Electronic Supplementary Information

Synthesis of homogeneous sphere-like Bi_2WO_6 nanostructure based on silica protected calcination with high visible-light-driven photocatalytic activity under direct sunlight

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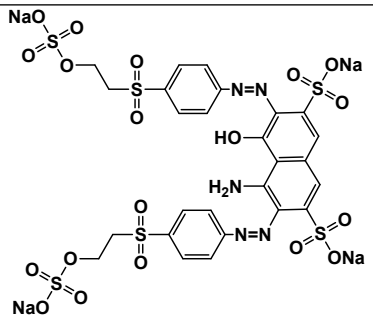
Table S1 The molecular structure and chemical properties of Reactive black 5 dye

Molecular structure	Chemical properties	
 **Reactive black 5**	Chemical formula	$C_{26}H_{21}N_5Na_4O_{19}S_6$
	Molecular weight	991.82 g/mol
	Absorption maximum	597 nm
	Class	Diazo

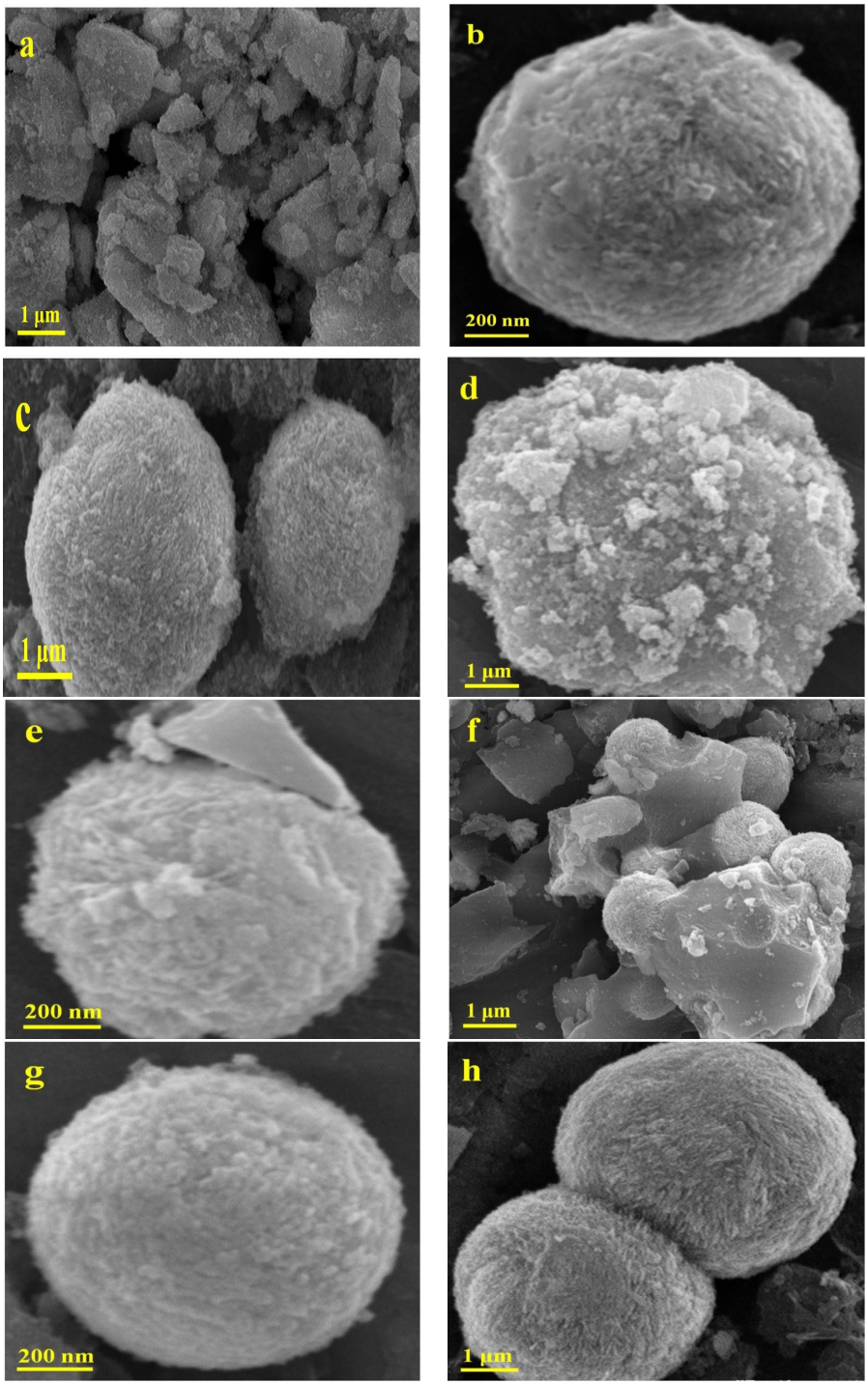


Fig. S1 SEM image of Bi_2WO_6 sphere prepared at different hydrothermal time (a) BW-S-BC-0.5 h, (b) BW-S-BC-3 h, (c) BW-S-BC-12 h, (d) BW-S-BSE-0.5 h, (e) BW-S-BSE-1 h, (f) BW-S-BSE-2 h, (g) BW-S-BSE-3 h and (h) BW-S-BSE-12 h.

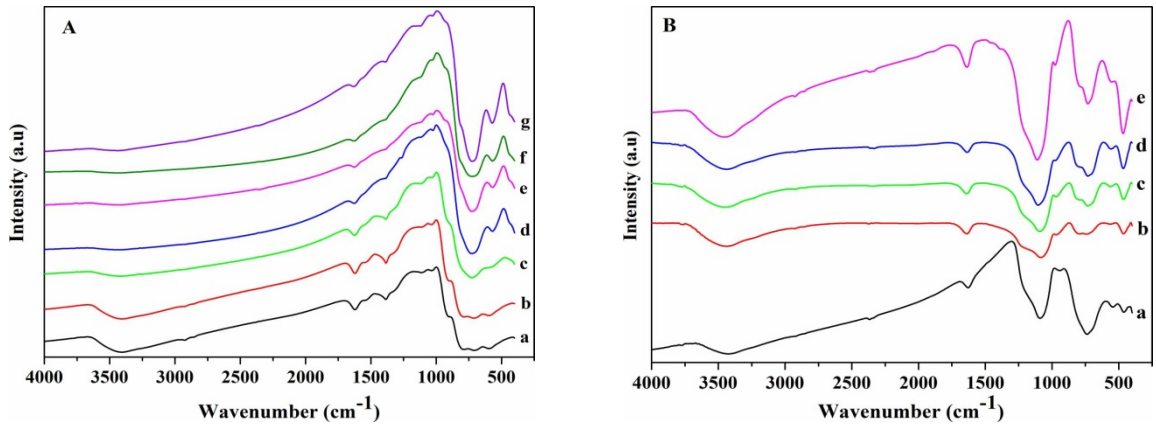


Fig. S2 FT-IR spectra of Bi_2WO_6 flower and SiO_2@$BiWO_6$ sphere samples synthesised at different hydrothermal time (A) BW-F-x (a-0.5 h, b-1 h, c-1.5 h, d-2 h, e-3 h, f-6 h and g-12 h), (B) BW-S-BSE-x (a-0.5 h, b-1 h, c-2 h, d-3 h and e-12 h).

