

Natural Sunlight Driven Photocatalytic Removal of Toxic Textile Dyes in Water Using B-Doped ZnO/TiO₂ Nanocomposites

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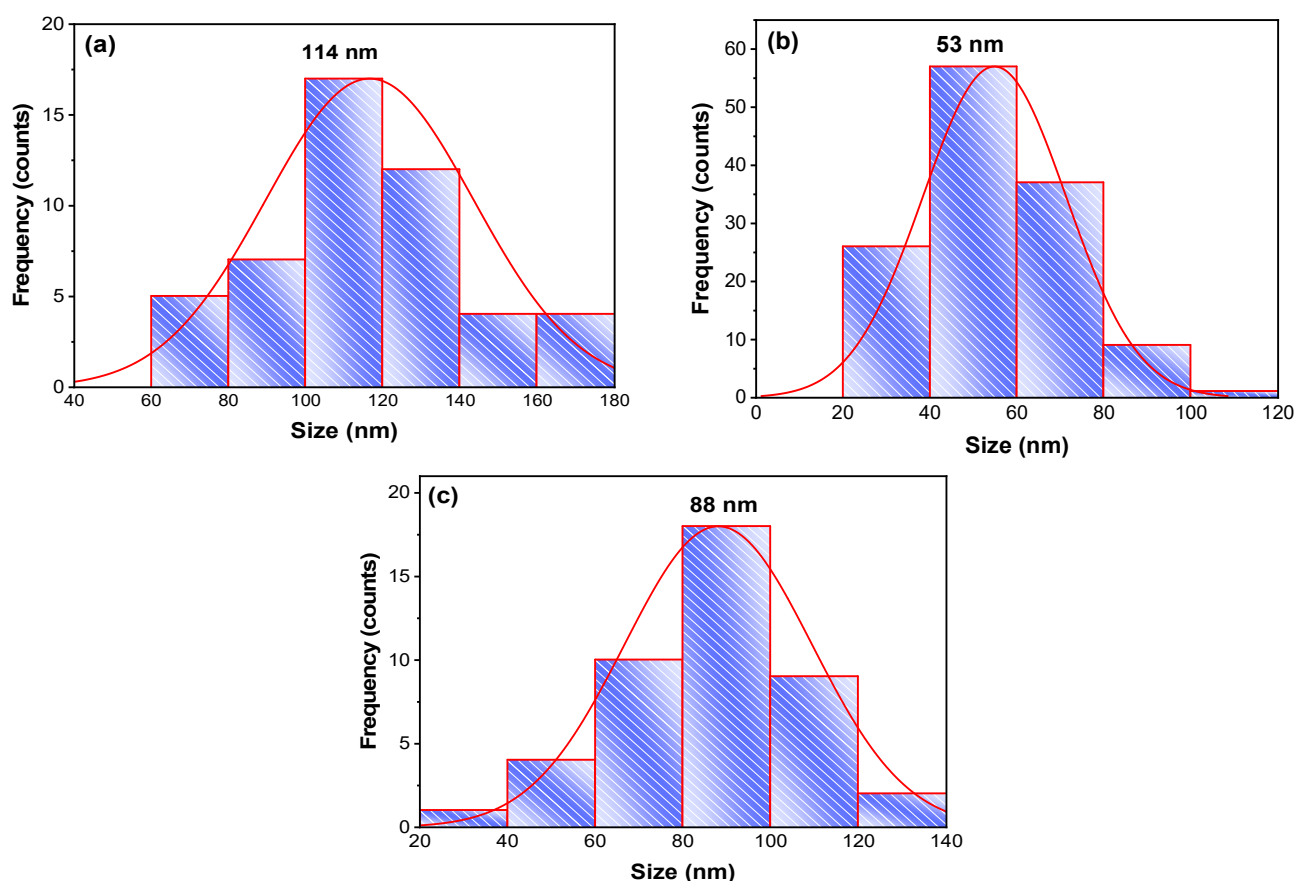


Figure S1. Particle size distribution histograms of (a) commercial TiO₂ (b) ZnO, and (c) B– ZnO/TiO₂.

