

S-methylmethionine effectively alleviates stress in Szarvasi-1 energy grass by reducing root-to-shoot cadmium translocation

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Supplementary Tables

Supplementary Table S1. Number of tillers of Szarvasi-1 energy grass in the pots pre-treated with 0, 0.02, 0.05 and 0.1 mM SMM and exposed to 0 and 0.01 mM Cd. (The initial number of tillers at planting was 3.) To compare the differences, one-way ANOVA was performed on each dataset combined with Tukey–Kramer post-hoc test on the treatments ($p < 0.05$). Different lowercase letters indicate significantly different groups.

Treatment	Number of tillers / pot
Control	4.25 ± 1.50
Cd	3.00 ± 0.00
0.02SMM+Cd	4.00 ± 0.82
0.05SMM+Cd	4.00 ± 0.82
0.1SMM+Cd	4.00 ± 1.00

Supplementary Table S2. Element concentrations in the roots (A) and shoots (B) of Szarvasi-1 energy grass treated with 0, 0.02, 0.05 and 0.1 mM SMM and exposed to 0 and 0.01 mM Cd. To compare the differences, one-way ANOVA was performed on each dataset combined with Tukey–Kramer post-hoc test on the treatments ($p < 0.05$). Different lowercase letters indicate significantly different groups.

A

Element	Control	Cd	0.02SMM+Cd	0.05SMM+Cd	0.1SMM+Cd
Ca	4283 ± 840a	4175 ± 867a	4848 ± 1281a	3655 ± 286a	3772 ± 326a
K	41146 ± 3083a	25982 ± 7676b	20334 ± 3886b	22653 ± 2146b	26335 ± 2534b
Mg	2917 ± 232a	1954 ± 203b	1557 ± 362b	1579 ± 268b	1716 ± 349b
P	6353 ± 316a	4409 ± 486c	4621 ± 602bc	4507 ± 424bc	5287 ± 347b
S	2312 ± 260c	3084 ± 403ab	2605 ± 194bc	2702 ± 273abc	3329 ± 522a
Cu	119 ± 12ab	104 ± 23b	94 ± 12bc	108 ± 42bc	171 ± 36a
Fe	3032 ± 644c	4407 ± 332bc	6804 ± 1314a	6060 ± 1116ab	8199 ± 1751a
Mn	2095 ± 711a	828 ± 251b	624 ± 87b	552 ± 212b	596 ± 237b
Na	471 ± 185a	353 ± 179a	299 ± 94a	337 ± 134a	340 ± 64a
Zn	731 ± 153a	512 ± 53b	120 ± 48c	118 ± 48c	163 ± 38c

The element concentrations (mean±SD) are expressed in $\mu\text{g g}^{-1}$.

Supplementary Table S2. Element concentrations in the roots (A) and shoots (B) of Szarvasi-1 energy grass treated with 0, 0.02, 0.05 and 0.1 mM SMM and exposed to 0 and 0.01 mM Cd. To compare the differences, one-way ANOVA was performed on each dataset combined with Tukey–Kramer post-hoc test on the treatments ($p < 0.05$). Different lowercase letters indicate significantly different groups.

B

Element	Control	Cd	0.02SMM+Cd	0.05SMM+Cd	0.1SMM+Cd
Ca	4093.11 ± 1649.62a	5844.45 ± 1372.00a	4580.93 ± 1504.73a	4700.89 ± 1370.80a	5038.86 ± 943.17a
K	44322.95 ± 4051.17a	33126.59 ± 3186.24bc	28551.23 ± 2620.17c	31692.08 ± 2100.50bc	35533.94 ± 4391.63b
Mg	2612.83 ± 614.46ab	2683.80 ± 481.44a	2012.30 ± 318.90ab	1989.43 ± 317.00b	2398.38 ± 419.87ab
P	5475.68 ± 1107.12a	4797.54 ± 713.41abc	3677.42 ± 503.01c	4206.34 ± 468.18bc	4936.55 ± 772.80ab
S	2353.38 ± 379.05a	1867.62 ± 237.38b	1600.11 ± 157.03b	1676.23 ± 153.87b	1884.72 ± 233.93b
Cu	12.78 ± 2.02a	6.45 ± 0.53b	6.82 ± 1.53b	6.82 ± 2.19b	7.72 ± 1.68b
Fe	62.24 ± 9.59ab	45.23 ± 12.71b	64.77 ± 12.30ab	73.10 ± 18.96a	81.07 ± 16.80a
Mn	262.30 ± 81.68a	196.51 ± 51.13ab	186.09 ± 38.64ab	150.85 ± 47.47b	197.39 ± 39.13ab
Mo	4.16 ± 1.57a	3.39 ± 0.80a	0.80 ± 0.27b	0.93 ± 0.42b	1.38 ± 0.44b
Na	215.94 ± 86.38a	142.51 ± 26.80a	190.51 ± 84.01a	271.00 ± 161.38a	263.81 ± 136.63a
Zn	138.82 ± 29.17a	100.07 ± 25.04b	82.06 ± 11.36b	69.69 ± 18.19b	93.92 ± 10.06b

The element concentrations (mean±SD) are expressed in $\mu\text{g g}^{-1}$.