

# Facile Synthesis of Sillén-Aurivillius Layered Oxide $\text{Bi}_7\text{Fe}_2\text{Ti}_2\text{O}_{17}\text{Cl}$ with Efficient Photocatalytic Performance for Degradation of Tetracycline

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Figures S1–S6

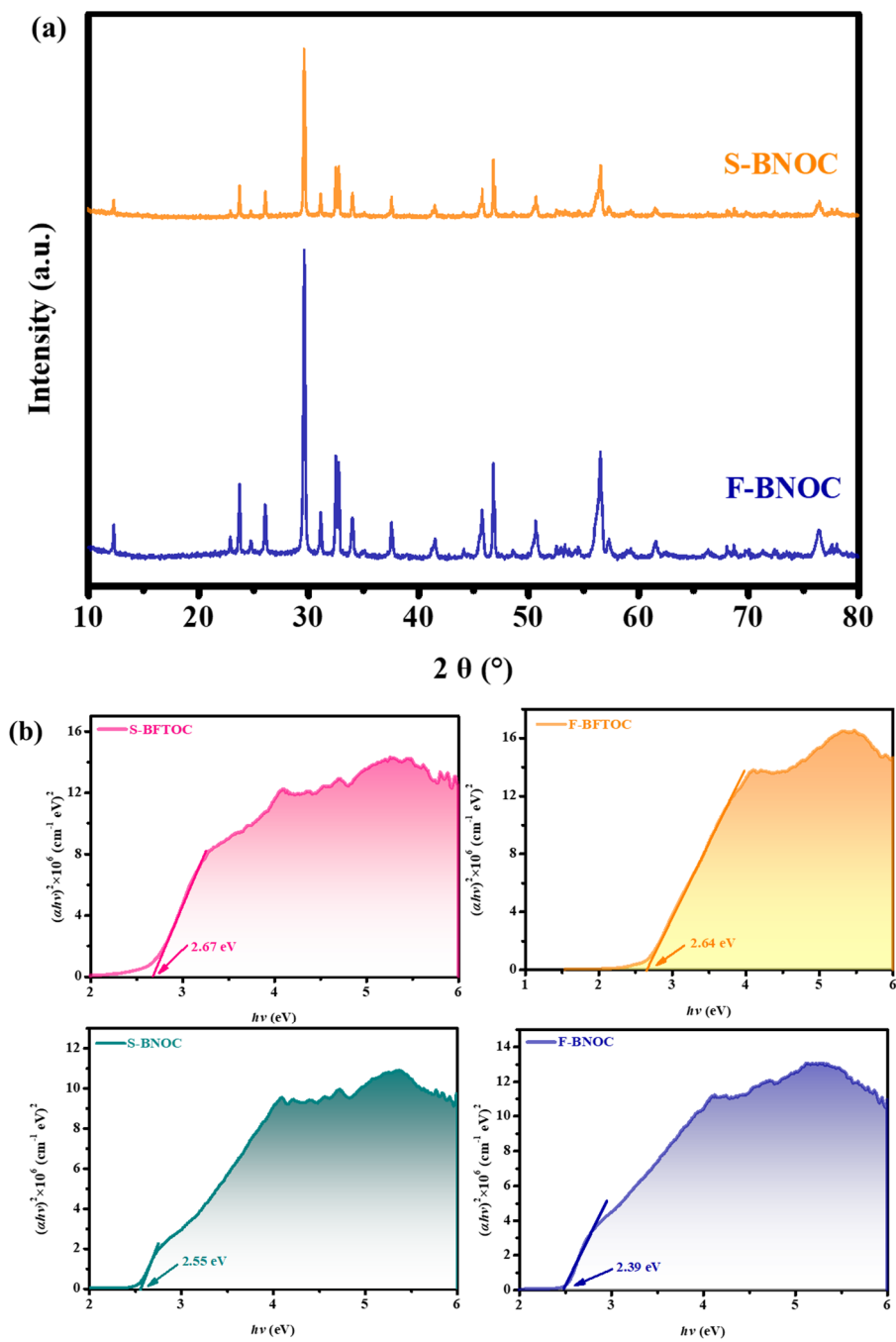


Figure. S1. XRD patterns of F-BNOC and S-BNOC (a), Tauc's band-gap plots of S-BFTOC, F-BFTOC, S-BNOC and F-BNOC (b).

