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Supplement of

Aquatic macrophytes can be used for wastewater polishing but not for purification in constructed wetlands

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1 **Supplementary information**

2 Table S1 Overview of the statistical output from the analyses of the data presented in Figs. 1, 2, 3, 4 and 5.

3 Surface water TP (Fig. 1; ANOVA)

4

Targeted plants	Sediment types	Time			Nutrient loading			Time*nutrient loading		
		df	χ^2	<i>P</i>	df	χ^2	<i>P</i>	df	χ^2	<i>P</i>
	Clay	1	2.06	0.15	2	2.38	0.30	2	0.98	0.61
<i>A. filiculoides</i>	Peaty clay	1	4.34	0.04	2	77.04	0.00	2	89.84	0.00
	Peat	1	4.17	0.04	2	37.72	0.00	2	30.64	0.00
	Clay	1	10.44	0.00	2	12.82	0.00	2	12.87	0.00
<i>C. demersum</i>	Peaty clay	1	14.20	0.00	2	38.70	0.00	2	8.30	0.02
	Peat	1	67.32	0.00	2	33.42	0.00	2	71.56	0.00
	Clay	1	33.34	0.00	2	14.70	0.00	2	5.63	0.06
<i>M. spicatum</i>	Peaty clay	1	9.03	0.00	2	54.38	0.00	2	9.12	0.01
	Peat	1	117.02	0.00	2	101.51	0.00	2	64.34	0.00

5

6 Surface water N (NH_4^+ + NO_3^-) (Fig. 2; ANOVA)

7

Targeted plants	Sediment types	Time			Nutrient loading			Time*nutrient loading		
		df	χ^2	<i>P</i>	df	χ^2	<i>P</i>	df	χ^2	<i>P</i>
	Clay	1	24.68	0.00	2	0.75	0.69	2	9.32	0.01
<i>A. filiculoides</i>	Peaty clay	1	31.10	0.00	2	5.12	0.08	2	37.41	0.00
	Peat	1	26.74	0.00	2	1.34	0.51	2	14.04	0.00
	Clay	1	19.69	0.00	2	5.20	0.07	2	3.78	0.15
<i>C. demersum</i>	Peaty clay	1	29.23	0.00	2	0.72	0.70	2	21.03	0.00
	Peat	1	35.70	0.00	2	2.51	0.28	2	22.01	0.00
	Clay	1	5.26	0.02	2	2.68	0.26	2	0.46	0.80
<i>M. spicatum</i>	Peaty clay	1	18.72	0.00	2	0.47	0.79	2	10.56	0.01
	Peat	1	32.80	0.00	2	2.44	0.30	2	12.90	0.00

8

9 Biomass production rates (Fig. 3; ANOVA)

10

Targeted plants	Position	Sediment type			Nutrient loading			Sediment type*nutrient loading		
		df	χ^2	<i>P</i>	df	χ^2	<i>P</i>	df	χ^2	<i>P</i>
<i>A. filiculoides</i>	<i>A. filiculoides</i>	2	2.88	0.24	2	11.39	0.00	4	5.65	0.23
	Others	2	1.48	0.48	2	1.15	0.56	4	4.23	0.38
<i>C. demersum</i>	<i>C. demersum</i>	2	10.67	0.00	2	0.16	0.92	4	3.89	0.42
	Others	2	2.89	0.24	2	0.12	0.94	4	1.60	0.81
<i>M. spicatum</i>	<i>M. spicatum</i>	2	3.63	0.16	2	0.16	0.93	4	4.45	0.35
	Others	2	1.62	0.45	2	5.41	0.07	4	3.34	0.50

11

12 P budget (Fig. 4; ANOVA)

13

Targeted plants	Position	Sediment type			Nutrient loading			Sediment type*nutrient loading		
		df	χ^2	<i>P</i>	df	χ^2	<i>P</i>	df	χ^2	<i>P</i>
<i>A. filiculoides</i>	Surface water	2	2.26	0.32	2	0.35	0.84	4	4.00	0.41
	Other plants	2	0.53	0.77	2	1.38	0.50	4	2.78	0.60
	Targeted plants	2	0.25	0.88	2	13.84	0.00	4	0.20	1.00
	Pore water	2	1.07	0.58	2	0.14	0.93	4	0.20	1.00
	Soils	2	4.66	0.10	2	792.84	0.00	4	3.14	0.54
<i>C. demersum</i>	Surface water	2	21.05	0.00	2	1.17	0.56	4	23.61	0.00
	Other plants	2	6.92	0.03	2	1.28	0.53	4	3.77	0.44
	Targeted plants	2	10.50	0.01	2	0.13	0.94	4	4.04	0.40
	Pore water	2	0.88	0.64	2	0.04	0.98	4	1.58	0.81
	Soils	2	5.67	0.06	2	728.39	0.00	4	7.47	0.11
<i>M. spicatum</i>	Surface water	2	11.57	0.00	2	18.76	0.00	4	10.30	0.04
	Other plants	2	1.58	0.45	2	1.87	0.39	4	4.81	0.31
	Targeted plants	2	6.02	0.05	2	0.38	0.83	4	6.57	0.16
	Pore water	2	1.75	0.42	2	0.06	0.97	4	0.56	0.97
	Soils	2	21.52	0.00	2	1109.54	0.00	4	16.35	0.00

14

15 N budget (Fig. 5; ANOVA)

16

Targeted plants	Position	Sediment type			Nutrient loading			Sediment type*nutrient loading		
		df	χ^2	<i>P</i>	df	χ^2	<i>P</i>	df	χ^2	<i>P</i>
<i>A. filiculoides</i>	Other plants	2	2.20	0.33	2	2.01	0.37	4	4.79	0.31
	Targeted plants	2	0.49	0.78	2	7.77	0.02	4	2.95	0.57
	Pore water	2	10.17	0.01	2	1.03	0.60	4	1.24	0.87
	Surface water	2	2.91	0.23	2	3.90	0.14	4	2.97	0.56
<i>C. demersum</i>	Other plants	2	5.38	0.07	2	0.66	0.72	4	1.28	0.86
	Targeted plants	2	10.43	0.01	2	6.28	0.04	4	9.86	0.04
	Pore water	2	14.48	0.00	2	0.04	0.98	4	3.58	0.47
	Surface water	2	0.37	0.83	2	10.56	0.01	4	0.26	0.99
<i>M. spicatum</i>	Other plants	2	3.08	0.21	2	4.53	0.10	4	5.75	0.22
	Targeted plants	2	4.00	0.14	2	0.06	0.97	4	3.99	0.41
	Pore water	2	4.16	0.13	2	0.02	0.99	4	8.92	0.06
	Surface water	2	11.51	0.00	2	14.03	0.00	4	5.73	0.22

17

18