Supporting Information

PW$_{12}$/Bi$_2$WO$_6$ composite photocatalyst for enhanced visible light photocatalytic degradation of organic dye pollutant

Gang Liu$^{a,b}$, Yuzhuo Zhang$^a$, Lin Xu$^{a,*}$, Bingbing Xu$^a$, Fengyan Li$^{a,*}$

$^a$Key Laboratory of Polyoxometalates Science of Ministry of Education, College of Chemistry, Northeast Normal University, Changchun 130024, PR China;

$^b$College of Food Engineering, Jilin Engineering Normal University, Changchun, 130052, Jilin, PR China
**Figure S1.** Nitrogen adsorption-desorption isotherm and the corresponding pore size distribution (inset) of PW$_{12}$/Bi$_2$WO$_6$ composites. N$_2$ sorption was measured by a Hiden isochema IGA 100B instrument.

**Figure S2.** EDS elemental mappings (Bi, W, O and P from a sheet of PW$_{12}$/Bi$_2$WO$_6$ composite on TEM image). Note the scale bar corresponds to 500 nm.
Figure S3. TEM images of the PW$_{12}$/Bi$_2$WO$_6$ composites: (a) The black scale bar corresponds to 500 nm; (b) The black scale bar corresponds to 100 nm.
Figure S4. XPS spectra of the PW$_{12}$/Bi$_2$WO$_6$ composites: Bi 4f (a), W 4f (b), O 1s (c) and P 2p (d). XPS was performed on a VG ESCALABMKII spectrometer with an MgKα (1253.6 eV) achromatic X-ray source. The vacuum inside the analysis chamber was maintained at 6.2×10^-6 Pa during the analysis.
Figure S5. SEM images of the pure Bi$_2$WO$_6$ sheets prepared in different aging time: (a) 48 h; (b) 24 h; (c) 72 h.
Figure S6. The photocatalytic performance of Rhodamine B degradation in aqueous solution by using the pure Bi$_2$WO$_6$ sheets prepared in different aging time.