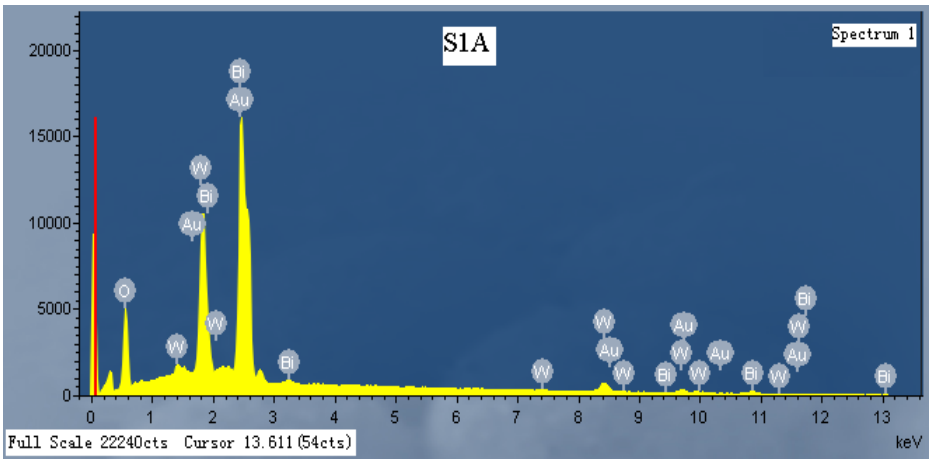
Electronic supplementary information

Enhanced photocatalytic activities of visible-light driven green synthesis in water and environmental remediation on Au/Bi_2WO_6 hybrid nanostructures

Juan Yang*, Xiaohan Wang, Yumei Chen, Jun Dai*, Shihao Sun

Institute of Applied Chemistry, Henan Polytechnic University, Jiaozuo, 454003, P.R. China

*E-mail: yangjuanhpu@yahoo.com, daijun@hpu.edu.cn



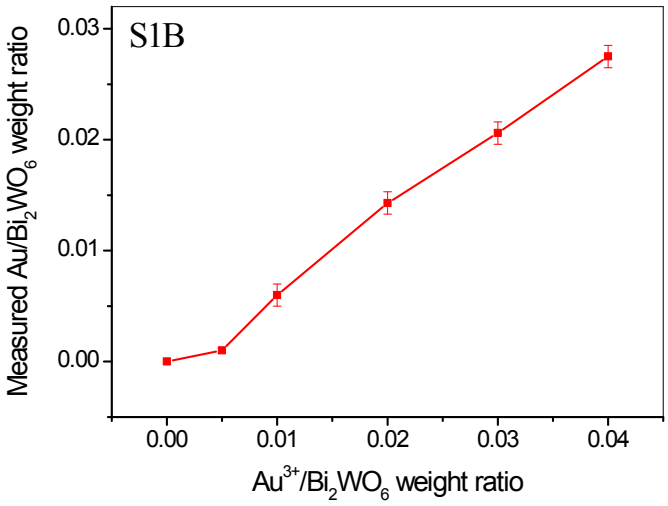
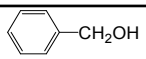
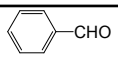
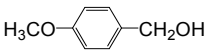
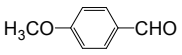
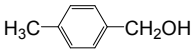
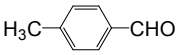
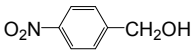
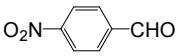
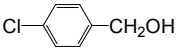
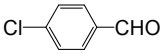


Fig. S1A Energy-dispersive X-ray (EDX) analysis of 3.0% Au/Bi_2WO_6 hybrid nanoparticles; **S1B** Effect of the added Au^{3+}/Bi_2WO_6 weight ratio on the obtained Au/Bi_2WO_6 weight ratio in the nanostructures measured by EDX analysis: Au/Bi_2WO_6 ratio from EDX *vs* Au^{3+}/Bi_2WO_6 ratio.

Table S1 Photocatalytic selective oxidation of various benzylic alcohols over 2.0% Au/Bi_2WO_6 in water under visible light irradiation for 8 h.

