

Supplementary Data

Facile preparation of a novel Bi₂WO₆/calcined mussel shell composite photocatalyst with enhanced photocatalytic performance

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2. Experimental

2.3. Characterization

The crystalline structures of the samples were investigated by analysis of the X-ray diffraction (XRD) patterns recorded on a Rigaku MiniFlex 600 XRD diffractometer with a Cu K α radiation source. The microstructures of the samples were observed with a Hitachi S-4800 scanning electron microscope (SEM). The Brunauer–Emmett–Teller (BET) surface areas were measured using a Quantachrome Autosorb-iQ-2MP specific surface area analyzer. The ultraviolet-visible (UV-Vis) diffuse reflectance spectra (DRS) were obtained on a Shimadzu UV-2600 spectrophotometer.

2.4. Photocatalytic tests

The photocatalytic activities were quantified by examining the removal of RhB (10 mg/L, 100 mL), MB (10 mg/L, 100 mL) and TC (10 mg/L, 100 mL) under visible light illumination. Each test was performed at room temperature, and the visible light was from a 300W Xe lamp with a 400 nm cutoff filter. Typically, 20 mg of sample was dispersed in a pollutant solutions, and continuously stirred for 30 min to establish the adsorption-desorption equilibrium in dark. Next, the lamp was switched on to initiate the reaction. During each time interval, about 1.0 mL specimen was sampled and centrifuged to get the supernatant, and then, it was analyzed by using a SHIMADZU UV-2600 UV-vis spectrometer to determine the

concentration of the pollutant. The mineralization rate of the RhB solution was investigated by using the total organic carbon (TOC)–LCSH/CPH analyzer (Shimadzu, Japan).

2.5. The determination of reactive species

To reveal the contribution of different active species, quenching experiments were implemented with the addition of various quenchers into the photocatalytic system, where 4-hydroxy-2, 2, 6, 6-tetramethylpiperidine-N-oxyl (TEMPOL, 0.2 mmol/L), isopropanol (IPA, 0.2 mmol/L), and ammonium oxalate (AO, 0.2 mmol/L) were employed as the quenchers of $\bullet\text{O}_2^-$, $\bullet\text{OH}$, and h^+ , respectively.

Table S1 BET surface areas of as-fabricated catalysts

Samples	Bi_2WO_6	CMS/BWO-2	CMS
BET(m^2g^{-1})	34.29	36.87	10.64

