

Supplementary Materials

Application of BiOX Photocatalyst to Activate Peroxydisulfate Ion-Investigation of a Combined Process for the Removal of Organic Pollutants from Water

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Table S1. The parameters of the biologically treated domestic wastewater

Parameter	Value
pH	7.8
Conductivity ($\mu\text{S cm}^{-1}$)	1260
COD (mg L^{-1})	24
TOC (mg L^{-1})	6.2
NH ₄ -N (mg L^{-1})	<0.4
NO ₃ (mg L^{-1})	3.4
Cl (mg L^{-1})	120
HCO ₃ (mg L^{-1})	103

Table S2. The name, manufacturer, and purity of the used materials

Name		Purity
Milli-Q, high-purity water	Merck Millipore	
Bi(NO ₃) ₃ ×5 H ₂ O	Alfa Aesar	98%
KI, KCl, KBr	Molar Chemicals	99.7%
Ethylene-glycol	Sigma-Aldrich	99.95%
Ethanol	VWR	99.9%
1,4-benzoquinone (BQ)	Across Organics	99%
1,4-hydroquinone (HQ)	Sigma Aldrich	99%
Sulfamethoxypyridazine (SMP)	Fluka	99%
Trimethoprim (TRIM)	Sigma Aldrich	99%
Nitrogen gas	Messer Hungary	99.995%
Air	Messer Hungary	medical grade
Methanol	VWR	99.8%
Acetonitrile	VWR	99.8%
Ammonium-formate	VWR	≥99%
HCOOH	VWR	100%
Na ₂ S ₂ O ₈ (PDS)	VWR	98%
Na ₂ S ₂ O ₃	VWR	98%

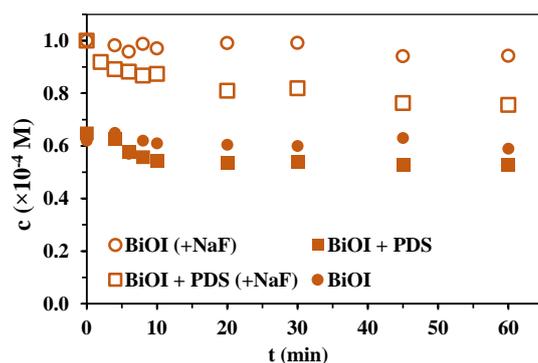


Figure S1. The transformation of TRIM in aerated BiOI suspensions, irradiated with Vis LED ($c_0(\text{TRIM}) = 1.0 \times 10^{-4} \text{ M}$; $c_0(\text{SMP}) = 1.0 \times 10^{-4} \text{ M}$; NaF was added for desorption).

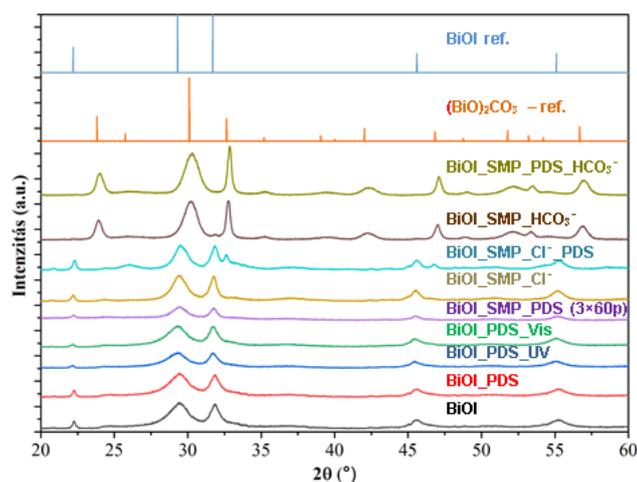


Figure S2. The Effect of PDS, inorganic ions, and SMP on the XRD diffractogram of BiOI photocatalysts under UV and Vis radiation in aerated suspensions.

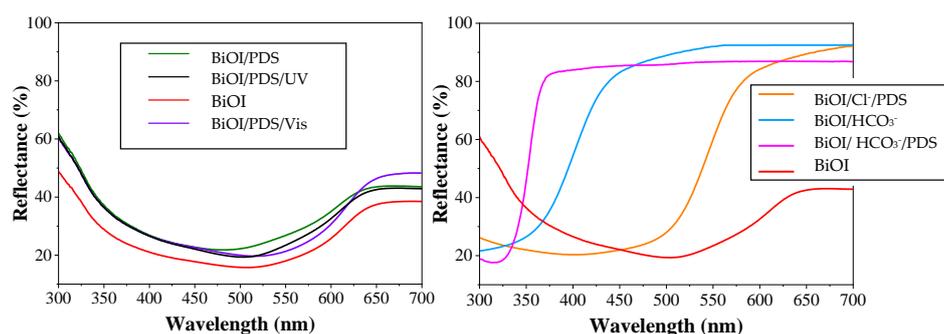


Figure S3. The Effect of PDS and inorganic ions on the DRS spectra diffractogram of BiOI photocatalysts under UV and Vis radiation in aerated suspensions.

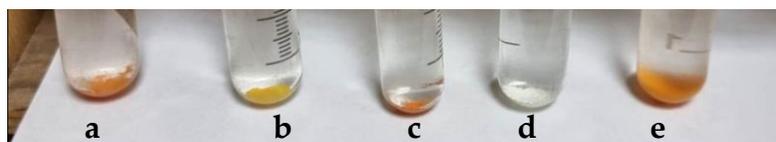


Figure S4. The effect of pH and inorganic ions on the color of BiOI suspension (a: Milli-Q; b: biologically treated domestic wastewater, pH = 7.8; c: biologically treated domestic wastewater, pH = 4; d: HCO_3^- solution; e: the pH of the HCO_3^- solution was adjusted to 4 and stirred for 10 minutes, before suspending the BiOI)