

Supplementary materials

Visible light driven spherical CuBi_2O_4 with surface oxygen vacancy enhanced photocatalytic activity: catalyst fabrication, performance and reaction mechanism

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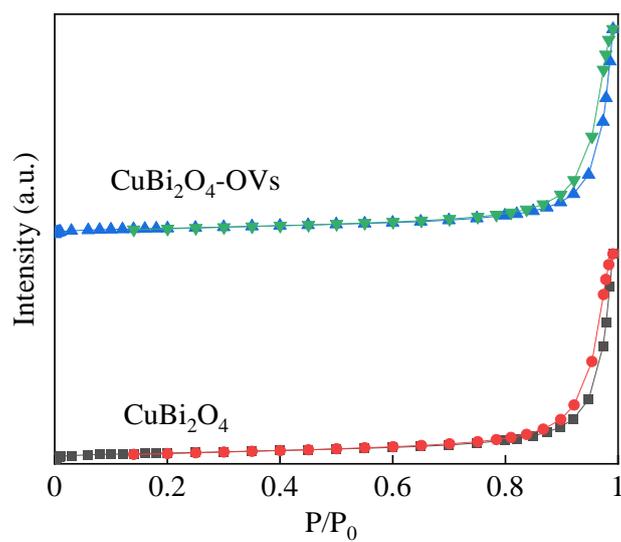


Figure S1. N₂ adsorption-desorption isotherm of CuBi₂O₄ and CuBi₂O₄-OVs.

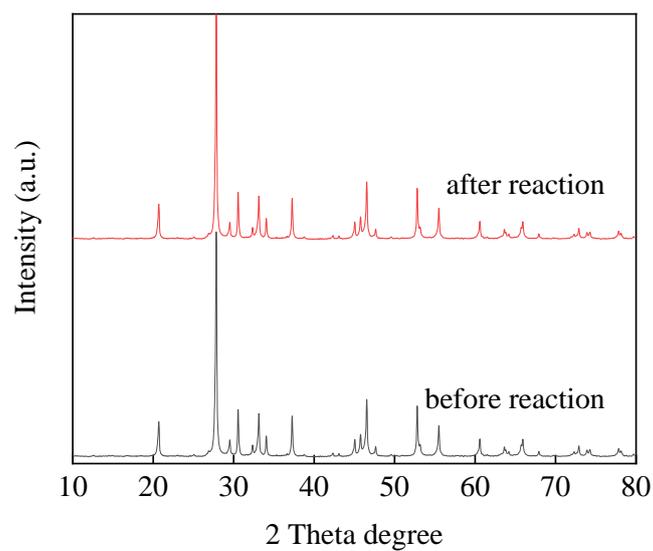


Figure S2. XRD patterns of the CuBi₂O₄-OVs catalyst before and after the reaction.

Table S1. Studies on of Bi-based catalysts in the photocatalytic reactions*

No.	Systems	Light source	Target pollutant	Reaction time and efficiency	Operation parameters
1	Vis+CuBi ₂ O ₄ (pure)+PMS	300W xenon lamp	RhB; 25 mg/L	50.5% 180 min	[RhB]=25 mg/L, [PMS]=0.65 mM, [catalyst]=0.8g/L, pH=3.4
2	Bi _{1.09} Sb _{0.91} S ₃ +Vis	CFL 60 W	RhB; 10 ppm	97.71% 30 min	[RhB]=10 ppm, [catalyst]=5 g/L
3	CuBi ₂ O ₄ +Vis	500W xenon lamp	CIP; 10ppm	26%;180min	[CIP]=10 ppm, [catalyst]=1 g/L
4	PMS/CuBi ₂ O ₄ /Vis	300W xenon lamp	TC; 50 mg/L	Nearly complete removal; 60 min	[PMS]= 0.125 mg/mL; [catalyst]=0.5 g/L
5	NaBiO ₃ +Vis	750W xenon lamp	RhB; 20 mg/L	100%; 30min	[catalyst]=1.0 g/L
6	CuBi ₂ O ₄ +Vis+PMS	35W xenon lamp	Ceftiofur; 5 mg/L	Nearly 50% 40min	[PMS] =0.4g/L, [catalyst]=0.3 g/L, pH=5.8
7	CuBi ₂ O ₄ +Vis	300 W xenon lamp	Tetracycline; 20 mg/L	9.2%; 60min	[catalyst]=0.3 g/L
8	CuBi ₂ O ₄ +Vis	500 W xenon lamp	Norfloxacin; 10 mg/L	11%; 60 min	[catalyst]=1.0 g/L
9	CuBi ₂ O ₄ +Vis	300 W xenon lamp	Tetracycline; 20 mg/L	36%; 120min	[catalyst]=1.0 g/L
10	CuBi ₂ O ₄ +Vis	300 W xenon lamp	Diclofenac; 10 mg/L	67.12%; 120 min	[catalyst]=0.5 g/L
11	CuBi ₂ O ₄ +Vis+PS	50 W LED lamp	RhB;1*10 ⁻⁵ M (4.79 mg/L)	Nearly 80%; 300 min	[catalyst]=0.5 g/L, [PS]=1.48 mM

This work	CuBi ₂ O ₄ +Vis+PMS	30 W LED lamp	RhB; 20 mg/L	87.9%; 60 min	[catalyst]=0.5 g/L, [PS]=0.4 mM, Neutral pH
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*only photocatalytic activity of pure CuBi₂O₄ was discussed in this table.

Table S2. Surface area, pore volume, pore size of CuBi₂O₄ and CuBi₂O₄-OVs samples.

Sample	BET surface area (m ² /g)	Pore volume (cm ³ /g)	Pore size (nm)
CuBi ₂ O ₄	4.76	0.013773	10.9
CuBi ₂ O ₄ -OVs	5.01	0.043726	11.1

References:

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