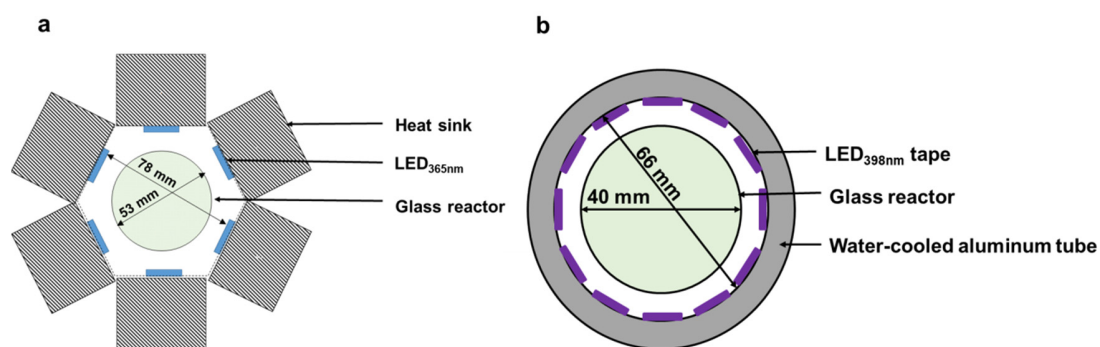


## Supplementary materials



**Figure S1.** The schematic figure of the photoreactors ((a): LED<sub>365nm</sub>, (b): LED<sub>398nm</sub>)

**Table S1.** The list of used chemicals, their distributors and purity

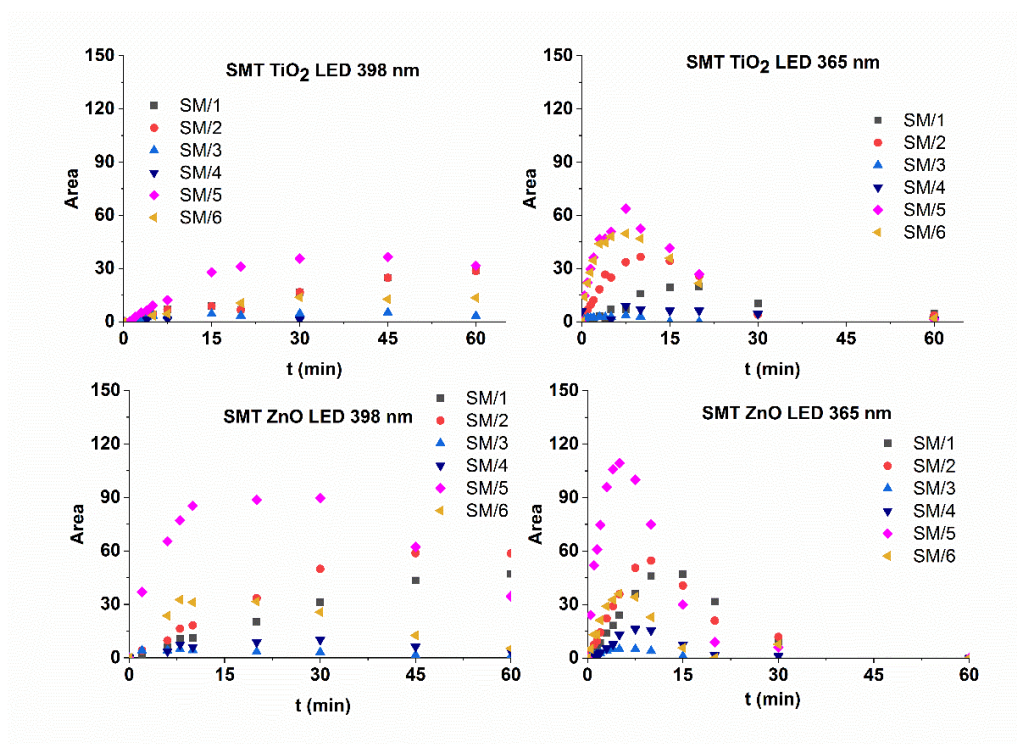
Chemical	Distributor	Purity
COU	Sigma Aldrich (St.Louis, Missouri, USA)	99%
1,4-BQ	Acros Organics (Geel, Belgium)	99%
SMT	Sigma Aldrich (St.Louis, Missouri, USA)	99%
SMP	Fluka (Buchs, Switzerland)	99%
NaCl	VWR (Radnor, Pennsylvania, USA)	99%
NaHCO <sub>3</sub>	VWR (Radnor, USA)	99%
HCl	Sigma Aldrich (St.Louis, Missouri, USA)	98%
NaOH	VWR (Radnor, Pennsylvania, USA)	99%
Catalase (bovine liver)	Sigma Aldrich (St.Louis, Missouri, USA)	>55% protein content
Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> × nH <sub>2</sub> O	VWR (Radnor, Pennsylvania, USA)	98%
K <sub>2</sub> C <sub>2</sub> O <sub>4</sub>	Reanal (Budapest, Hungary)	98%
1,4-phenantroline	Sigma Aldrich (St.Louis, Missouri, USA)	99%
N <sub>2</sub>	Messer Hungary (Budapest, Hungary)	99.995%
Synthetic air	Messer Hungary (Budapest, Hungary)	Medical grade
Formic acid	VWR (Radnor, Pennsylvania, USA)	100%
MeOH	VWR (Radnor, Pennsylvania, USA)	99.8%
H <sub>2</sub> O	Merck-Millipore (Burlington, Vermont, USA)	ultrapure

