

Supplementary Material

BiOBr/BiOCl/carbon quantum dots microspheres with superior visible light-driven photocatalysis

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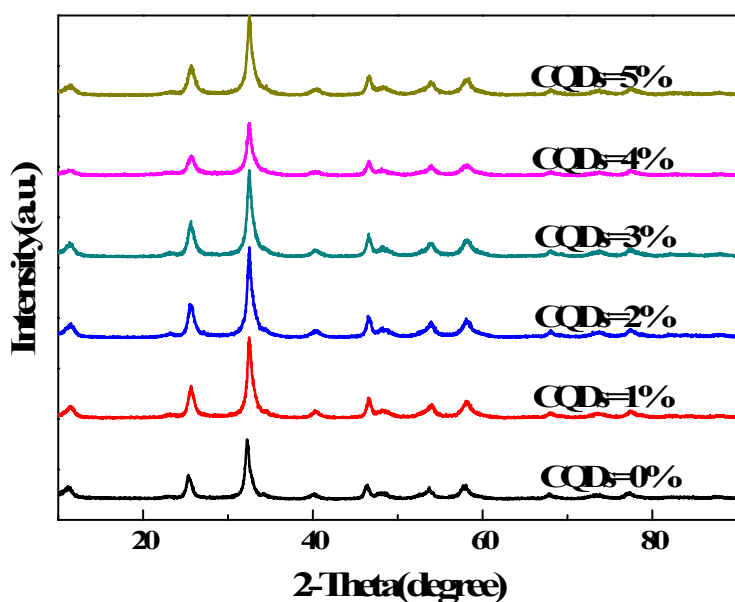


Fig.S1 XRD patterns of BiOBr/BiOCl/CQDs materials with different CQDs amounts.