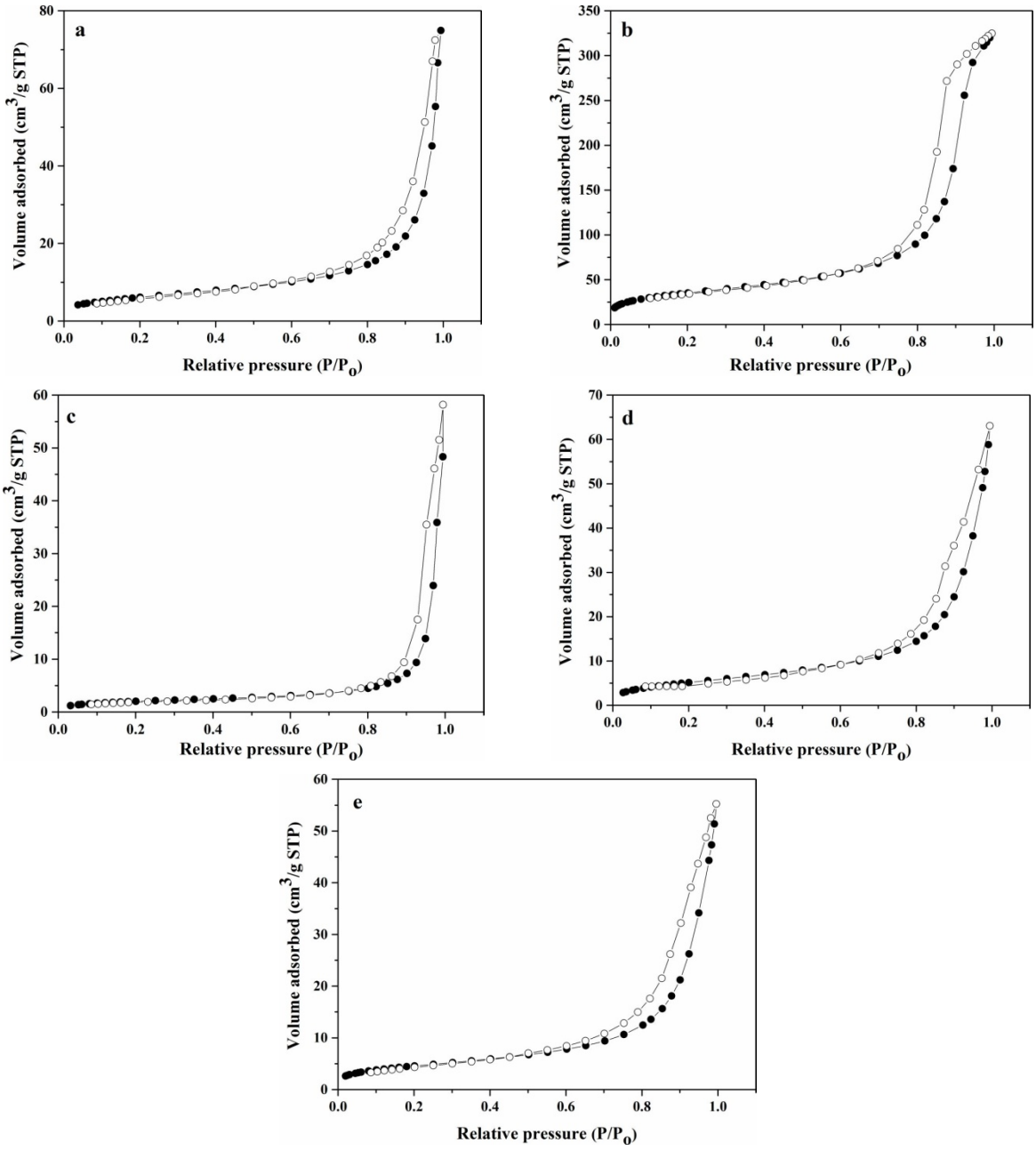


Fig.S3 N_2 adsorption and desorption isotherm plot of (a) BW-F-12 h, (b) BW-S-BSE-12 h, (c) BW-S-ASE-0.5 h, (d) BW-S-ASE-1 h and (e) BW-S-ASE-1.5 h at 77 K. (solid circle-adsorption branch; open circle-desorption branch).