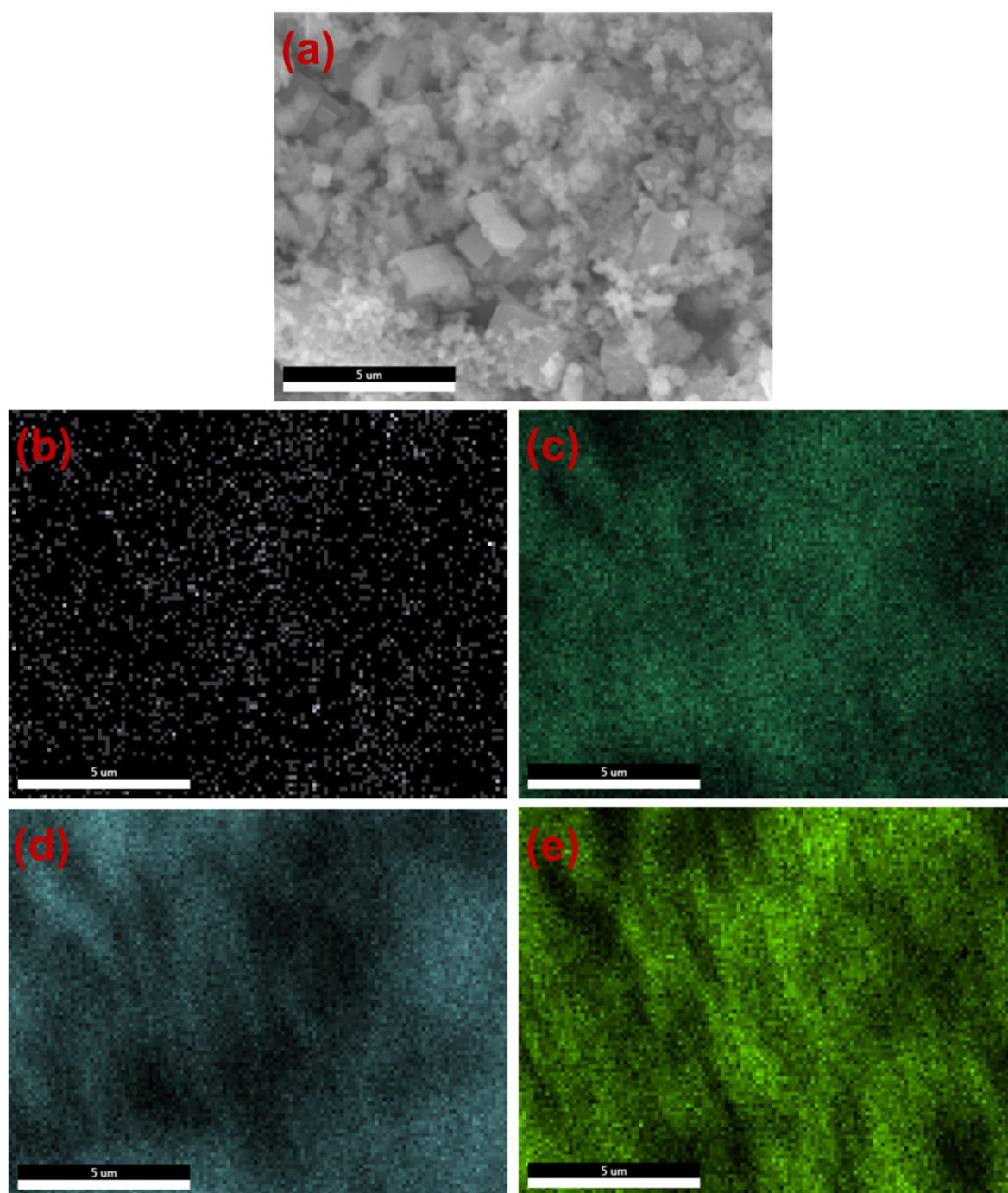


Figure S2. (a) SEM image of B-ZnO/TiO₂ and EDS elemental mapping of (b) boron (B), (c) zinc (Zn), (d) titanium (Ti), and (e) oxygen (O).

