

Supplementary material

To the manuscript “Ecotoxicity of Concrete Containing Fine-Recycled Aggregate: Effect on Photosynthetic Pigments, Soil Enzymatic Activity and Carbonation Process

Diana Mariaková^{1,*}, Klára Anna Mocová², Jan Pešta^{1,2}, Kristina Fořtová¹, Bhavna Tripathi³, Tereza Pavlu¹ and Petr Hájek¹

¹ Research Team Architecture and the Environment, University Centre for Energy Efficient Buildings of Czech Technical University in Prague, Trinecka 1024, 273 43 Bustehrad, Czech Republic; jan.pesta@cvut.cz (J.P.); kristina.fortova@cvut.cz (K.F.); tereza.pavlu@cvut.cz (T.P.); petr.hajek@fsv.cvut.cz (P.H.)

² Department of Environmental Chemistry, Faculty of Environmental Technology of University of Chemistry and Technology, Technická 5, 166 28 Prague, Czech Republic; klara.mocova@vscht.cz (K.A.M.)

³ School of Civil and Chemical Engineering Manipal University Jaipur, Dehmi Kalan, Jaipur India; bhavna.tripathi@jaipur.manipal.edu (B.T.)

* diana.mariakova@cvut.cz (D.M.)

Table S1. pH of leachates (mean values \pm SD) at the end of duckweed toxicity test (after 7 days of exposition). 100+n - leachates (100 mL.L⁻¹) amended with nutrients.

Leachate mL.L ⁻¹	I			II		
	NAC	RMAC	RCAC	NAC	RMAC	RCAC
0	6.0 \pm 0.1	6.0 \pm 0.1	6.0 \pm 0.1	6.0 \pm 0.1	6.0 \pm 0.1	6.0 \pm 0.1
510	7.9 \pm 0.0	7.9 \pm 0.0	7.9 \pm 0.0	7.8 \pm 0.0	7.8 \pm 0.0	7.5 \pm 0.0
640	8.0 \pm 0.1	8.1 \pm 0.0	8.1 \pm 0.0	8.0 \pm 0.0	8.0 \pm 0.0	8.0 \pm 0.0
800	8.3 \pm 0.1	8.2 \pm 0.1	8.3 \pm 0.0	8.1 \pm 0.0	8.2 \pm 0.0	8.1 \pm 0.0
1000	8.3 \pm 0.1	8.3 \pm 0.1	8.4 \pm 0.0	8.2 \pm 0.0	8.4 \pm 0.0	8.0 \pm 0.1
100+n	6.5 \pm 0.0	6.5 \pm 0.0	6.4 \pm 0.0	6.3 \pm 0.0	6.4 \pm 0.0	6.3 \pm 0.0

Table S2. The results of the water flea toxicity tests. Mean (\pm SD) values of immobilization (%). 100+n - leachates (100 mL.L⁻¹) amended with nutrients. The letters indicate significant differences between values (posthoc test; α = 0.05) within the same column (uppercase) and within the same row (lowercase) and the asterisks indicate differences between sample and control (zero values).

mL.L ⁻¹	I						II					
	NAC		RMAC		RCAC		NAC		RMAC		RCAC	
640	B	3.3 \pm 7.5 a	B	0.0 \pm 0.0 a	B	4.0 \pm 8.9 a	BC	4.0 \pm 8.9 a	B	0.0 \pm 0.0 a	B	1.4 \pm 4.2 a
800	B	7.3 \pm 10.1 b	B	2.5 \pm 5.6 b	B	2.9 \pm 6.4 b	A*	35.0 \pm 18.1 a	B	2.9 \pm 6.4 b	B	10.1 \pm 12.5 b
1000	A*	76.8 \pm 19.2 a	A*	86.0 \pm 14.2 a	A*	34.6 \pm 14.9 a	AB*	19.7 \pm 5.2 a	A*	53.3 \pm 9.2 a	A*	32.7 \pm 13.0 a
100+n	B	4.0 \pm 8.9 a	B	0.0 \pm 0.0 a	B	8.0 \pm 11.0 a	C	0.0 \pm 0.0 a	B	5.0 \pm 9.3 a	B	0.0 \pm 0.0 a

