100 minutes	[5]
10 mg of graphene/TNTs nanocomposites	UV irradiation, (300 W Mercury lamp)	MO, (40 mL, 20 mg/L)	Nearly 100% after 3.5 hours	[6]
80 mg of N-TiO ₂ /NG	Visible light (300 W Xenon lamp, $\lambda = 420$ nm)	MB (100 mL, 10 mg/L)	87.9% after 180 minutes	[7]
50 mg of g-C ₃ N ₄ -ZnWO ₄	Visible light (300 W metal-halide lamp, $\lambda = 420$ nm)	MB (100 mL, 10 mg/L)	86% for 150 minutes	[8]
2 g/L of Bi ₂ O ₃ -RGO composite	Visible light irradiation (400 W metal halogen Lamp, $\lambda > 400$ nm)	MB (80 mL, 5 mg/L) MO (80 mL, 5 mg/L)	96% for 240 minutes 93% for 240 minutes	[9]
0.25 g of WO ₃ -TiO ₂ composite	Simulated sunlight illumination using a 300 W Xe lamp	MO (250 mL, 20 mg/L)	79% for 120 minutes	[10]

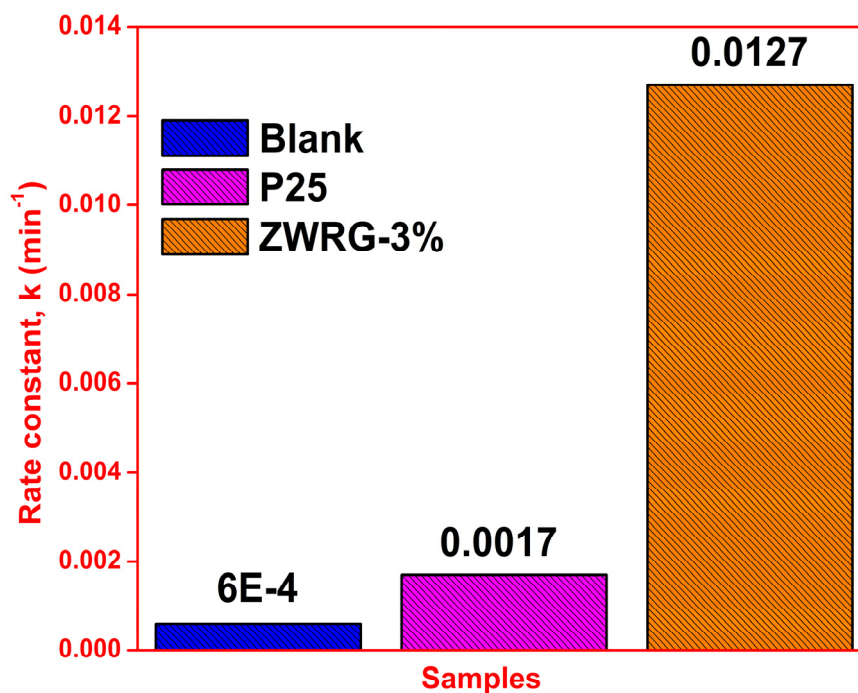


Figure S6. Comparison of first order rate constants between ZWRG-3% and P25.

References

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