**Table S2.** The measured, relevant parameters of the real water matrices

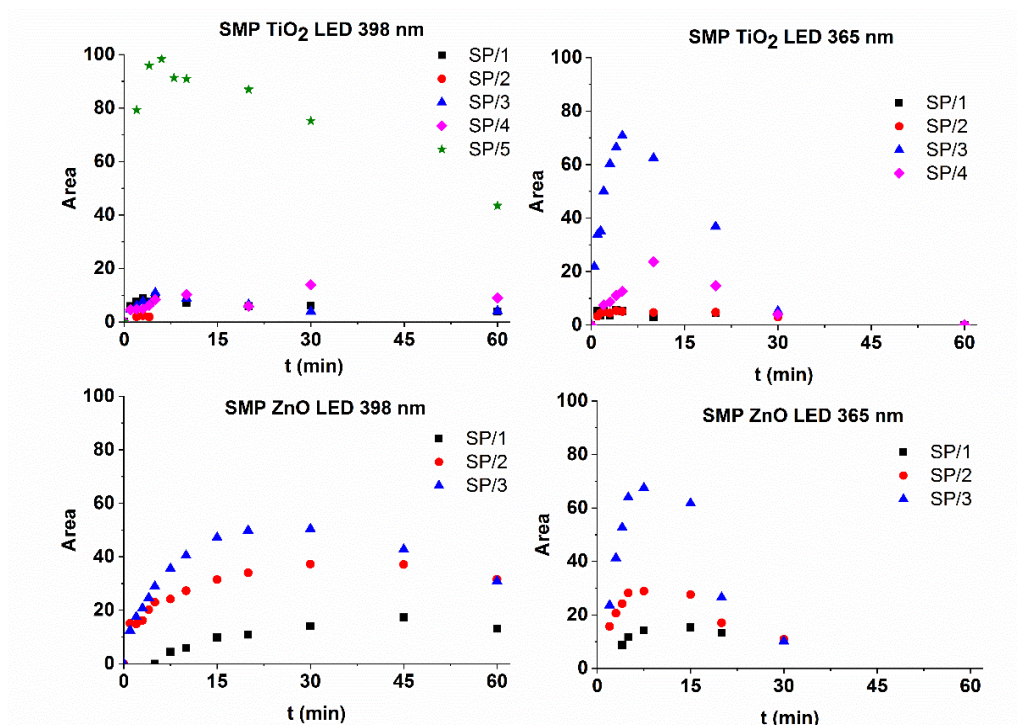
Parameter	Tap water	Biologically treated domestic wastewater
pH	7.4	7.8
Conductivity (μS cm <sup>-1</sup> )	627	1258
COD (mg dm <sup>-3</sup> )	4.2	24.4
NH <sub>4</sub> <sup>+</sup> -N (mg dm <sup>-3</sup> )	<0.4	<0.4
NO <sub>3</sub> <sup>-</sup> (mg dm <sup>-3</sup> )	<0.7	3.37
Cl <sup>-</sup> (mg dm <sup>-3</sup> )	8.75	120
TOC <sup>1</sup> (mg dm <sup>-3</sup> )	0.79	6.9
TIC <sup>2</sup> (mg dm <sup>-3</sup> )	73.4	103.4