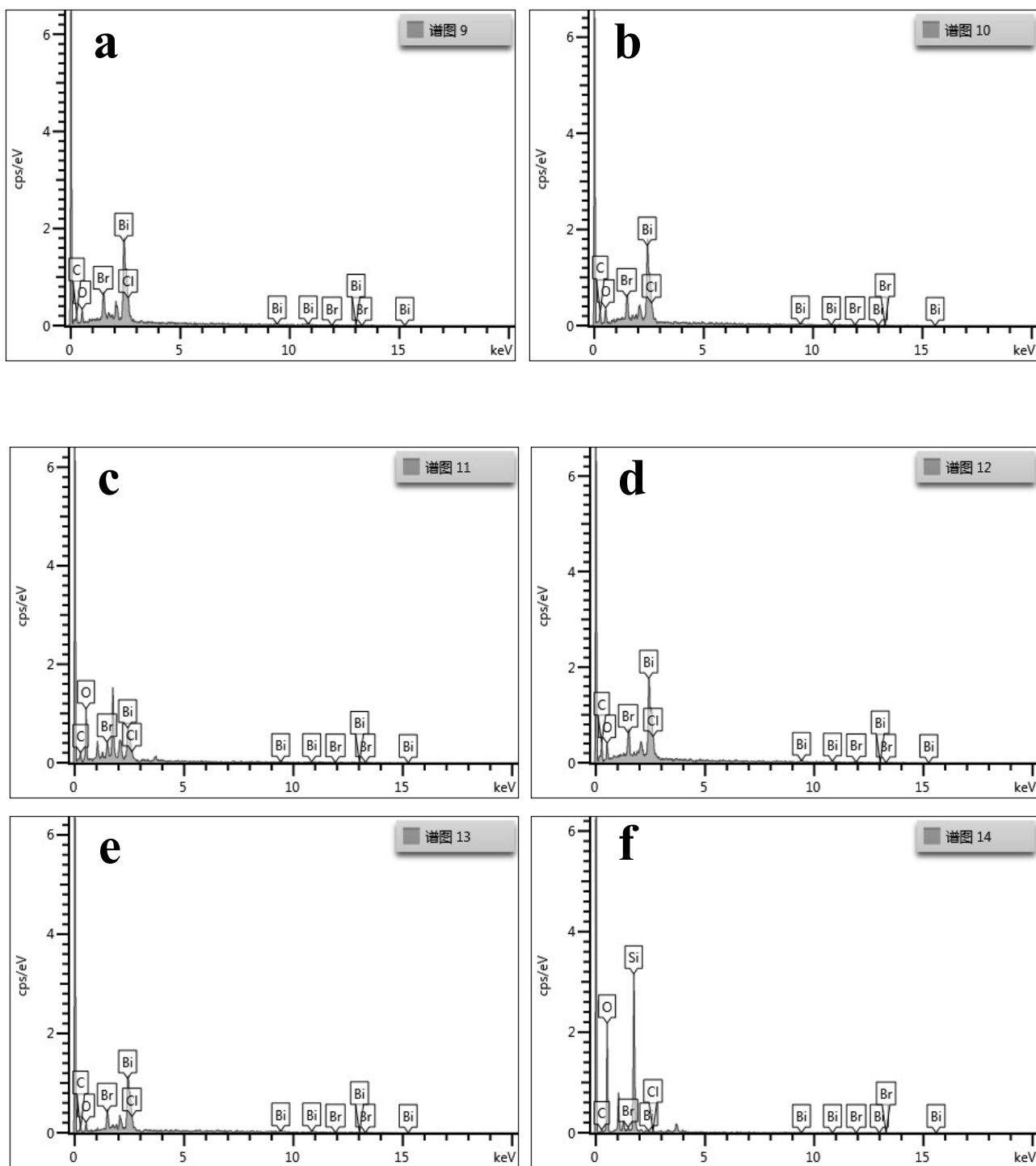


Fig.S2 Energy dispersion X-ray spectroscopy (EDS) of BiOBr/BiOCl/CQDs materials with different CQDs amounts: (a) 0 %, (b) 1 wt%, (c) 2 wt%, (d) 3 wt%, (e) 4 wt% and (f) 5 wt%.