Table S3. The results of algae toxicity tests. Mean (\pm SD) values of inhibition/stimulation (%) of growth rate based on optical density at 750 nm. 100+n - leachates (100 mL.L⁻¹) amended with nutrients. Negative values indicate growth stimulation. The letters indicate significant differences between values (posthoc test; α = 0.05) within the same column (uppercase) and within the same row (lowercase) and the asterisks indicate differences between sample and control (zero values).

mL.L ⁻¹	I						II					
	NAC		RMAC		RCAC		NAC		RMAC		RCAC	
640	B	-5.7 \pm 9.8 a	B	-7.7 \pm 5.8 a	B*	-13.9 \pm 2.1 a	B	-6.6 \pm 0.8 a	B*	-12.2 \pm 4.4 a	B	-9.5 \pm 12.4 a
800	B	-3.6 \pm 6.9 a	B	-3.8 \pm 9.6 a	B	-4.7 \pm 4.7 a	B	-5.8 \pm 13.6 a	B	-7.4 \pm 10.5 a	B*	-14.4 \pm 7.8 a
1000	A*	25.9 \pm 1.1 a	A*	36.8 \pm 2.0 a	A*	28.5 \pm 1.4 a	A*	32.7 \pm 0.8 a	A*	30.6 \pm 0.4 a	A*	19.3 \pm 1.1 a
100+n	B	-0.2 \pm 1.5 a	B	-4.8 \pm 2.3 a	B	-1.1 \pm 1.0 a	B	1.1 \pm 6.1 a	B	-0.1 \pm 3.9 a	AB	-0.4 \pm 3.1 a

Table S4. The results of duckweed toxicity tests. Mean (\pm SD) values of inhibition/stimulation (%) of the growth rate based on the total area of the frond. 100+n - leachates (100 mL.L⁻¹) amended with nutrients. Negative values indicate growth stimulation.

The letters indicate significant differences between values (posthoc test; $\alpha = 0.05$) within the same column (uppercase) and within the same row (lowercase) and the asterisks indicate differences between sample and control (zero values).

mL.L ⁻¹	I						II					
	NAC		RMAC		RCAC		NAC		RMAC		RCAC	
510	C	1.2 ± 7.5 a	C	-0.4 ± 12.6 a	C	-1.5 ± 5.1 a	CD	6.3 ± 2.4 a	C	-3.4 ± 4.2 a	C	-4.5 ± 7.5 a
640	C	9.9 ± 9.6 a	BC	18.9 ± 5.4 a	C	12.0 ± 8.9 a	C*	14.9 ± 0.9 a	BC	0.4 ± 1.3 a	BC	8.5 ± 1.2 a
800	B*	41.5 ± 5.6 a	B*	25.5 ± 14.4 ab	B*	37.9 ± 4.3 a	B*	40.6 ± 4.7 a	B*	15.6 ± 3.9 b	B*	25.4 ± 8.8 ab
1000	A*	67.8 ± 1.5 a	A*	70.7 ± 1.4 a	A*	59.5 ± 7.6 a	A*	75.2 ± 3.0 a	A*	71.0 ± 4.9 a	A*	63.0 ± 2.5 a
100+n	C	-3.6 ± 4.6 a	C	-0.5 ± 14.4 a	C	-2.3 ± 4.3 a	D	-5.5 ± 3.2 a	C	-4.2 ± 3.0 a	C	-1.4 ± 2.7 a

Table S5. pH (mean values ± SD) measured in soils amended with leachates after 7, 28, and 56 days.

time (d)	CT	I			II		
		NAC	RMAC	RCAC	NAC	RMAC	RCAC
7	5.6	6.0	5.9	6.0	5.7	6.0	5.7
28	5.5	5.5	5.5	5.5	5.3	5.4	5.3
56	5.5	5.3	5.6	5.3	5.4	5.3	5.3