

# Heterogeneous photocatalysis of metronidazole in aquatic samples

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## SUPPLEMENTARY MATERIAL

In the supporting information was included:

### ***Part 1. Xenon lamp spectra***

**Figure F1.** Spectrum of the xenon lamp using in the experiment depending on the light irradiance

### ***Part 2. Developing chromatographic conditions***

**Figure S1.** Chromatogram of metronidazole standard substance obtained with LC-UV method

### ***Selection of heterogenic photocatalysis conditions***

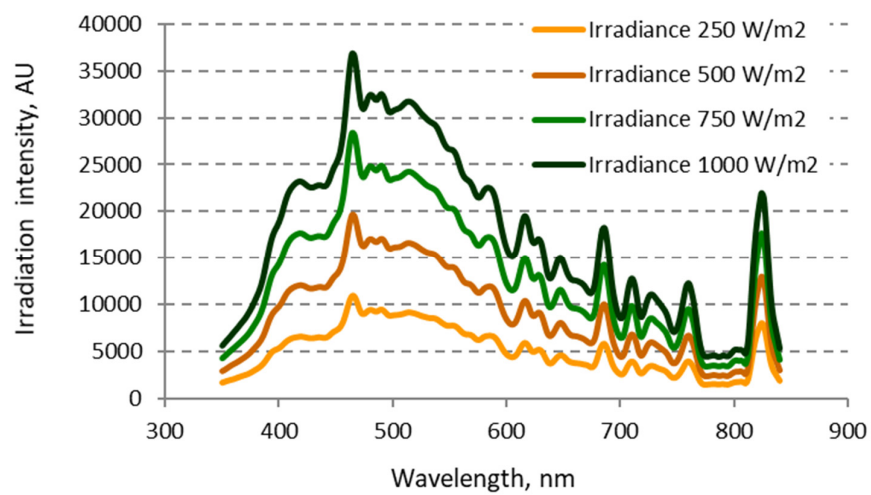
**Figure S2.** Effectiveness of metronidazole removal using TiO<sub>2</sub> (anatase) and its mixtures

**Table S1.** Effectiveness of metronidazole removal using ZnO and its mixtures

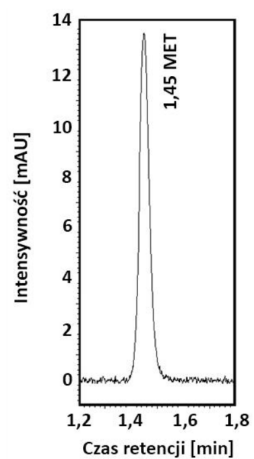
**Figure S3.** Effectiveness of metronidazole removal using Degussa P25 and its mixtures

### ***Identification of degradation products in post-reaction mixtures***

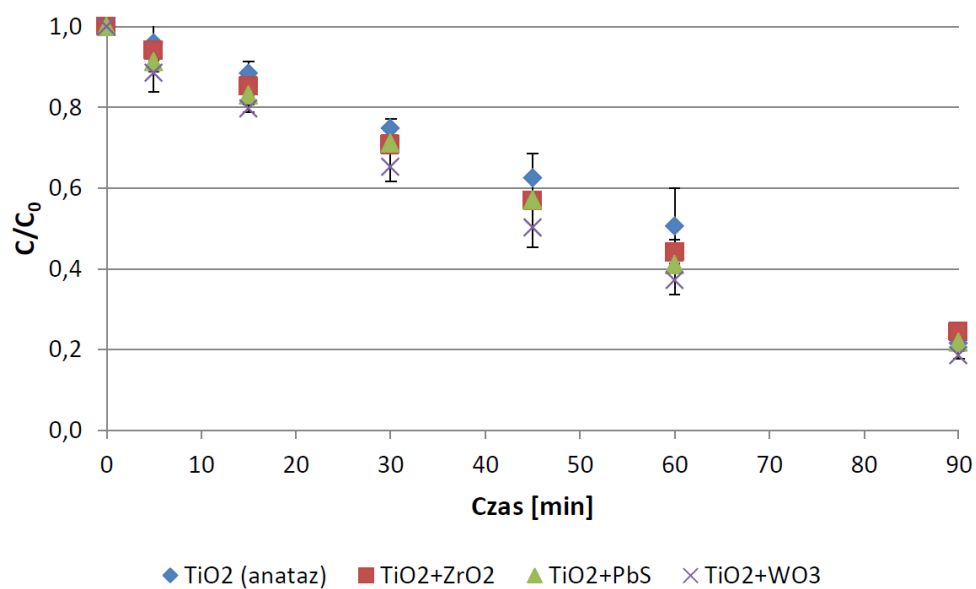
**Table S2.** Identified MET degradation products in mixtures after the photodegradation process



