

## 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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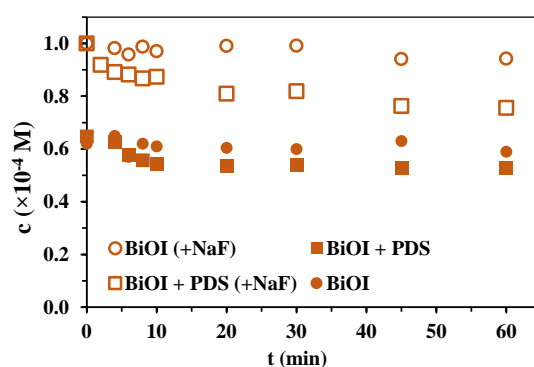
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**Table S1.** The parameters of the biologically treated domestic wastewater

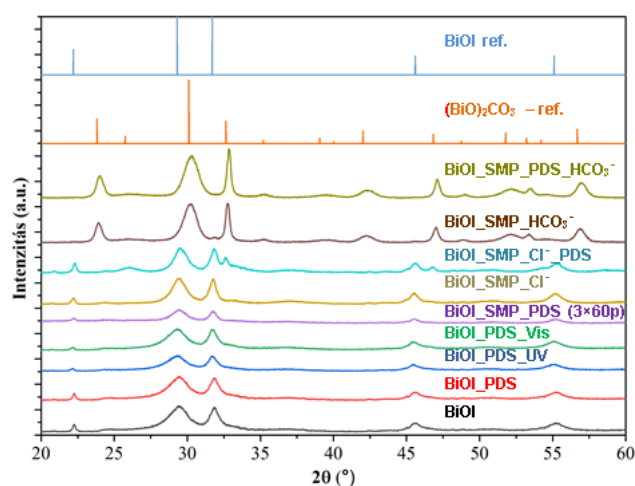
Parameter	Value
pH	7.8
Conductivity ( $\mu\text{S cm}^{-1}$ )	1260
COD ( $\text{mg L}^{-1}$ )	24
TOC ( $\text{mg L}^{-1}$ )	6.2
NH <sub>4</sub> -N ( $\text{mg L}^{-1}$ )	<0.4
NO <sub>3</sub> ( $\text{mg L}^{-1}$ )	3.4
Cl ( $\text{mg L}^{-1}$ )	120
HCO <sub>3</sub> ( $\text{mg L}^{-1}$ )	103

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

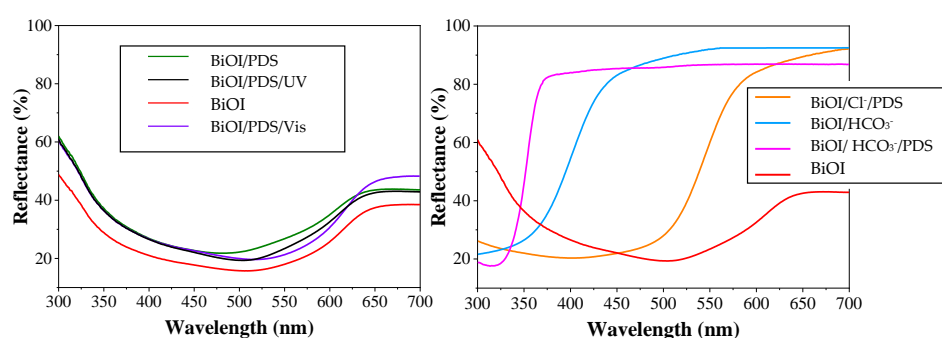
Name		Purity
Milli-Q, high-purity water	Merck Millipore	
Bi(NO <sub>3</sub> ) <sub>3</sub> ·5 H <sub>2</sub> O	Alfa Aesar	98%
KI, KCl, KBr	Molar Chemicals	99.7%
Ethylene-glycol	Sigma-Aldrich	99.95%
Ethanol	VWR	99.9%
1,4-benzoquinone (BQ)	Across Organics	99%
1,4-hydroquinone (HQ)	Sigma Aldrich	99%
Sulfamethoxypyridazine (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 <sub>2</sub> S <sub>2</sub> O <sub>8</sub> (PDS)	VWR	98%
Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	VWR	98%



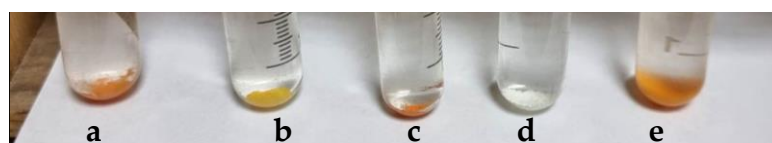
**Figure S1.** The transformation of TRIM in aerated BiOI suspensions, irradiated with Vis LED ( $c_0(\text{TRIM}) = 1.0 \times 10^{-4} \text{ M}$ ;  $c_0(\text{SMP}) = 1.0 \times 10^{-4} \text{ M}$ ; NaF was added for desorption).



**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:  $\text{HCO}_3^-$  solution; e: the pH of the  $\text{HCO}_3^-$  solution was adjusted to 4 and stirred for 10 minutes, before suspending the BiOI)