Electronic Supplementary Material (ESI) for RSC Advances

Supporting Information for the Manuscript

Bi_2WO_6: A highly chemoselective visible light photocatalyst toward aerobic oxidation of benzylic alcohols in water

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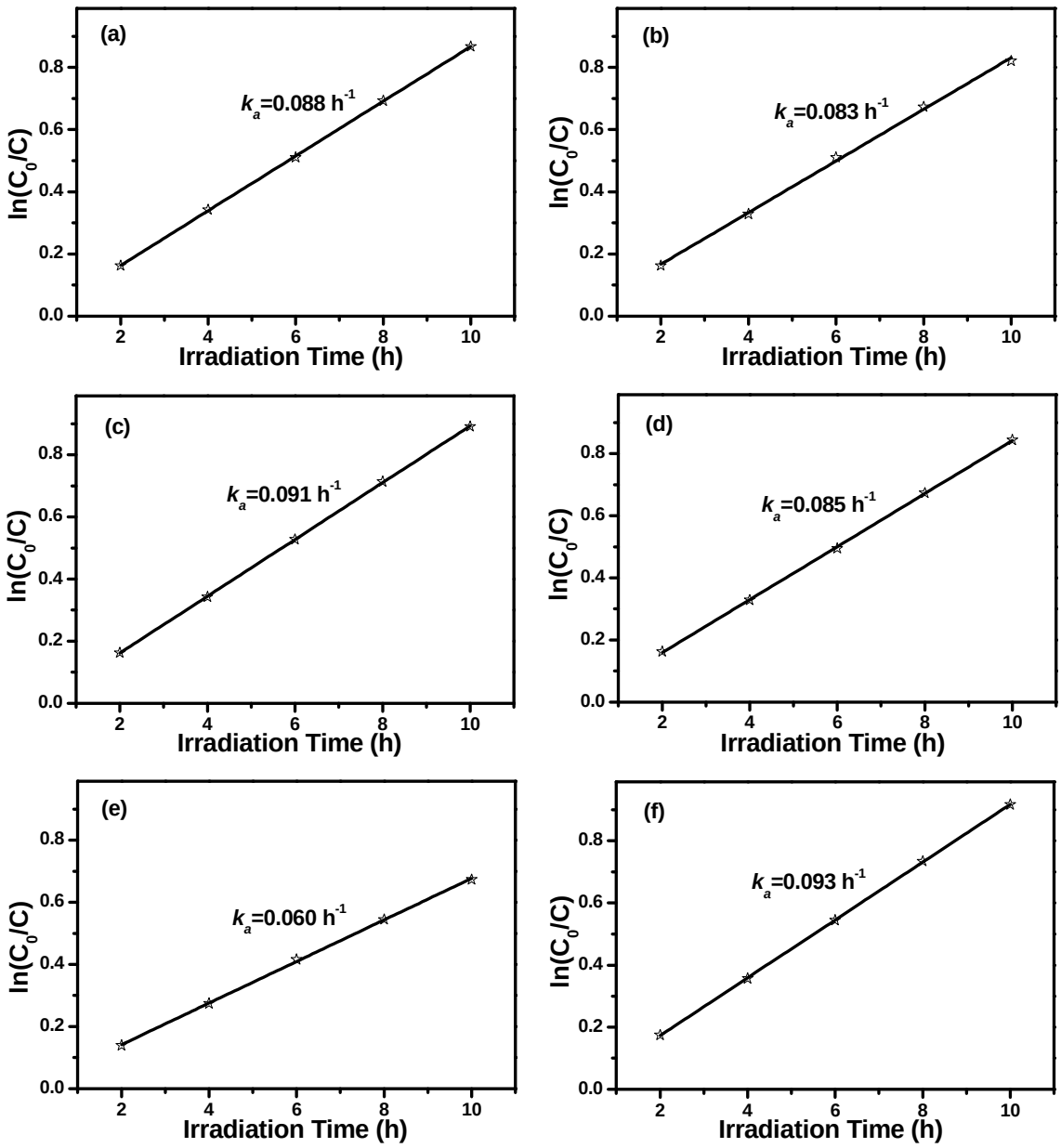


Fig. S1 The kinetic rate constant for aerobic oxidation of benzylic alcohols to corresponding benzylic aldehydes in water over Bi_2WO_6 under mild conditions; (a) benzyl alcohol; (b) *p*-methyl benzyl alcohol; (c) *p*-methoxyl benzyl alcohol; (d) *p*-nitro benzyl alcohol; (e) *p*-chloro benzyl alcohol; (f) *p*-fluoro benzyl alcohol.