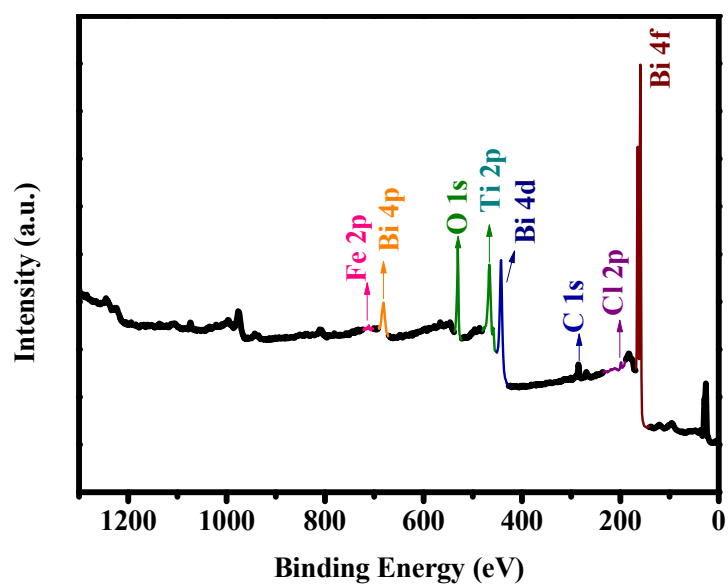


Figure S2. XPS survey spectra of F-BFTOC corresponding to Bi, Fe, Ti, O and Cl

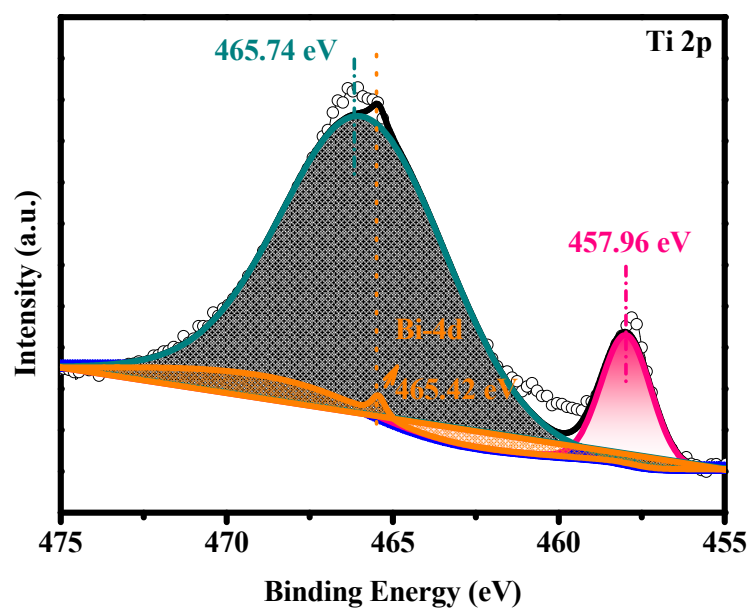


Figure S3. Ti 2p XPS spectrum of the  $\text{Bi}_7\text{Fe}_2\text{Ti}_2\text{O}_{17}\text{Cl}$  sample