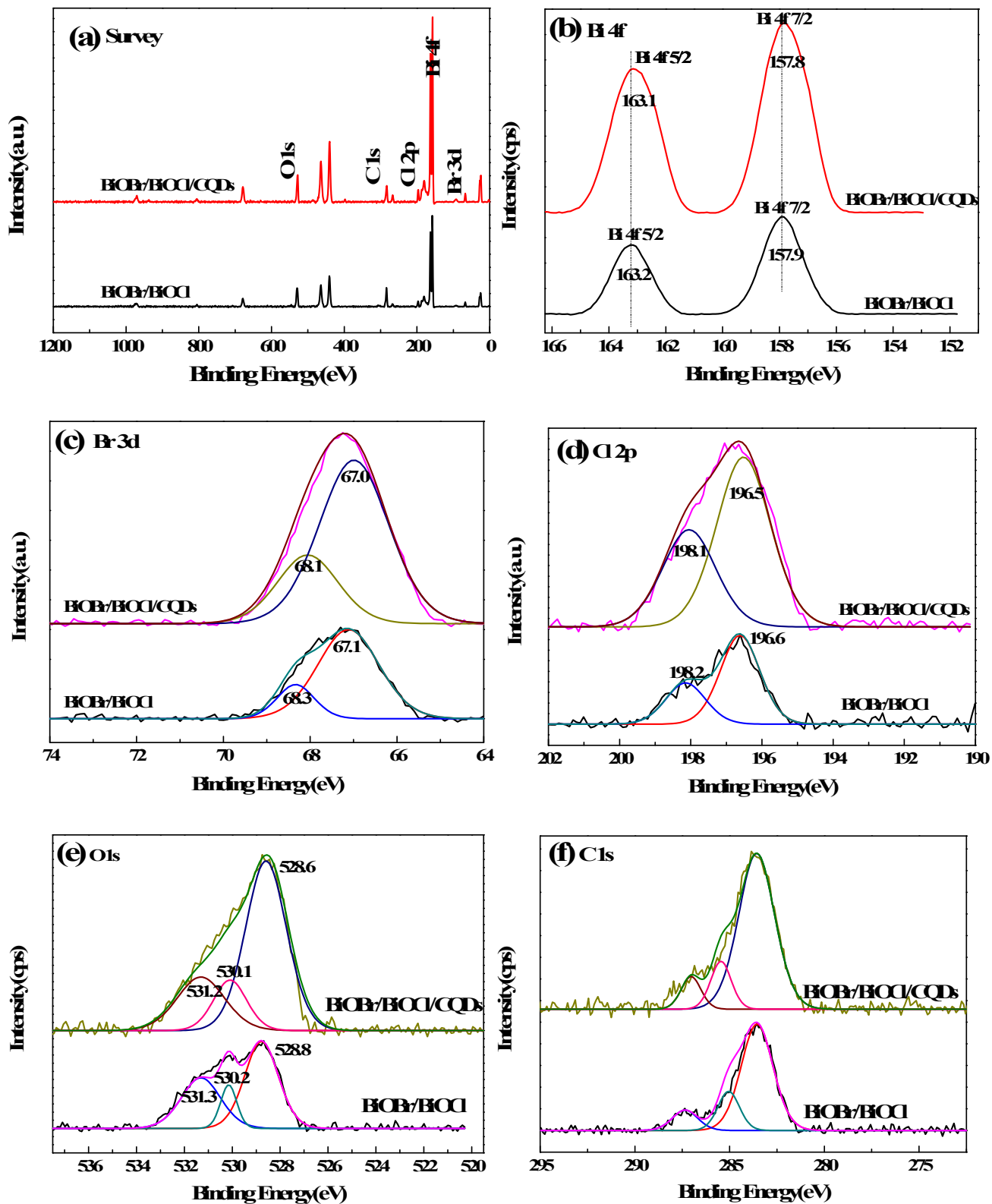


Fig.S3 XPS spectra of BiOBr/BiOCl and BiOBr/BiOCl/CQDs-4%: (a) survey spectra, (b) Bi 4f, (c) Br 3d, (d) Cl 2p, (e) O 1s and (f) C 1s core-level spectra.

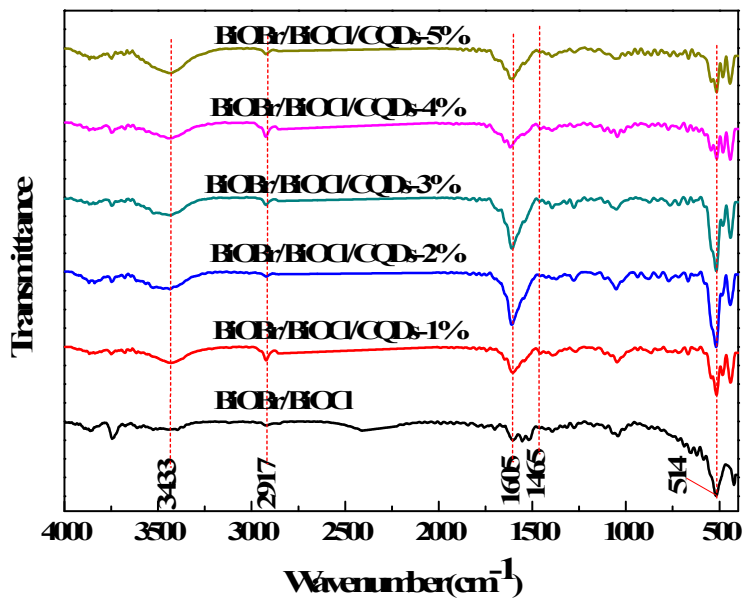


Fig.S4 FT-IR spectra of BiOBr/BiOCl/CQDs samples with different CQDs contents.