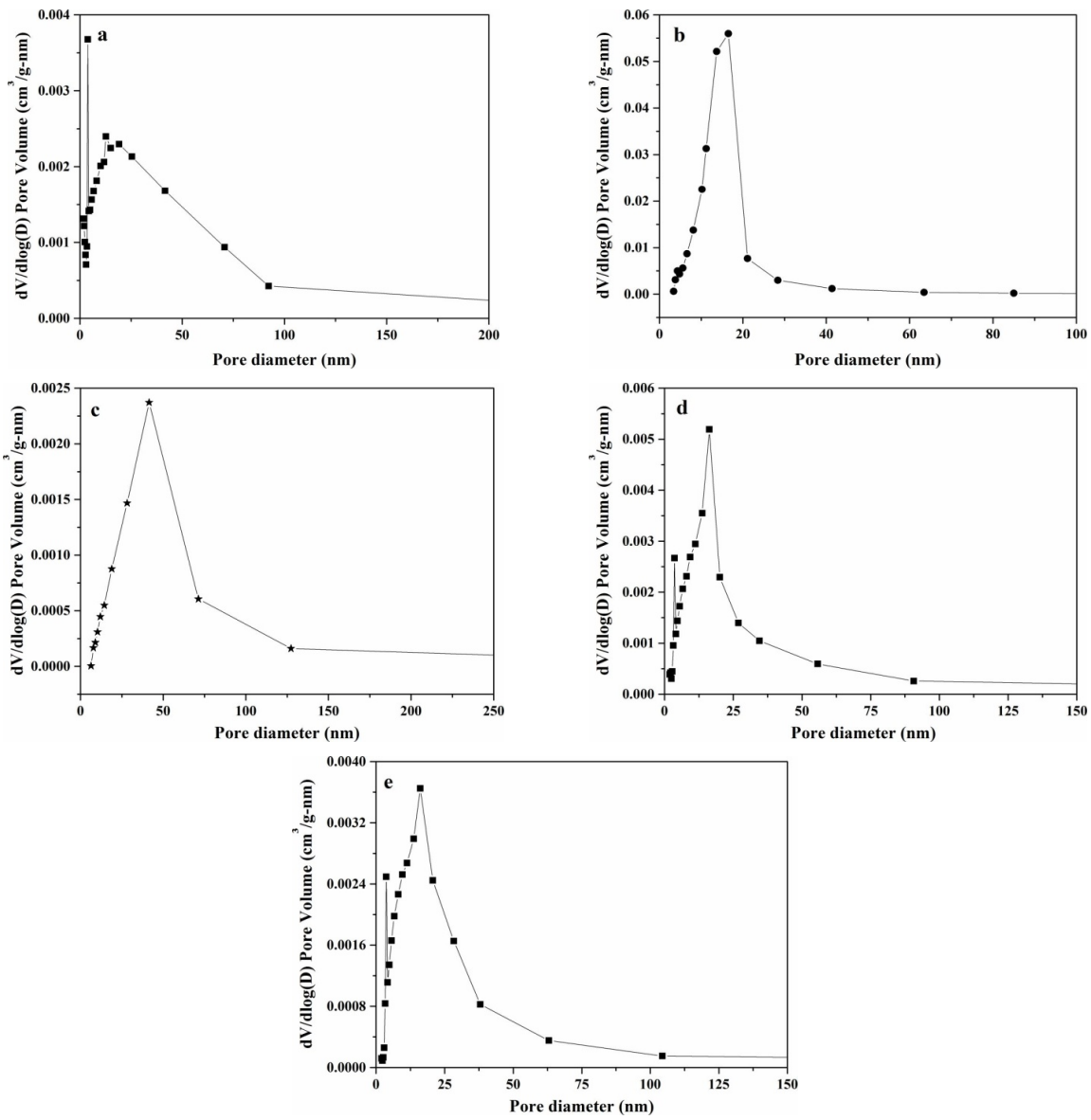


Fig. S4 Pore size distribution of (a) BW-F-12 h, (b) BW-S-BSE-12 h, (c) BW-S-ASE-0.5 h, (d) BW-S-ASE-1 h and (e) BW-S-ASE-1.5 h.

