

Conjugated Polyvinyl Alcohol Modified SnO₂ for Efficient Visible Light Photocatalytic Reduction of Cr(VI)

Shaojie Chen^{1,§}, Yuanyuan Luo^{1,2,§}, Yuhan Xu¹, Ying Chen¹, Yinxing Jiang¹, Zhao Li¹, Lin Tian¹, Furong Wang¹, Yuanyuan Liu¹, Jing Li^{1,*}

¹School of Chemistry and Chemical Engineering, Xuzhou University of Technology, Xuzhou, Jiangsu, 221018 China

²School of Chemistry and Chemical Engineering, Yili Normal University, Yining, Xinjiang, 835000, China

Received: 3rd October 2024; Revised: 16th November 2024; Accepted: 16th November 2024
Available online: 23th November 2024; Published regularly: December 2024



Supporting Information for DOI: 10.9767/bcrec.20226

S1. Chemical reagent

Tin tetrachloride pentahydrate (SnCl₄·5H₂O, AR, Sinopharm Chemical Reagent Co., Ltd.), polyvinyl alcohol type 1788 (PVA, degree of polymerization 1700, degree of alcoholysis 87.0-89.0% (mol/mol), diphenyl carbazide (C₁₃H₁₄N₄O, AR), and tetrabutyl titanate (C₁₆H₃₆O₄Ti, CP), were purchased from Aladdin Chemical Reagent Co., Ltd. Degussa P25 TiO₂ purchased from China Guangzhou He Qian Trade Co., Ltd.

