catalysts

Photo-Induced Holes Initiating Peroxymonosulfate Oxidation for Carbamazepine Degradation via Singlet Oxygen

Yifei Qi [1], Xiaoyue Zhou [1], Zhenjie Li [1], Renli Yin [1,*], Junhao Qin [1], Huashou Li [1], Wanqian Guo [2], Adela Jing Li [1,*] and Rongliang Qiu [1]

[1] Guangdong Provincial Key Laboratory of Agricultural & Rural Pollution Abatement and Environmental Safety, College of Natural Resources and Environment, South China Agricultural University, Guangzhou 510642, China
[2] State Key Laboratory of Urban Water Resource and Environment, School of Environment, Harbin Institute of Technology, Harbin 150090, China
* Correspondence: yinrenli@scau.edu.cn (R.Y.); jing.li@scau.edu.cn (A.J.L.)

Text S1 Methods of solid phase extraction.

The samples were extracted with a Waters' solid phase extraction column. Firstly, the solid phase extraction column was connected to a disposable syringe, and 4 mL of MeOH and 4 mL of high purity water were added to the syringe to activate the solid phase extraction column in turn, and the rate of water sample flowing from the column was kept at 4 mL/min; then the reaction liquid was gradually added to the syringe and slowly squeezed into the solid phase extraction column for extraction, and the rate of water sample should not exceed 4 mL/min. After the sample extraction was completed, the column was washed with 4 mL of high-purity water; then the column was removed, dried, and dehydrated by centrifugation at 8000 rpm/min for 2 min; then the analytes were eluted with 4 mL of MeOH into a test tube. On this basis, the obtained sample was nitrogen blown under N_2 gas stream to a volume of less than 1 mL to obtain a sample of the purified and concentrated intermediate product; finally, the sample was loaded into a brown chromatography vial for determination of the extracted product of CBZ using LC-TOF-MS (Uplc 1290-6540B Q-TOF).

Table S1 Compounds identified by LC-MS during the photocatalytic degradation of CBZ under visible light irradiation.

Products	R_t(min)	Formula	ESI mode	Experimental mass (m/z)	Calculated mass (m/z)
A	5.58	$C_{15}H_{12}N_2O_2$	Positive	253.0974	253.0902
B	5.58	$C_{15}H_{12}N_2O_2$	Positive	253.0974	253.0902
C	5.58	$C_{15}H_{12}N_2O_2$	Positive	253.0974	253.0902
D	5.43	$C_{15}H_{14}N_2O_3$	Positive	271.1077	271.1004
E	5.25	$C_{15}H_{12}N_2O_3$	Positive	269.0921	269.0848
F	2.03	$C_{14}H_9NO_2$	Positive	224.0707	227.0634
G	5.25	$C_{15}H_{12}N_2O_3$	Positive	271.1077	271.1004
H	6.94	$C_{13}H_9NO$	Positive	196.0755	196.0683
I	4.38	$C_{13}H_9N$	Positive	180.0807	180.0734
J	4.28	C_7H_7NO	Positive	138.0556	138.0484