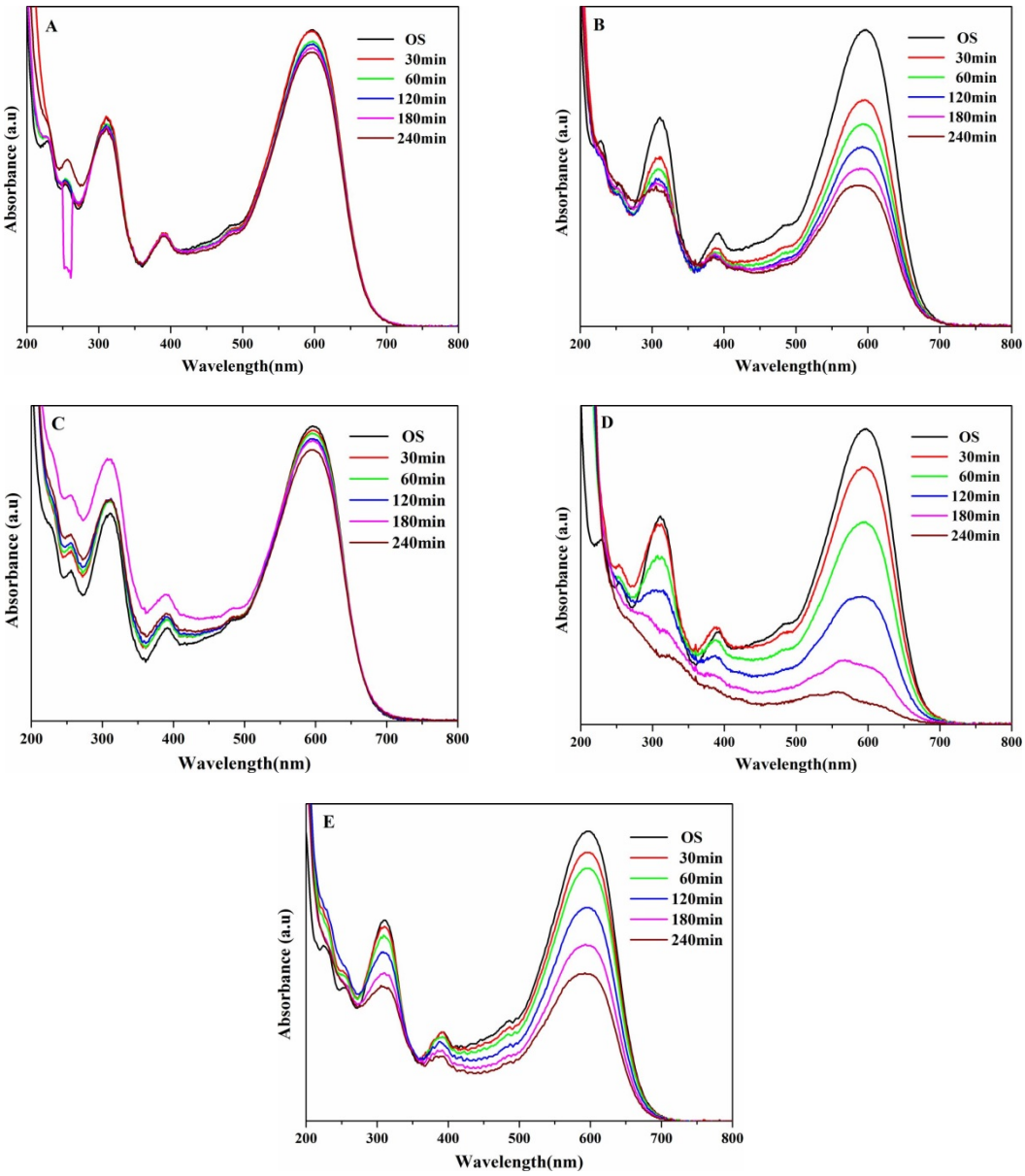


Fig. S5 UV-visible degradation profile of RB5 dye degradation using (A) blank, (B) BW-F-12 h, (C) BW-S-BSE-12 h, (D) BW-S-ASE-0.5 h and (E) BW-S-ASE-1.5 h photocatalyst under direct sunlight irradiation.