S2. Elemental analysis of SnO₂ and CPVA/SnO₂-B

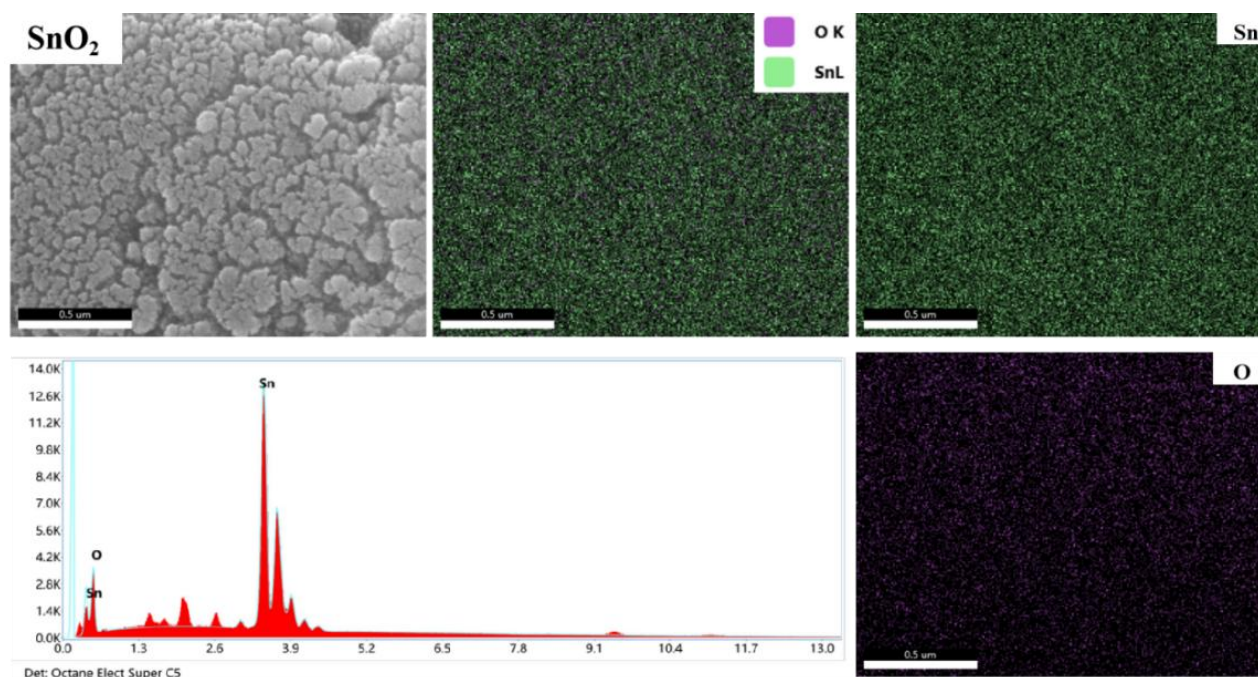


Fig. S2 EDX mapping of SnO₂

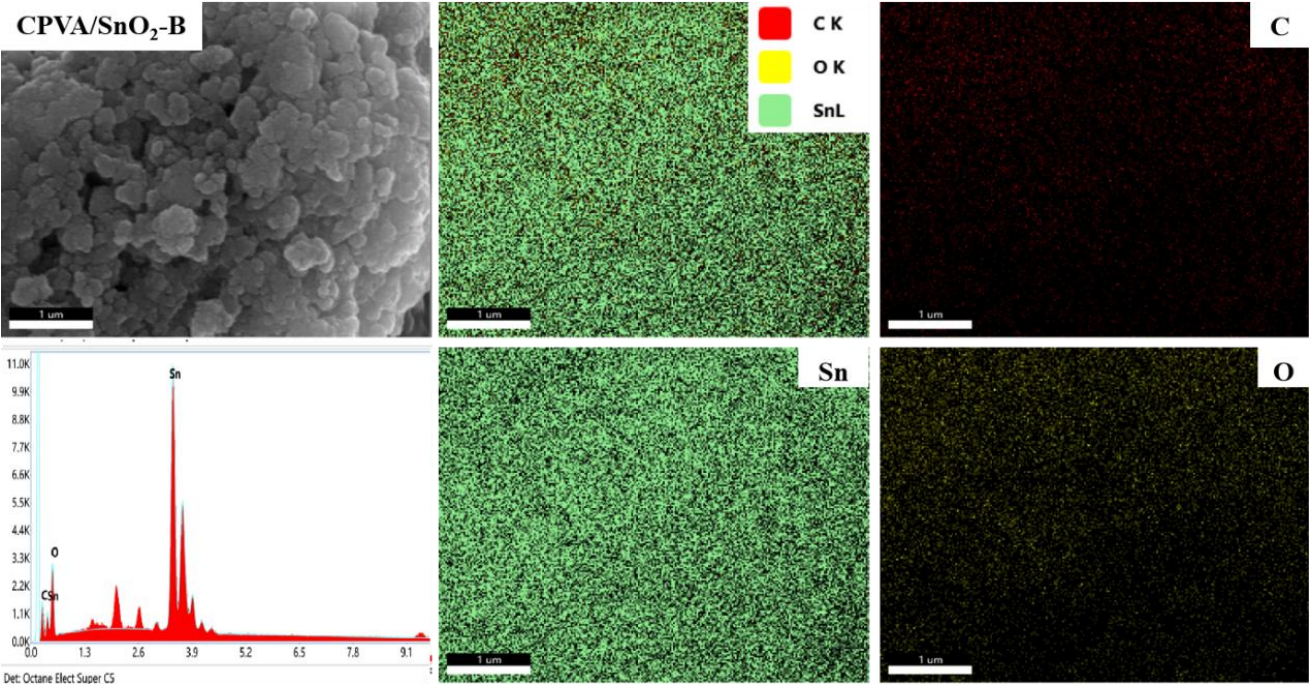


Fig. S3 EDXmapping of CPVA/SnO₂-B.

Table S1. EDX elemental content

Photocatalyst	Element	Weight %	Atomic %	Sn:O
SnO ₂	O	19.07	63.61	1:1.75
	Sn	80.93	36.39	
	C	20.00	49.43	
CPVA/SnO ₂ -A	O	19.04	35.32	1:2.32
	Sn	60.96	15.24	
	C	21.14	50.07	
CPVA/SnO ₂ -B	O	20.16	35.86	1:2.55
	Sn	58.70	14.07	