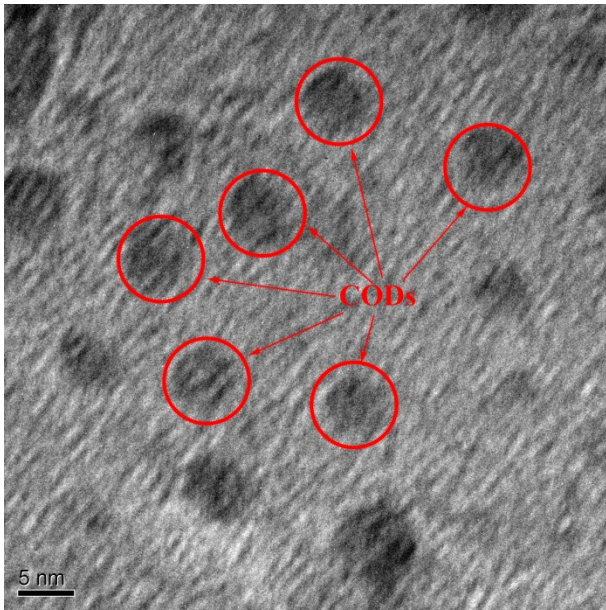


Fig. S5 HETEM of BiOBr/BiOCl/CQDs-4%.

