**Novel Tm3+/Yb3+ co-doped** Bi2MoO6: **Synthesis, characterization and enhanced photocatalytic activity under visible-light irradiation**

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Fig. S1 FE-SEM images of samples BMO-0/0 (a), BMO-0.5/5 (b), BMO-0.1/5 (c), BMO-0.3/5 (d), BMO-0.7/5 (e).

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Fig. S2 TEM images (a)(b)(d)(e), HRTEM image(c) and SADE patterns(f) of sample BMO-0.5/5. A in (e) is the selected electron area diffraction section in (f).

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Fig. S3 TEM images of samples BMO-0/0

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Fig. S4 TEM images of samples BMO-0.1/5

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Fig. S5 TEM images of samples BMO-0.3/5

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Fig. S6 TEM images(a)(b) and SADE patterns(c) of sample BMO-0.7/5

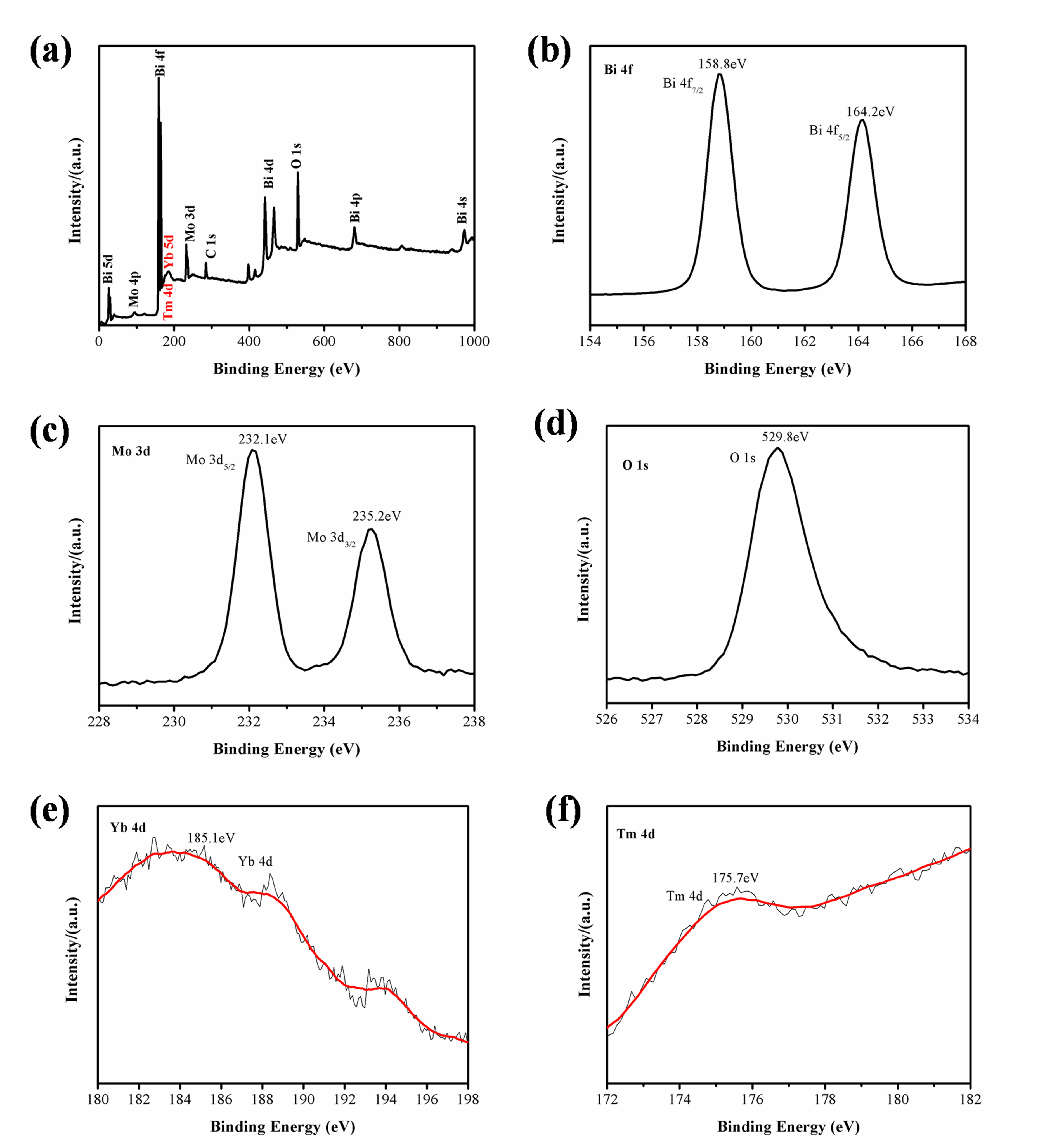


Fig. S7 Survey (a) and high-resolution Bi 4f (b), Mo 3d (c), O 1s (d), Yb 4d (e) and Tm 4d (f) XPS spectra of sample BMO-0.5/5.

