

Photocatalytic degradation of tobacco tar using CsPbBr₃ Quantum Dots Modified Bi₂WO₆ Composite Photocatalyst

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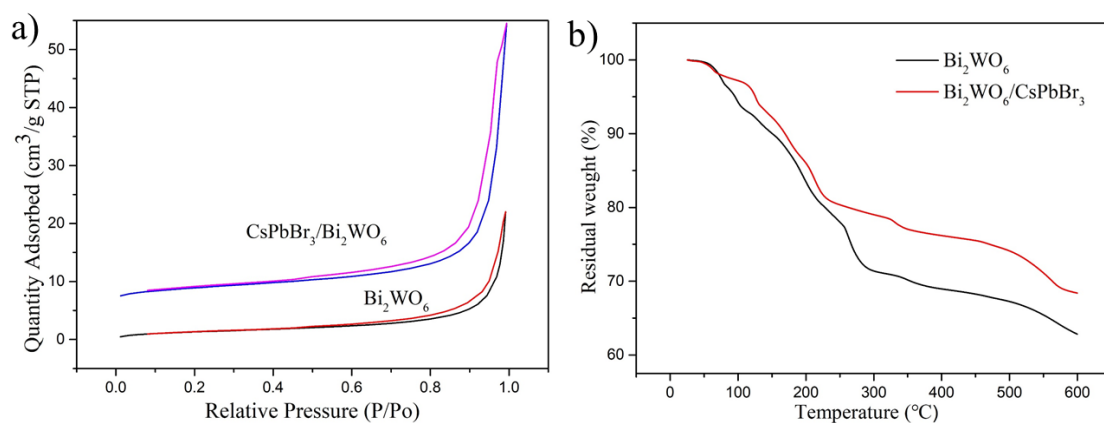


Figure S1. a) adsorption/desorption isotherms of pure Bi_2WO_6 and $\text{CsPbBr}_3/\text{Bi}_2\text{WO}_6$; b) the TGA curves of pure Bi_2WO_6 and $\text{CsPbBr}_3/\text{Bi}_2\text{WO}_6$.

Table S1. The total organic carbon (TOC) content of PAHs with 15 wt% $\text{CsPbBr}_3/\text{Bi}_2\text{WO}_6$ nanocomposite.

Time	TOC(mg/L)	TC (mg/L)	IC (mg/L)
Before reaction	5.6	6.0513	0.4513
After reaction	2.3	2.433	0.133

Table S2. The main substrates from tobacco tar identified by GC-MS

PAHs	Abbreviation	Concentration ($\mu\text{g/mL}$)
Acenaphthene	ANP	1.28
Benzo(a)anthracene	BaA	2.36
Benzo(b)fluoranthene	BbF	1.47
Benzo(k)fluoranthene	BkF	1.68
Benzo(a) perylene	BaP	2.15
Benzo(g,h,i) perylene	BgA	1.77
Fluorene	FLU	1.45
Fluoranthene	FLT	1.89
Indeno(1,2,3-cd) Pyrene	IDP	1.92
Phenanthrene	PHT	1.12

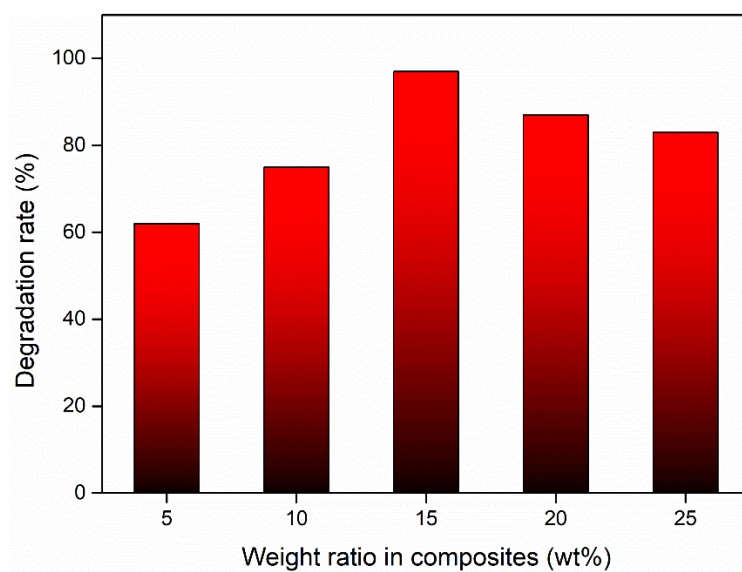


Figure S2. Degradation rate of PAHs using 15 wt% CsPbBr₃/Bi₂WO₆ composite photocatalyst with different CsPbBr₃ weight ratios.