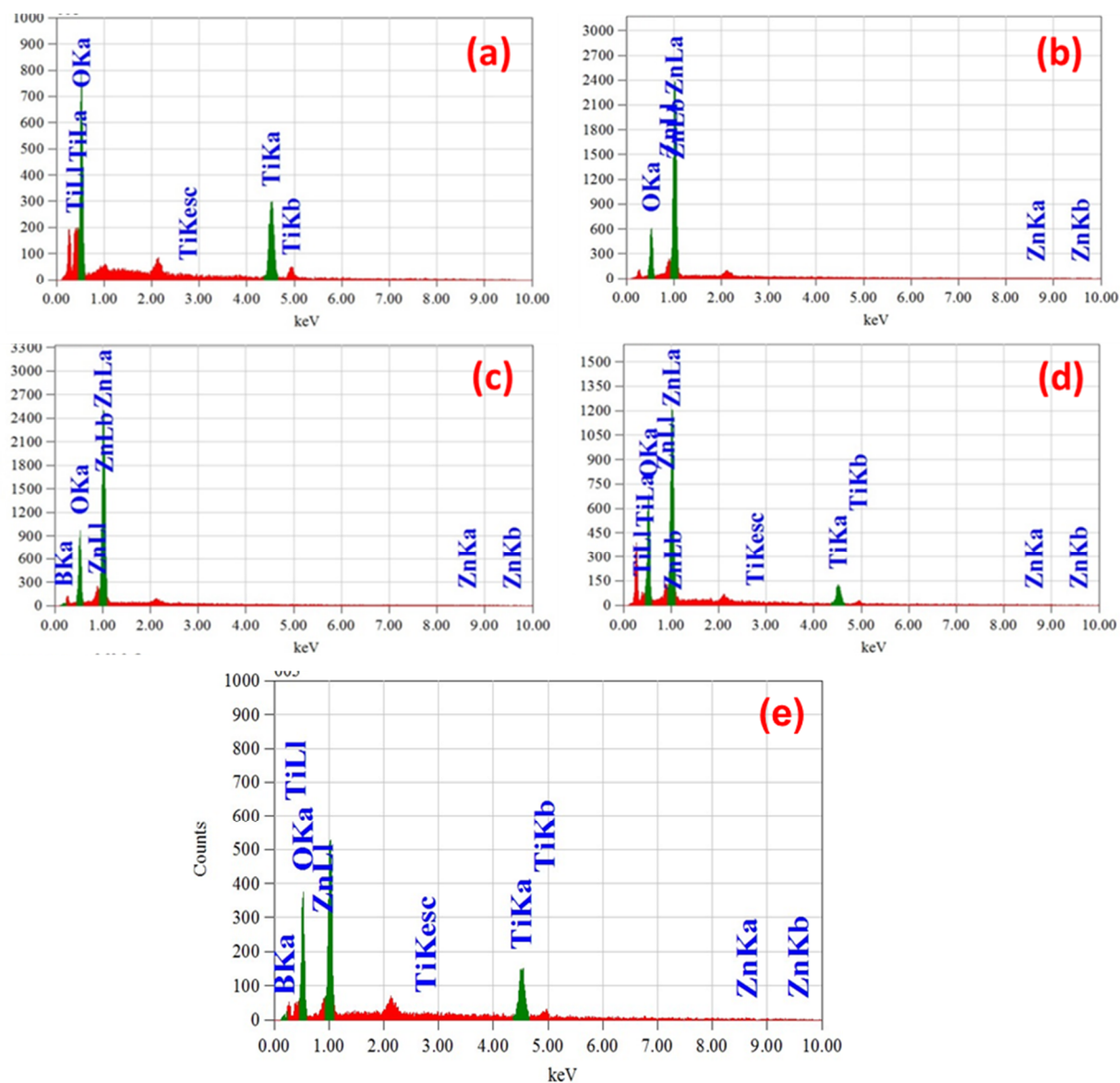


Figure S3. EDS pattern of (a) commercial TiO_2 (b) ZnO, (c) B-ZnO, (d) ZnO/ TiO_2 , and (e) B-ZnO/ TiO_2 .