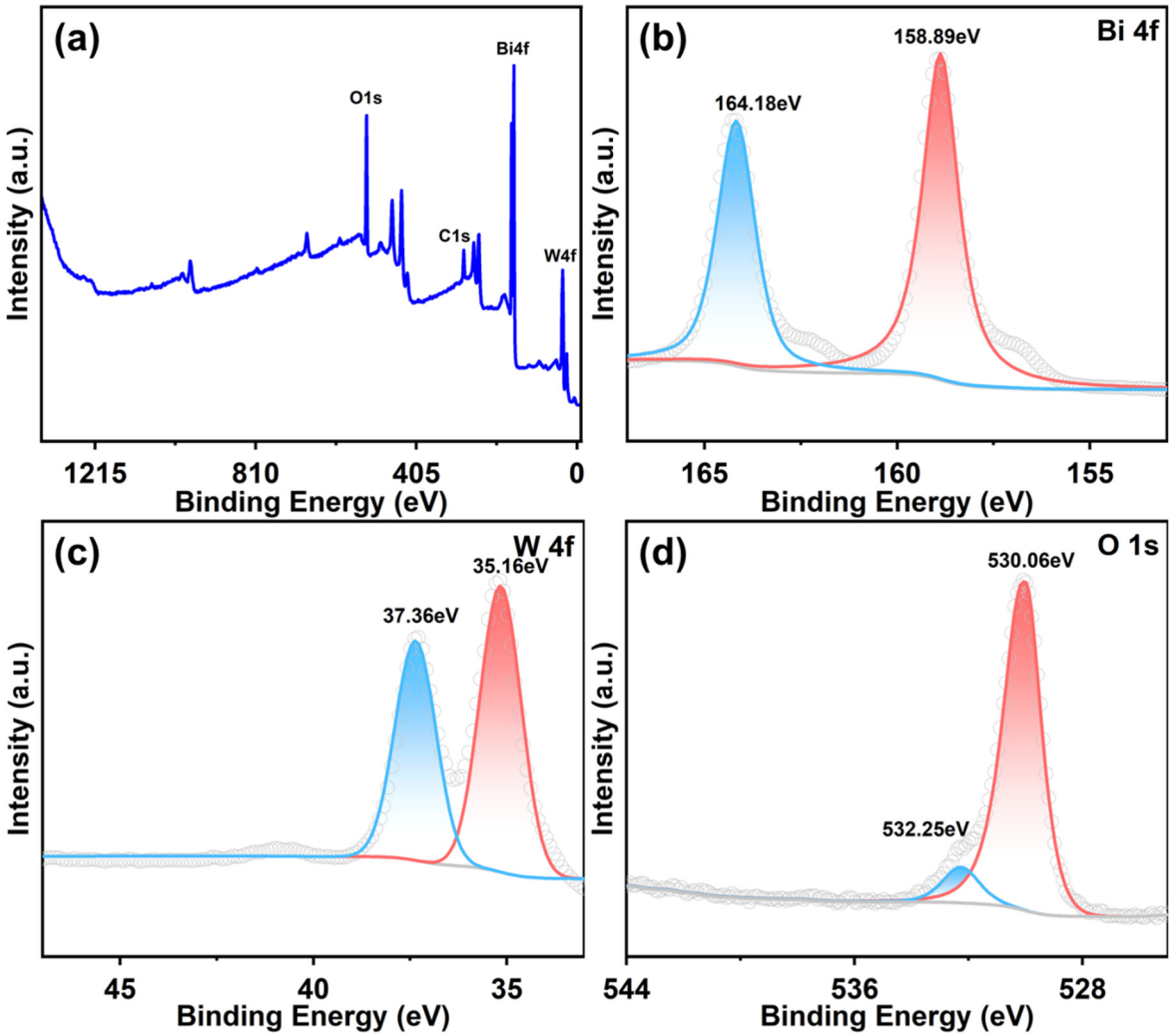

Figure S1. Survey XPS spectrum of the Bi_2WO_6 sample (a), high-resolution XPS spectra of (b) Bi 4f, (c) W 4f and (d) O 1s for the Bi_2WO_6 sample.

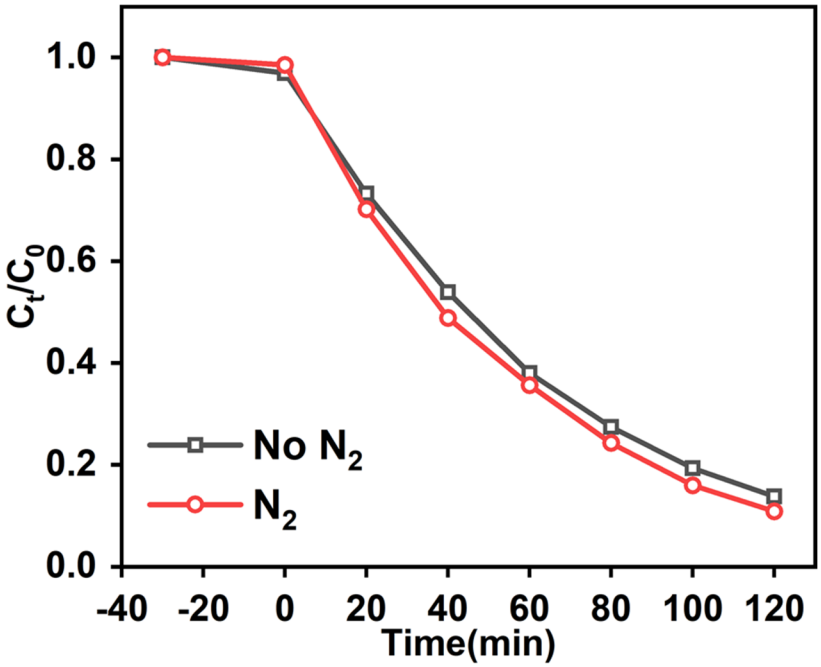

Figure S2. The degradation of CBZ in the VL/Bi_2WO_6/PMS system under N_2 purge.