**Figure S1.** Spectrum of the xenon lamp using in the experiment depending on the light irradiance.



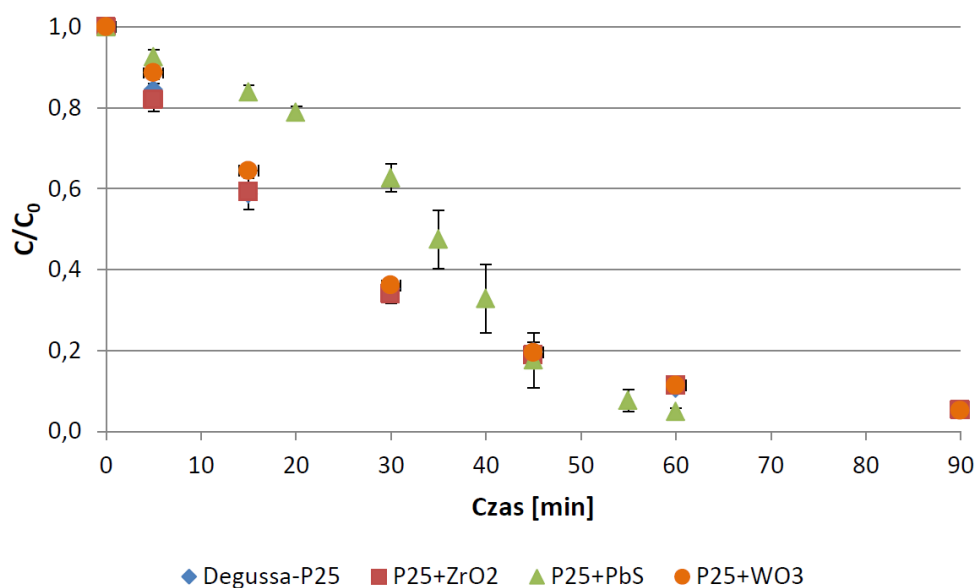
**Figure S2.** Chromatogram of metronidazole standard substance obtained with LC-UV method.



**Figure S3.** Effectiveness of metronidazole removal using TiO<sub>2</sub> (anatase) and its mixtures.

**Table S1.** Effectiveness of metronidazole removal using ZnO and its mixtures.

Time (min)	Degradation rate (%)			
	ZnO	ZnO+ZrO <sub>2</sub>	ZnO+PbS	ZnO+WO <sub>3</sub>
0	0.0	0.0	0.0	0.0
5	15.8	12.0	14.2	12.4
15	31.1	34.5	35.9	32.7
30	52.9	59.9	61.9	57.8
45	70.6	75.8	80.4	72.9
60	79.9	84.2	89.5	82.7
90	90.1	92.7	94.4	91.3



**Figure S4.** Effectiveness of metronidazole removal using Degussa P25 and its mixtures.

**Table S2.** Identified MET degradation products in mixtures after the photodegradation process.

Sample	Time	DP1	DP2	DP3	DP4	MET
		Retention time (min)				
		1.12	0.99	1.17	1.16	1.98
		Precursor ion [M+H] <sup>+</sup> (m/z)				
		128	158	172	172	172
TiO <sub>2</sub> (anataz)	90	+	-	+	+	+
MET+UVA	180	-	+	+	-	+
Degussa P25+PbS (bez światła)	60	-	-	-	-	+
Degussa P25+PbS	35	-	-	+	-	+
Degussa P25+PbS	45	-	-	+	-	+
Degussa P25+PbS	60	-	-	+	+	+
Degussa P25+PbS	90	-	-	+	-	+
Degussa P25+WO <sub>3</sub>	90	-	-	+	-	+
Degussa P25+ZrO <sub>2</sub>	90	-	-	+	-	-
TiO <sub>2</sub> (anataz)+WO <sub>3</sub>	90	-	+	+	+	+
TiO <sub>2</sub> (anataz)+PbS	90	-	-	+	+	+
TiO <sub>2</sub> (anataz)+ZrO <sub>2</sub>	90	-	-	+	+	+
ZnO+PbS	90	-	-	+	+	+
ZnO+ZrO <sub>2</sub>	90	+	-	+	+	+
ZnO+WO <sub>3</sub>	90	+	-	+	+	+