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Supplementary Materials

Matrix Effects of Different Water Types on the Efficiency of Fumonisin B1 Removal by Photolysis and Photocatalysis Using Ternary and Binary Structured ZnO-Based Nanocrystallites

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Table S1. Effect of photolysis and photocatalysis using UV irradiation at pH ~8 on degradation rate constant of FB_1 (1.39 μmol/dm^3).

Treatment	k'^a (min^{-1})	r^b
UV	0.0058	0.985
UV/H_2O_2	0.0772	0.999
UV/$S_2O_8^{2-}$	0.0714	0.996
UV/ZS-2	0.0390	0.992

[a]Degradation rate constants determined for the first 60 min of irradiation. [b]Linear regression coefficient.

Table S2. Effect of different types of water on degradation rate constant of FB_1 (1.39 μmol/dm^3) using UV irradiation at pH ~8.

Water type	k'^a (min^{-1})	r^b
UPW	0.0058	0.992
Tap water	0.0093	0.981
Danube River	0.0095	0.990
Ground water	0.0079	0.986

[a]Degradation rate constants determined for the first 60 min of irradiation. [b]Linear regression coefficient.

Table S3. Effect of different types of water on degradation rate constant of FB_1 (1.39 μmol/dm^3) using indirect photolysis at pH ~8.

Water type	UV/H_2O_2		UV/$S_2O_8^{2-}$	
	k'^a (min^{-1})	r^b	k'^a (min^{-1})	r^b
UPW	0.0773	0.999	0.0714	0.997
Tap water	0.0277	0.991	0.0329	0.996
Danube River	0.0211	0.999	0.0108	0.975
Ground water	0.0222	0.997	0.0116	0.995

[a]Degradation rate constants determined for the first 60 min of irradiation. [b]Linear regression coefficient.

Table S4. Effect of different types of water on degradation rate constant of FB_1 (1.39 μmol/dm^3) using ZS-2 photocatalyst at pH ~8.

Water type	k'^a (min^{-1})	r^b
UPW	0.0404	0.983
Tap water	0.0244	0.944
Danube River	0.0130	0.898
Ground water	0.0245	0.942

[a]Degradation rate constants determined for the first 20 min of irradiation. [b]Linear regression coefficient.

Table S5. Effect of different ions and HA on degradation rate constant of FB_1 (1.39 μmol/dm^3) at pH 7.7–9.0 using UV irradiation.

Ions/HA	k'^a (min^{-1})	r^b
–	0.0058	0.992
NaCl	0.0257	0.999
$MgCl_2$	0.0198	0.992
$CaCl_2$	0.0155	0.879
HA	0.0117	0.994
$NaNO_3$	0.0136	0.997
$NaHCO_3$	0.0023	0.987
Na_2SO_4	0.0115	0.994

[a]Degradation rate constants determined for the first 60 min of irradiation. [b]Linear regression coefficient.

Table S6. Effect of different ions and HA on degradation rate constant of FB_1 (1.39 μmol/dm^3) at pH 7.7–9.0 using UV/H_2O_2 treatment.

Ions/HA	k'^a (min^{-1})	r^b
–	0.0772	0.998
NaCl	0.0237	0.999
$MgCl_2$	0.0122	0.929
$CaCl_2$	0.0091	0.889
HA	0.0181	0.974
$NaNO_3$	0.0192	0.995
$NaHCO_3$	0.0005	0.997
Na_2SO_4	0.0248	0.992

[a]Degradation rate constants determined for the first 60 min of irradiation. [b]Linear regression coefficient.

Table S7. Effect of different ions and HA on degradation rate constant of FB_1 (1.39 μmol/dm^3) at pH 7.7–9.0 using ZS-2 photocatayst.

Ions/HA	k'^a (min^{-1})	r^b
–	0.0405	0.983
NaCl	0.0336	0.962
$MgCl_2$	0.0240	0.955
$CaCl_2$	0.0444	0.962
HA	0.0406	0.982
$NaNO_3$	0.0317	0.972
$NaHCO_3$	0.0377	0.988
Na_2SO_4	0.0252	0.987

[a]Degradation rate constants determined for the first 20 min of irradiation. [b]Linear regression coefficient.

Table S8. The physicochemical characteristics of the analyzed water types.

Parameter	Water type			
	Danube River	Ground water	Tap water	UPW
pH	7.70	7.62	7.30	6.56
Conductivity at 25 °C (μS/cm)	333	466	516	0.055
TOC (mg/dm^3)[a]	2.30	0.78	1.80	<DL[b]
Hydrogen carbonate (mg/dm^3)	209	768	238	<DL[b]
Fluoride (mg/dm^3)	<DL[b]	0.469	0.130	<DL[b]
Chloride (mg/dm^3)	44.02	61.39	16.50	<DL[b]
Bromide (mg/dm^3)	0.080	0.090	<0.005	<DL[b]
Sulphate (mg/dm^3)	15.52	0.486	35.0	<DL[b]
Nitrate (mg/dm^3)	3.86	0.099	1.87	<DL[b]
Nitrite (mg/dm^3)	2.76	17.53	<0.01	<DL[b]
Phosphate (mg/dm^3)	0.202	0.052	<DL[b]	<DL[b]
Calcium (mg/dm^3)	0.136	<DL[b]	70.49	<DL[b]
Potassium (mg/dm^3)	0.030	<DL[b]	3.75	<DL[b]
Lithium (mg/dm^3)	<DL[b]	0.024	<0.005	<DL[b]
Magnesium (mg/dm^3)	0.078	0.129	20.3	<DL[b]
Sodium (mg/dm^3)	0.043	0.219	19.2	<DL[b]
Ammonium-ion (mg/dm^3)	<DL[b]	15.76	<0.03	<DL[b]

[a]TOC: total organic carbon. [b]DL: detection limit.