<sup>1</sup> Total Organic Carbon

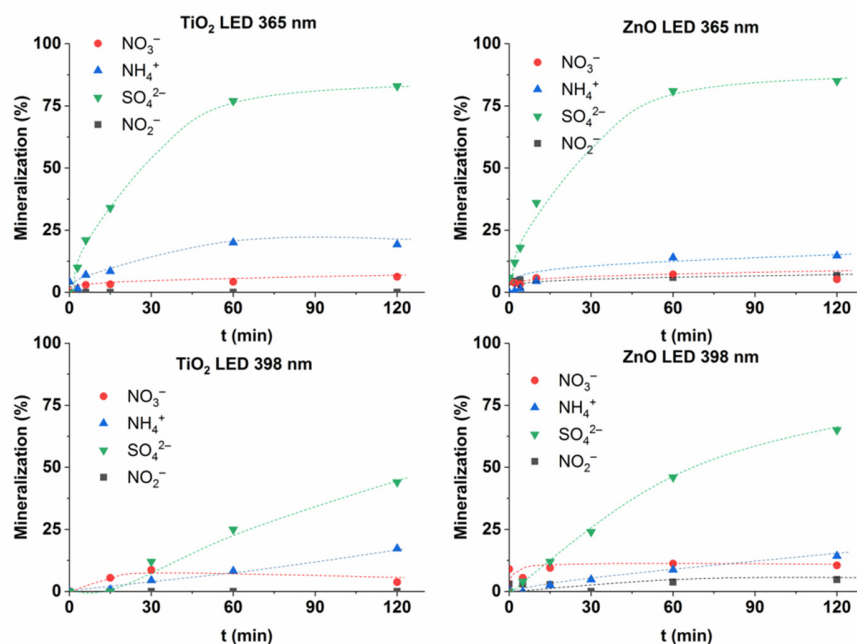
<sup>2</sup> Total Inorganic Carbon, the sum of dissolved CO<sub>2</sub>, HCO<sub>3</sub><sup>-</sup> and CO<sub>3</sub><sup>2-</sup>



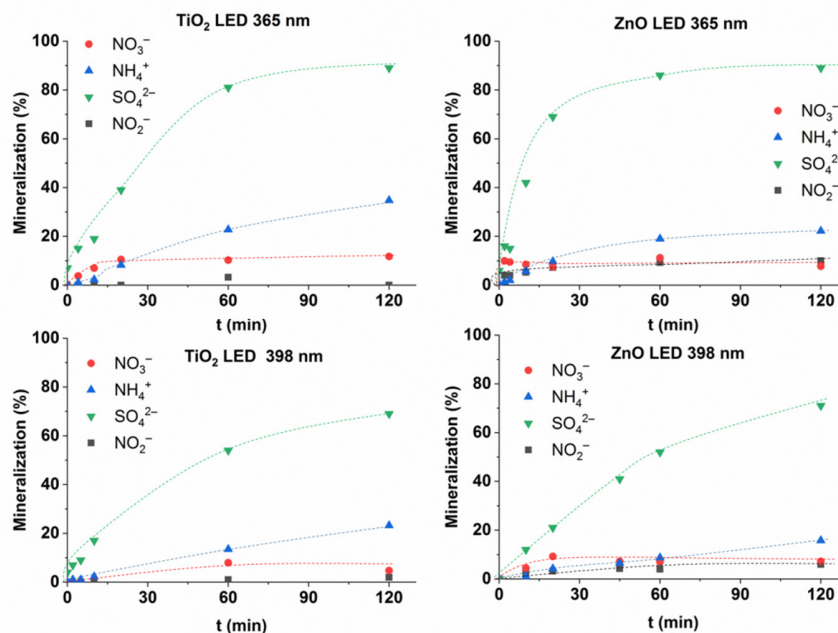
**Figure S2.** The peak area (HPLC-DAD) of the products of SMT transformation as a function of irradiation time



**Figure S3.** The peak area (HPLC-DAD) of the products of SMP transformation as a function of irradiation time



**Figure S4.** The transformation of organic nitrogen and sulfur to inorganic ions during the photocatalytic removal of SMT (Mineralization(%) = concentration of given ion divided by the organic N-content or S-content of the starting solution)



**Figure S5.** The transformation of organic nitrogen and sulfur to inorganic ions during the photocatalytic removal of SMP (Mineralization(%) = concentration of given ion divided by the organic N-content or S-content of the starting solution)