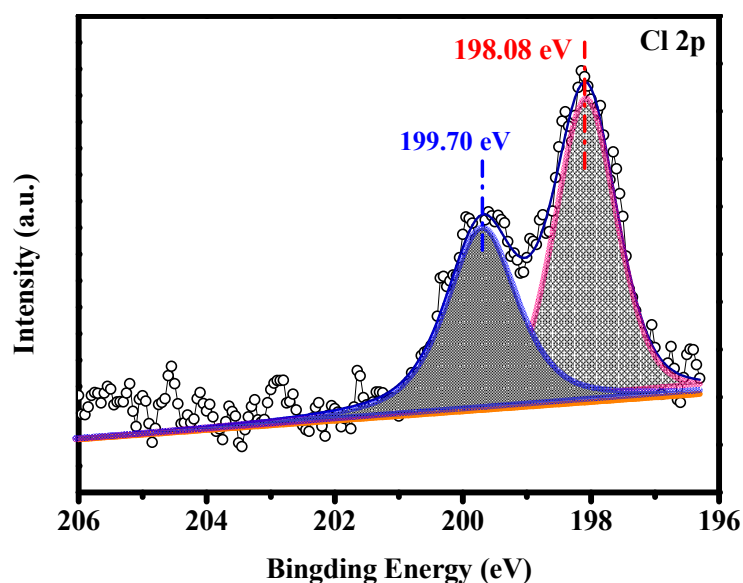


Figure S4. Cl 2p XPS spectrum of the  $\text{Bi}_7\text{Fe}_2\text{Ti}_2\text{O}_{17}\text{Cl}$  sample

**Table S1. Linear Fit kinetics data of BFTOC and BNOC photocatalytic reaction**

photocatalyst	equation	Adj. $R^2$
S-BFTOC	$y = 0.4965x + 2.8642$	0.9939
F-BFTOC	$y = 0.5865x + 0.9243$	0.9817
S-BNOC	$y = 0.0104x + 0.1478$	0.9632
F-BNOC	$y = 0.0145x + 0.2956$	0.9227

\*pseudo-first-order kinetics model (S-BNOC and F-BNOC)and pseudo-second-order kinetics model(S-BFTOC and F-BFTOC)

**Table S2. Linear Fit kinetics data of BFTOC and BNOC photocatalytic reaction.**

photocatalyst	equation	Adj. $R^2$
S-BFTOC	$y = 0.0241x + 0.079$	0.9924
F-BFTOC	$y = 0.0351x + 0.0536$	0.9872
S-BNOC	$y = 0.0058x + 0.0093$	0.9955
F-BNOC	$y = 0.0142x + 0.0615$	0.9916

\*pseudo-first-order kinetics model



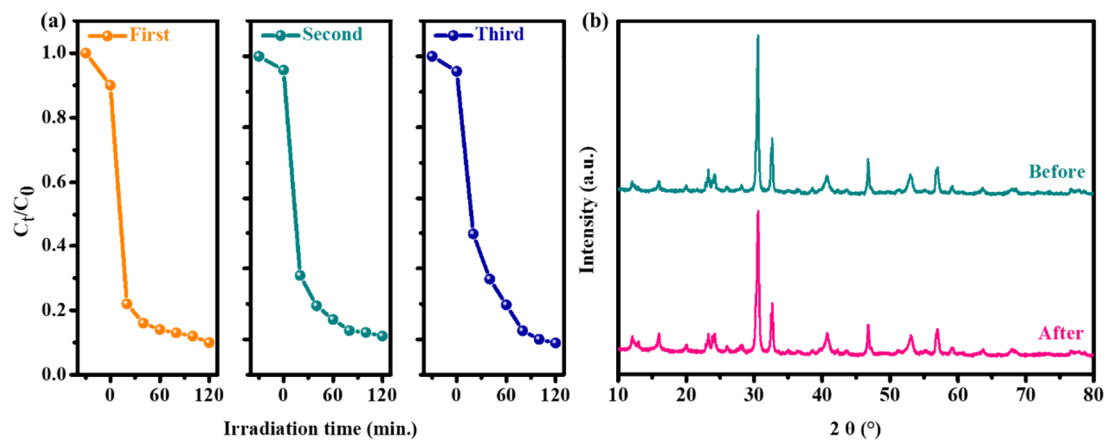


Figure S5. photocatalytic stability of TC degradation over F-BFTOC under visible light irradiation (a); XRD patterns of F-BFTOC photocatalyst before and after the degradation of TC (b)