Entry	Substrate	Product	Conversion (%)	Selectivity of aldehyde (%)
1			65.4	82
2			69.5	80
3			62.7	78
4			64.5	71
5			56.6	67

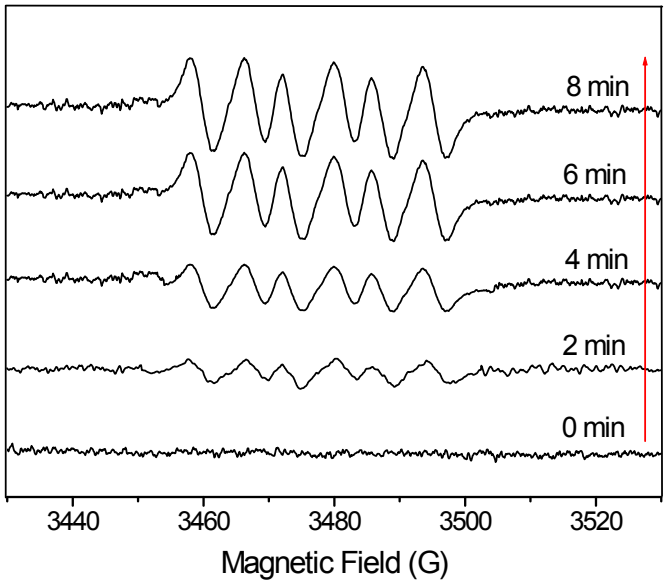


Fig. S2 Electron spin resonance (ESR) spectra of superoxide radicals trapped by DMPO over 2.0% Au/Bi_2WO_6 photocatalyst as a function of irradiation time in methanol solution.

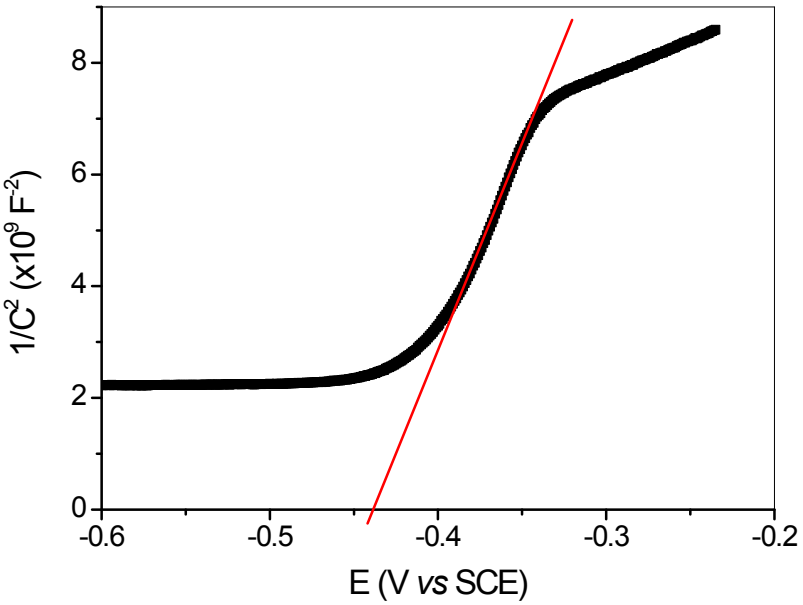


Fig. S3 Mott-Schottky plot for Bi_2WO_6 nanosheets in 0.5 mol/L Na_2SO_4 aqueous solution (pH=6.8).