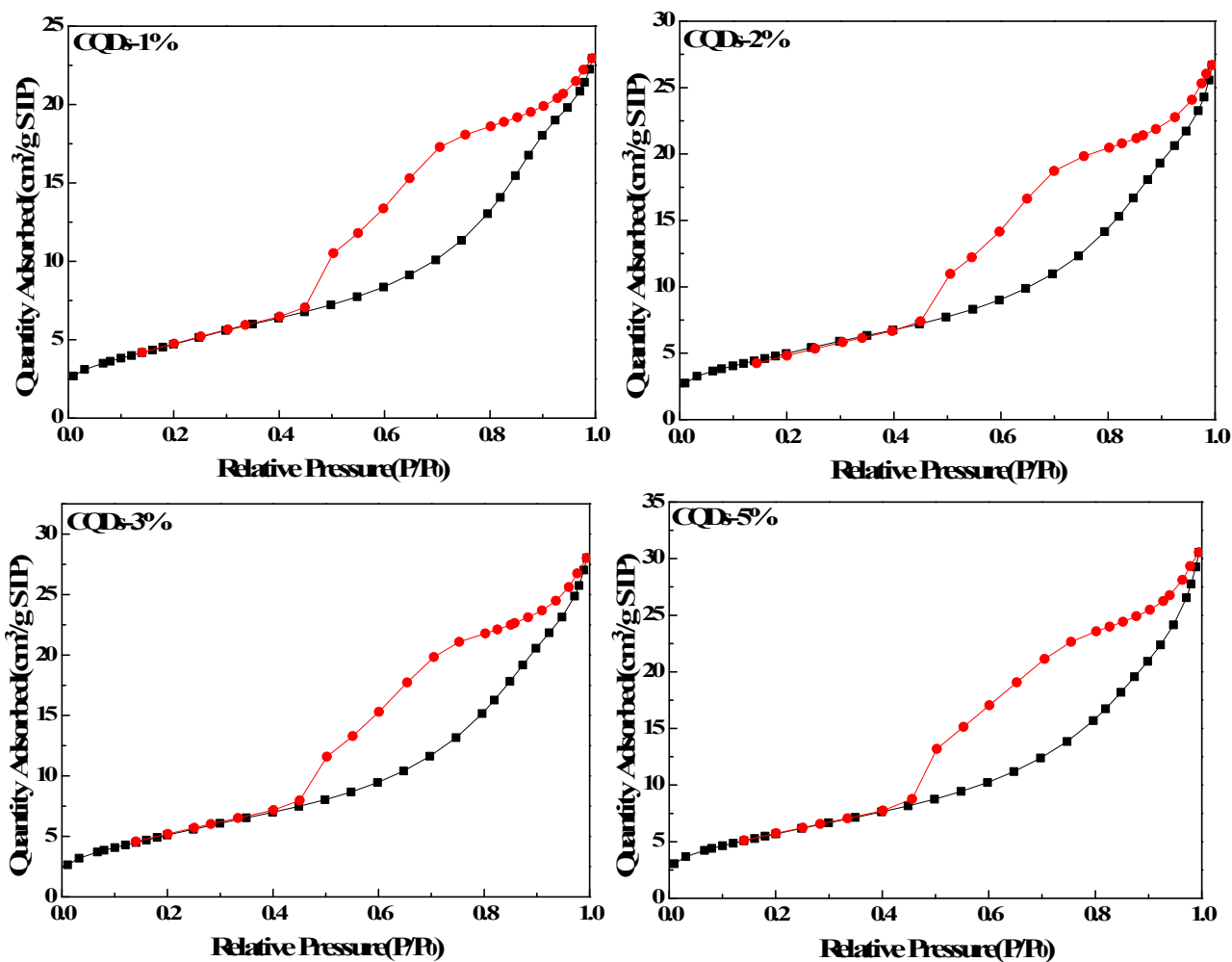


Fig. S6 Nitrogen absorption-desorption isotherms of BiOBr/BiOCl/CQDs materials with different CQDs content: (a) 1%, (b) 2%, (c) 3%, (d) 5%.

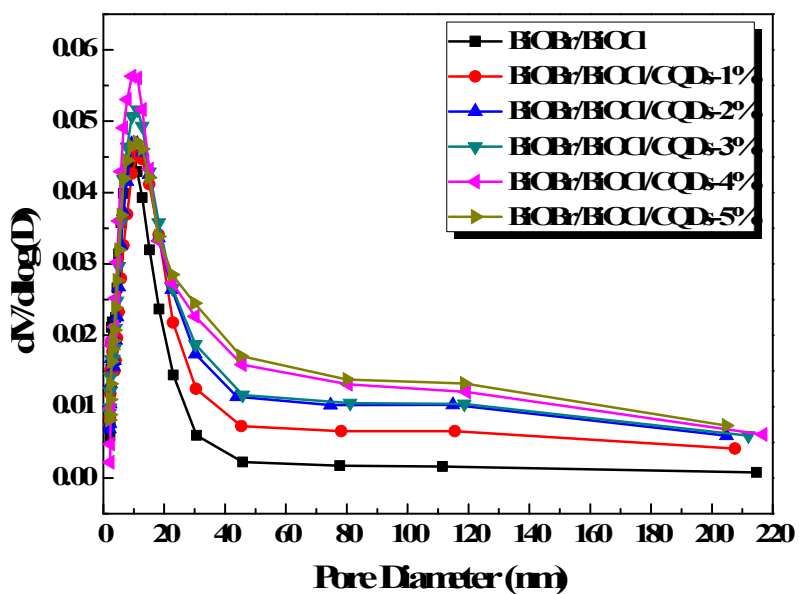


Fig. S7 Diameter distribution of BiOBr/BiOCl/CQDs materials with different CQDs content.

Table S1 Main parameter of N₂ adsorption-desorption isotherm of BiOBr/BiOCl/CQDs.

Sample BiOBr/BiOCl/CQDs-x	BET Surface Area (m ² /g)	BJH pore volume (cm ³ /g)	Average pore size (nm)
0	17.9	0.030280	6.8
1%	17.4	0.035488	8.2
2%	18.5	0.041291	8.9
3%	19.2	0.043343	9.0
4%	17.4	0.046974	10.8
5%	21.1	0.047261	9.0