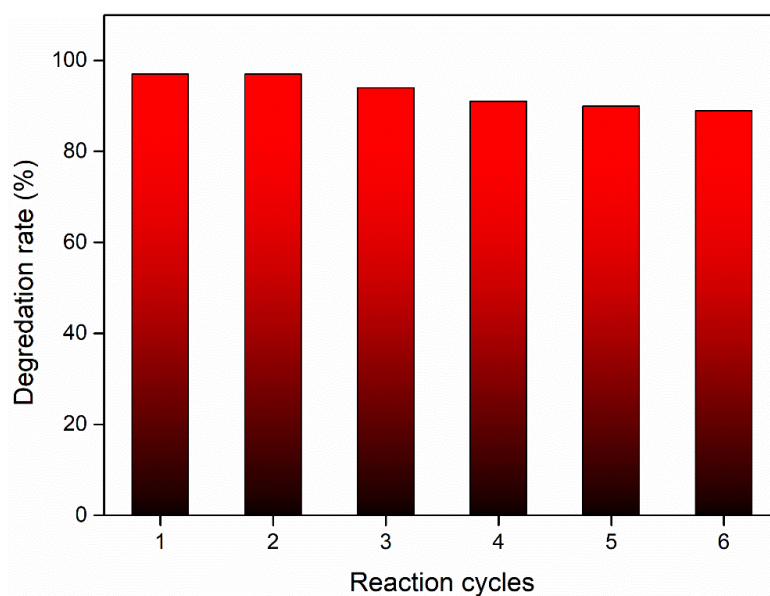

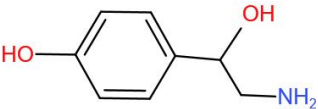
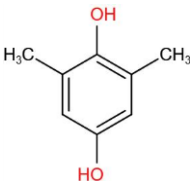
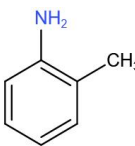


Figure S3. Degradation rate of PAHs using 15 wt% CsPbBr₃/Bi₂WO₆ composite photocatalyst with air in different reaction cycles.

Table S3. The main products from the photodegradation of tobacco tar. Noted that there are side-products with low concentration.

Product names	Chemical Structure	Molar percentage (%)
Benzoquinone,q		12.6
Octopamine		25.7
Benzoquinone 2,5 alkyl, 1,4 dione		18.2
2-amino toluene		22.4
Carbon dioxide	O=C=O	21.1

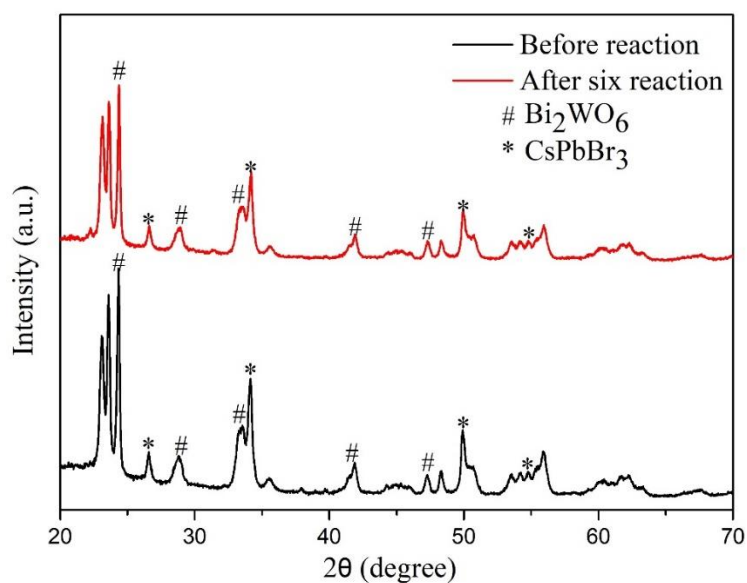


Figure S4. XRD patterns of 15 wt% CsPbBr₃/Bi₂WO₆ before reaction and after six reactions

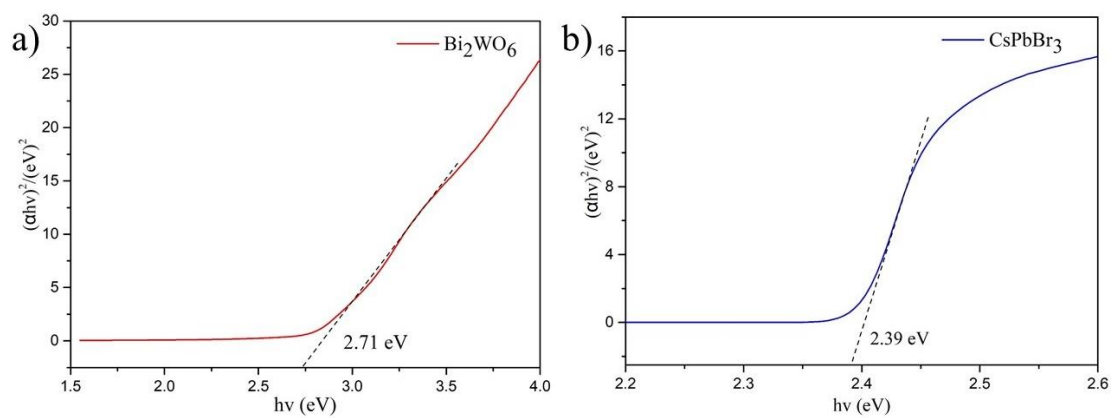


Figure S5. Tauc plots of the Bi_2WO_6 (a) and CsPbBr_3 (b).