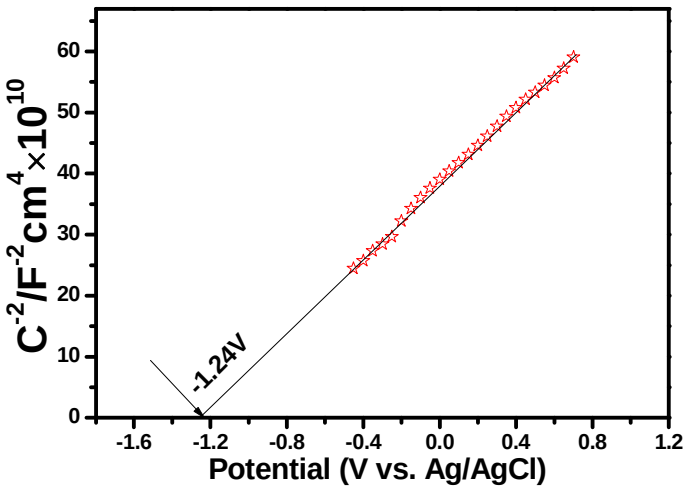
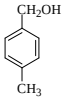
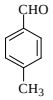
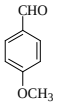
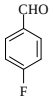


Fig. S2 Mott-Schottky plots for Bi_2WO_6 in 0.2 M Na_2SO_4 aqueous solution (pH=6.8).

Table S1. Photocatalytic selective oxidation of various benzylic alcohols to corresponding aldehydes over flower-like Bi_2WO_6 in benzotrifluoride (BTF) under visible light irradiation for 10 h.

Entry	Substrate	Product	Conversion (%)	Selectivity (%)
1			57	99
2			56	98
3			58	98
4			53	98
5			42	96
6			59	96

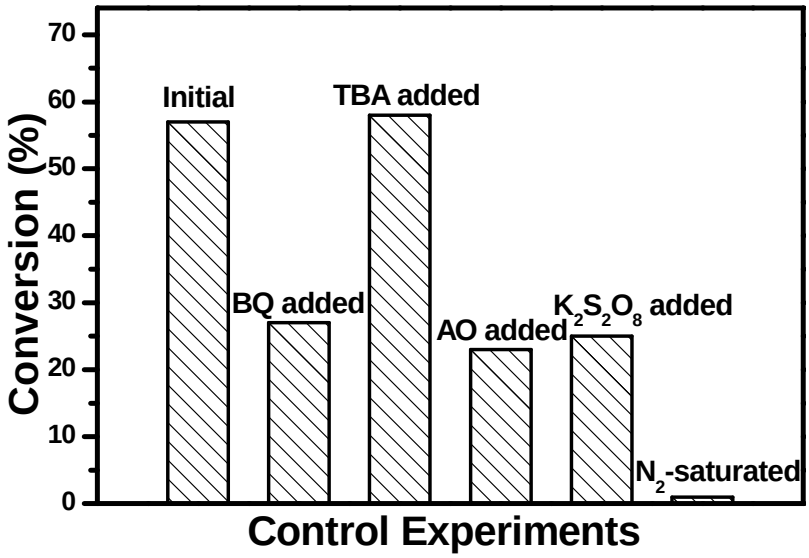


Fig. S3 Controlled experiments of photocatalytic selective oxidation of benzyl alcohol in the presence of benzoquinone (BQ, scavenger for superoxide radicals), *tert*-butyl alcohol (TBA, scavenger for hydroxyl radicals), ammonium oxalate (AO, scavenger for holes), $K_2S_2O_8$ (scavenger for electrons), or N_2-saturated condition over the flower-like Bi_2WO_6 in benzotrifluoride (BTF) under visible light irradiation for 10 h.