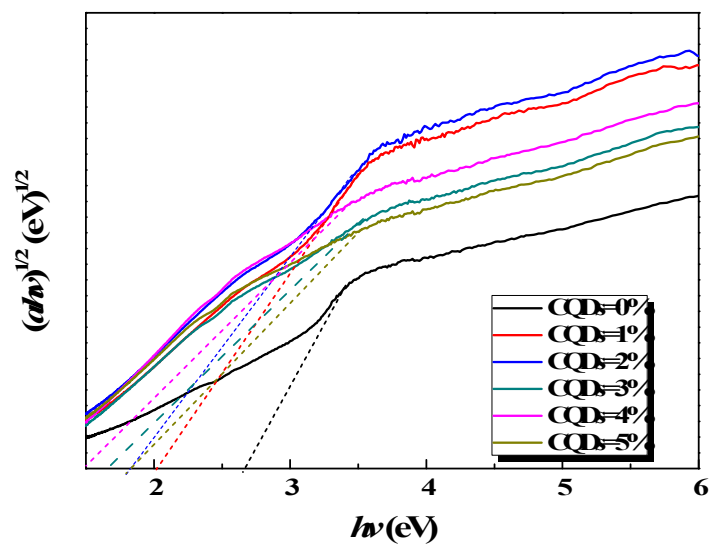


Fig. S8 $(\alpha h\nu)^{1/2}$ vs $h\nu$ curves of BiOBr/BiOCl/CQDs materials with different contents of CQDs.

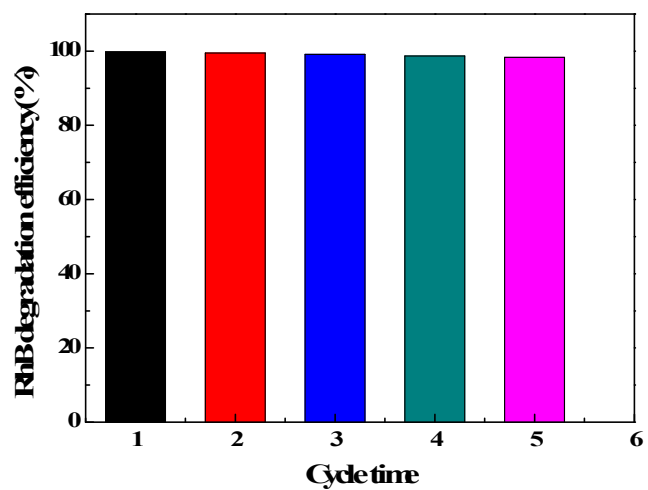


Fig. S9 Cycling runs for the photodegradation of RhB in the presence of BiOBr/BiOCl/CQDs-4% materials under visible light irradiation.

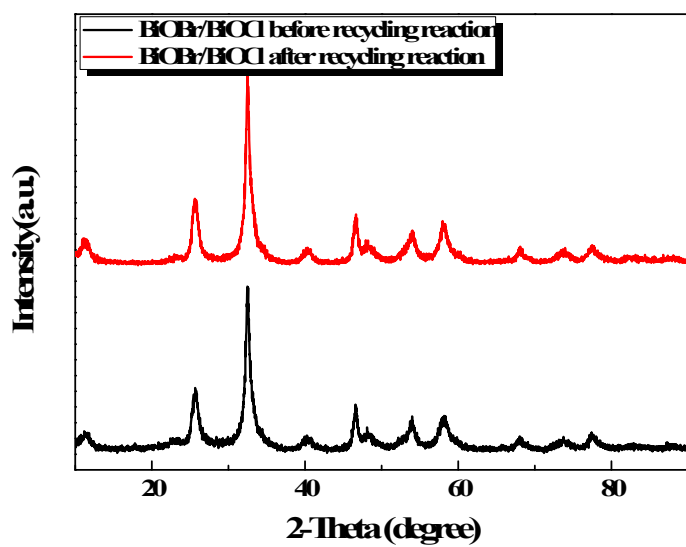


Fig. S10 XRD patterns of the BiOBr/BiOCl/CQDs-4% photocatalyst before and after being used for five times.