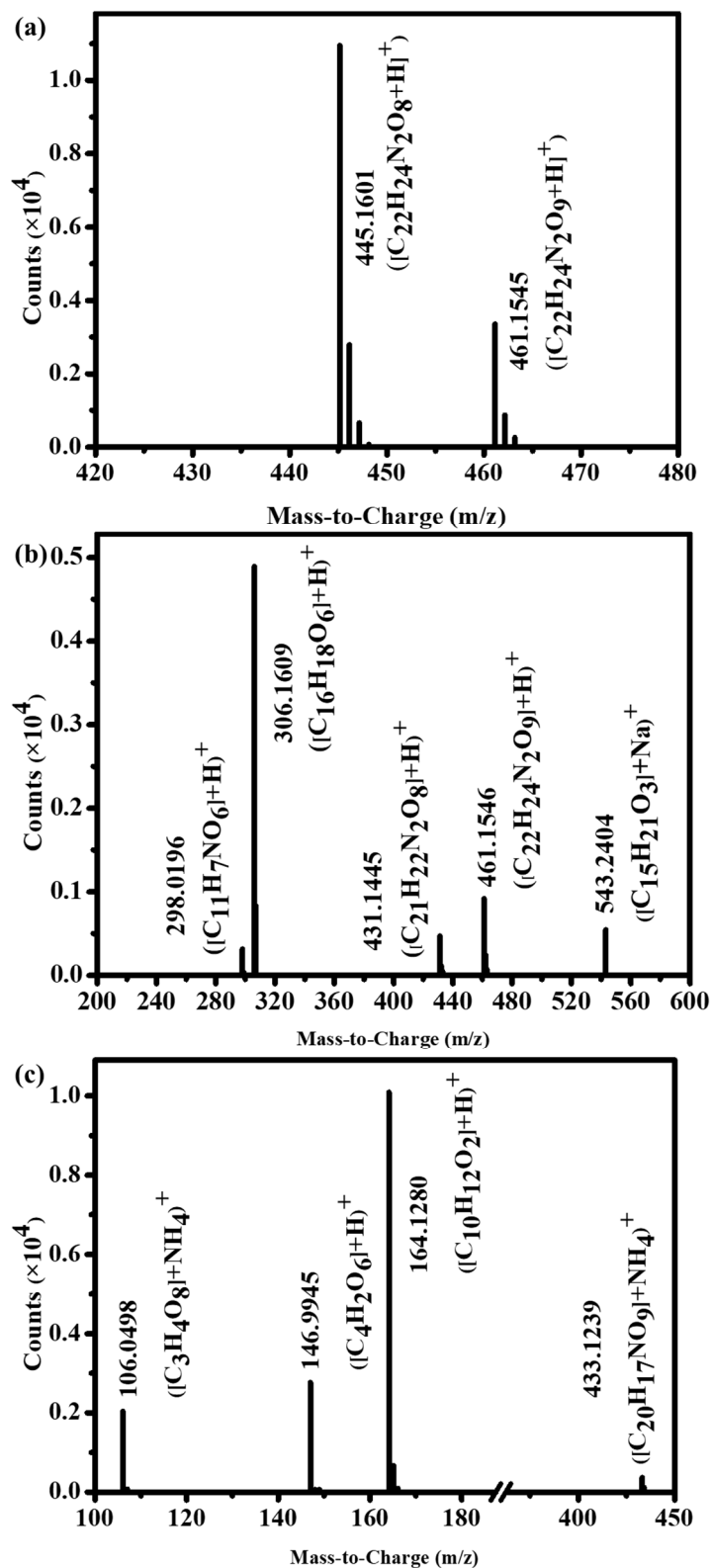


Figure S6. HPLC-MS chromatograms for monitoring the degradation of TC with F-BFTOC (a) 0 min (b) 40 min (c) 120 min.