SUPPLEMENTARY MATERIAL

Manuscript title: Distribution of TiO_2 Nanoparticles in Acidic and Alkaline Soil and Their Accumulation by *Aspergillus niger*

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1. Artificial rainwater

The batch sorption of TiO_2 nanoparticles on the soil samples CH-cc and CM-st.dy was conducted with a background electrolyte with concentrations of ions typical for the Slovak rainwaters. This electrolyte was also used in our previous work [1]. The concentrations of mono- and divalent cations and anions were based on the average of five-year measurements

(2011-2015) made at five meteorological stations placed within different parts of Slovakia [2]. The prepared thousand-fold artificial rainwater concentrate had following chemical composition: 0.2705 $g.L^{-1}$ of NaCl, 1.2397 $g.L^{-1}$ of $(NH_4)_2SO_4$, 0.3044 $g.L^{-1}$ of $NaNO_3$, and 1.5096 $g.L^{-1}$ of $Ca(NO_3)_2$. Artificial rainwater was created by adding 0.1 mL of the artificial rainwater concentrate to 99.9 mL of distilled water.

2. Soil properties

The two soil samples were used in our previous work [1] and their characteristics can be viewed below (Table S1).

Table S1. Characteristics of Calcic Chernozem (CH-cc) and Dystric Stagnic Cambisol (CM-st.dy) soil samples.

	CH-cc	**CM-st.dy**		**CH-cc**	**CM-st.dy**
Soil code [3]	CH-cc	CM-st.dy	pH_{KCl}	7.45	3.40
Land use	Crop	Forest	$CaCO_3$ [%]	3.3	0.4
Texture	loam	loamy sand	Tot Al [$mg.g^{-1}$] [d]	51.8	44.6
Sand [%]	34.3	79.2	Tot Fe [$mg.g^{-1}$] [d]	25.7	16.2
Silt [%]	45.8	16.4	Tot Mn [$\mu g.g^{-1}$] [d]	604	318
Clay [%]	19.9	4.5	Tot Ti [$mg.g^{-1}$]	3.66	3.31
TOC [%]	2.82	4.73	Tot Zn [$\mu g.g^{-1}$] [d]	82.4	142.0
HS [%] [a]	1.12	2.48	Ox Al [$mg.g^{-1}$] [e]	0.92	1.56
HA [%] [b]	0.53	0.79	Ox Fe [$mg.g^{-1}$] [e]	1.27	2.97
FA [%] [c]	0.59	1.69	Ox Mn [$mg.g^{-1}$] [e]	0.39	0.32
pH_{H2O}	7.98	4.10	CEC [$mmol.kg^{-1}$] [f]	484	291

CH-cc – Calcic Chernozem, CM-st.dy – Dystric Stagnic Cambisol, [a] Humic substances, [b] Humic acids, [c] Fulvic acids, [d] Total concentration in the soil sample, [e] Oxalate-extractable phase of the element, [f] Cation exchange capacity

References:

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