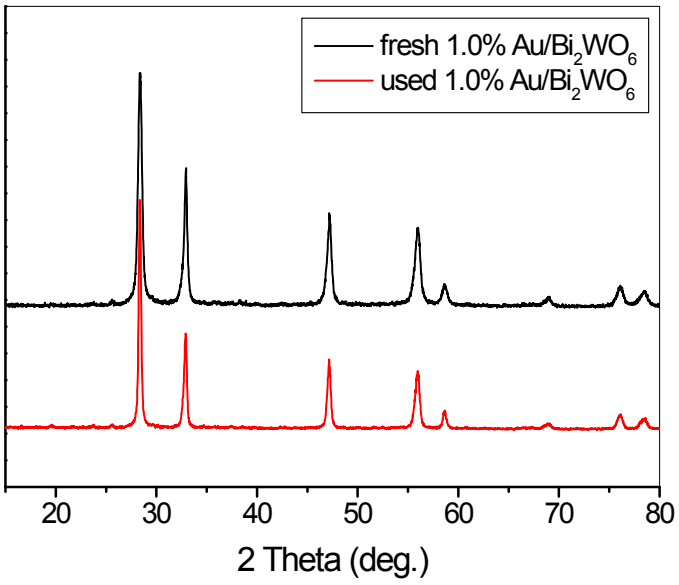


Fig. S4 XRD patterns of fresh 1.0% Au/Bi_2WO_6 and used 1.0% Au/Bi_2WO_6 sample after five cycles of photocatalytic reduction of Cr(VI).

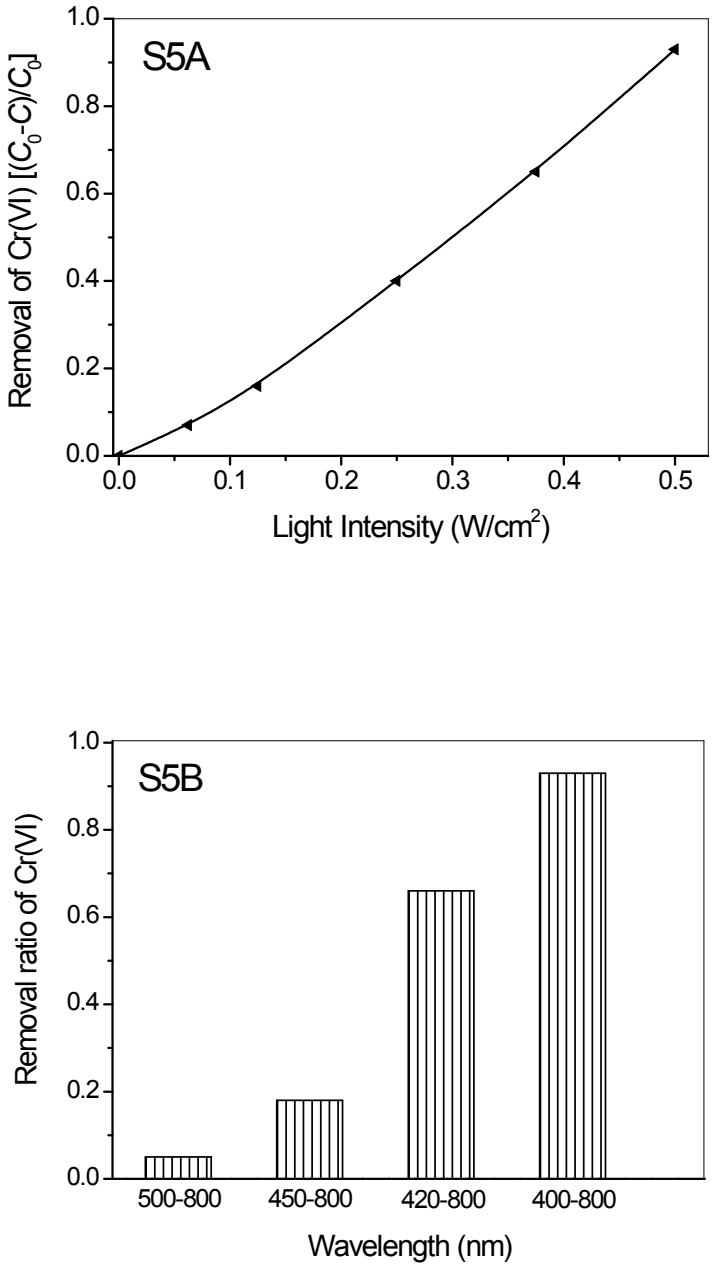


Fig. S5 The influence of incident light intensity **(A)** and light wavelength range **(B)** on the photocatalytic reduction of Cr(VI) over 1.0% Au/Bi_2WO_6 hybrid nanostructures.