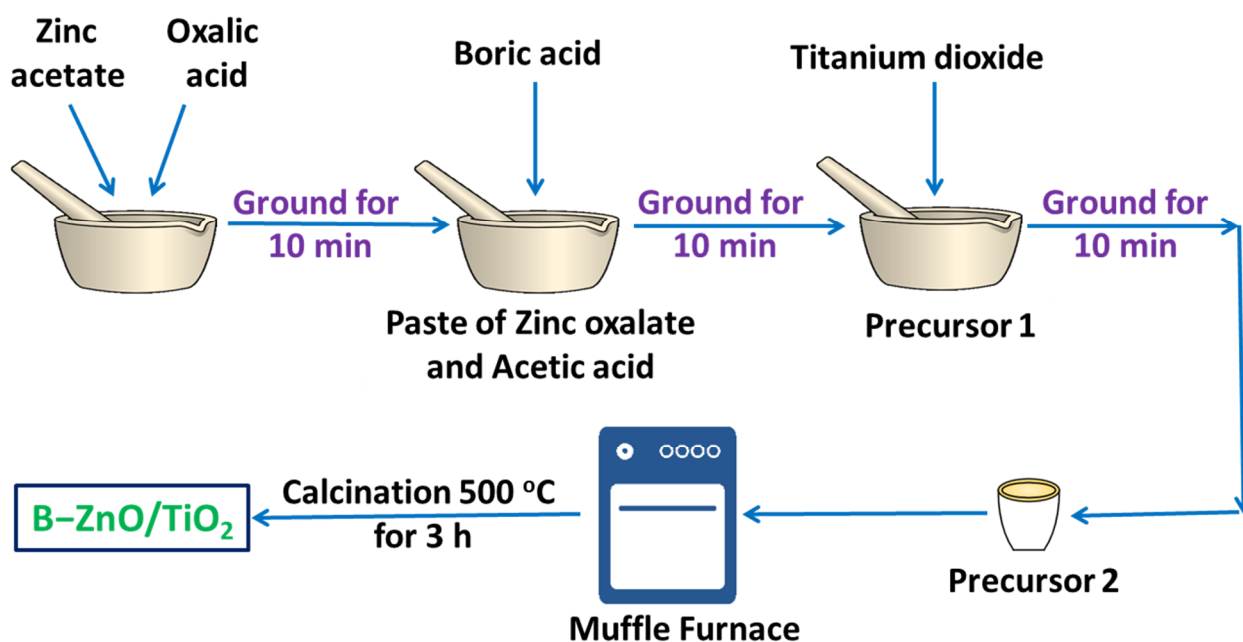


Figure S4. Schematic representation of the synthesis process of B-ZnO/TiO₂.

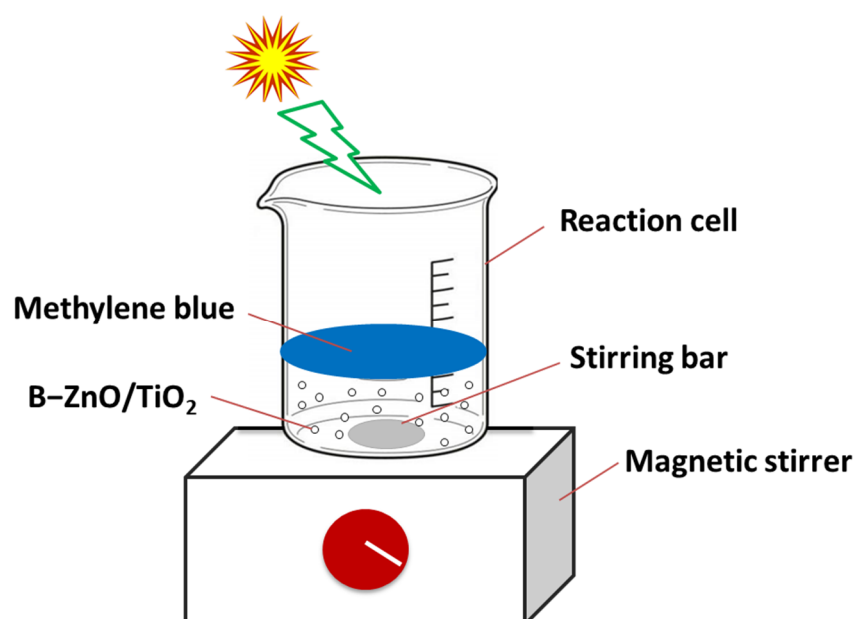


Figure S5. Schematic diagram of the reactor for photocatalytic degradation of MB dye.

Table S1. Elemental analysis of commercial TiO₂, ZnO, B–ZnO, ZnO/TiO₂, and B–ZnO/TiO₂ from EDS.

Photocatalysts	Element	Mass (%)	Atom (%)
Commercial TiO ₂	Titanium (Ti)	50.07	25.09
	Oxygen (O)	49.93	74.91
ZnO	Zinc (Zn)	80.60	50.41
	Oxygen (O)	19.40	49.59
B–ZnO	Zinc (Zn)	73.23	40.10
	Oxygen (O)	26.77	59.90
	Boron (B)	–	–
ZnO/TiO ₂	Zinc (Zn)	49.01	24.22
	Titanium (Ti)	20.21	13.63
	Oxygen (O)	30.78	62.15
B–ZnO/TiO ₂	Zinc (Zn)	31.84	14.33
	Titanium (Ti)	32.41	19.91
	Oxygen (O)	35.75	65.75
	Boron (B)	–	–

Table S2. Sunlight intensity during different experiments.

Experiment type	Date	Intensity (μW/cm ²)
Photocatalytic degradation	04-10-21	~1260
	06-10-21	~1170
	07-10-21	~1235
Photolysis of dye	10-10-21	~1295
Initial pH	12-10-21	~1175
	14-10-21	~1250
Photocatalyst amount	17-10-21	~1240
Initial dye concentration	20-10-21	~1215
Irradiation time	24-10-21	~1110
Radical scavengers	26-10-21	~1200
	28-10-21	~1230
Reusability	02-11-21	~1210
	07-11-21	~1125
	09-11-21	~1180