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Fig. S8 The specific surface area of BMO-0/0 and BMO-0.5/5

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Fig. S9 The N2 adsorption desorption isotherm of BMO-0/0 and BMO-0.5/5

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Fig. S10 Photocurrent intensity of BMO-0/0 and BMO-0.5/5

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Fig. S11 The photocatalytic activity under near-infrared light (a) and photocatalytic kinetics(b)

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Fig. S12 The phenol standard curve (a), photocatalytic kinetics (b) and photocatalytic degradation efficiency of phenol (c)

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Fig. S13 Cr (VI) reduction experiments of BMO-0/0 and BMO-0.5/5

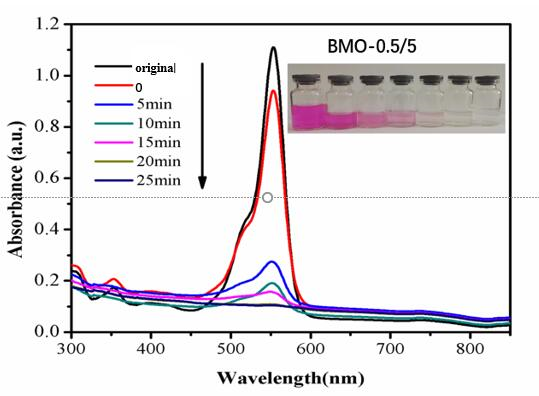


Fig. S14 The UV-vis spectral changes of RhB with photocatalytic time

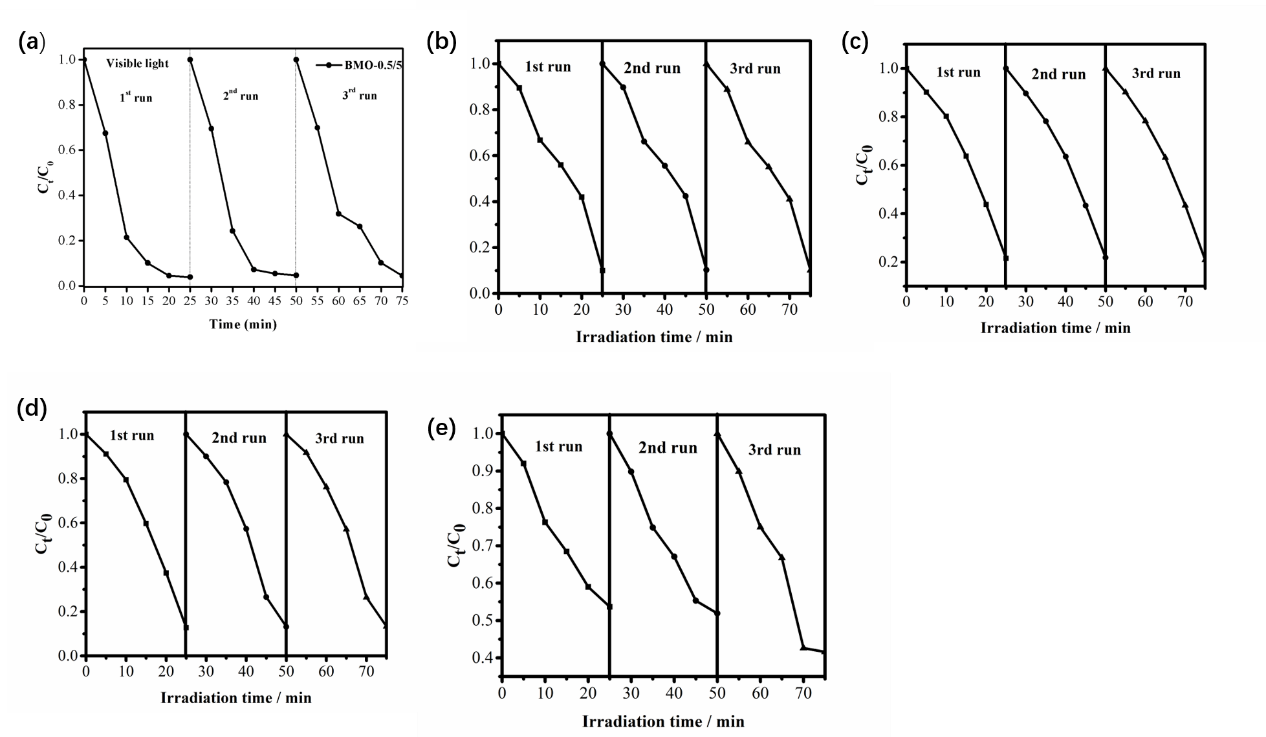


Fig. S15 Cycling test of samples BMO-0.5/5(a), BMO-0/0 (b), BMO-0.1/5 (c), BMO-0.3/5 (d), BMO-0.7/5 (e).

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2. [↑](#footnote-ref-2)