

Supplementary data

Effects of Lime and Organic Amendments Derived from Varied Source Materials on Cd Uptake by Potato

Shamim Al Mamun, Niklas J. Lehto, Jo Cavanagh, Richard McDowell, Munmun Aktar, Ebrahim Benyas, Brett H. Robinson

Table S1. Elemental composition of potato stem grown under different treatments. Standard errors are given in brackets (n=3). Values in the same column with the same letters are not significantly different.

Treatments‡	B (mg/kg)	Ca (mg/kg)	Cd (mg/kg)	Cr (mg/kg)	Cu (mg/kg)	Fe (mg/kg)	K (mg/kg)	Mg (mg/kg)	Mn (mg/kg)	Mo (mg/kg)	P*ns (mg/kg)	S (mg/kg)	Zn (mg/kg)
Control	25.0 (2) ^{BCD}	13562 (1444) ^{DEF}	0.527 (0.02) ^{BC}	0.26 (0.1) ^B	6.2 (0.4) ^{BCD}	26.1 (1) ^B	59335 (1638) ^A	1257 (154) ^{CDEFG}	25 (1) ^C	0.37 (0.05) ^C	3327 (530)	4832 (281) ^A	62 (12) ^{CD}
LM 1	26.5 (0.5) ^{BC}	19345 (341) ^{BC}	0.318 (0.04) ^{CD}	0.22 (0.1) ^B	9.9 (0.4) ^{BC}	24.0 (4) ^B	51355 (1219) ^{AB}	790 (88) ^{FG}	8 (2) ^C	3.5 (0.4) ^B	2685 (443)	5497 (208) ^A	53 (3) ^{CD}
LM 2	25.0 (1) ^{BCD}	18848 (704) ^C	0.508 (0.09) ^{BC}	0.33 (0.2) ^B	8.5 (1) ^{BCD}	32.0 (9) ^B	46787 (2643) ^{BC}	975 (230) ^{DEFG}	11 (3) ^C	3.4 (0.01) ^B	3203 (415)	5045 (388) ^A	54 (9) ^{CD}
MC 1	22.2 (4) ^{CD}	11756 (3368) ^{EF}	0.200 (0.02) ^D	0.05 (0.01) ^B	3.9 (0.8) ^D	45.8 (6) ^B	55091 (4539) ^{AB}	1754 (360) ^{CDEF}	19 (8) ^C	0.85 (0.09) ^C	2669 (386)	2761 (250) ^{CD}	41 (7) ^D
MC 2	23.0 (1) ^{BCD}	10856 (1547) ^F	0.181 (0.006) ^D	0.09 (0.0) ^B	4.6 (0.6) ^D	26.0 (2) ^B	61238 (4856) ^A	1887 (435) ^{CDE}	12 (3) ^C	1.23 (0.03) ^C	2304 (110)	2497 (112) ^D	49 (7) ^D
SD 1	22.0 (2) ^{CD}	11260 (1313) ^F	0.200 (0.01) ^D	0.12 (0.0) ^B	5.2 (0.5) ^{CD}	21.3 (1) ^B	50335 (19780) ^{AB}	659 (95) ^G	13 (1) ^C	0.41 (0.07) ^C	2828 (457)	3415 (117) ^{BC}	42 (4) ^D
SD 2	23.5 (1) ^{BCD}	12242 (1191) ^{EF}	0.171 (0.0) ^D	0.14 (0.0) ^B	5.6 (0.5) ^{BCD}	25.2 (4) ^B	56519 (4399) ^{AB}	704 (336) ^{FG}	13 (4) ^C	1.01 (0.18) ^C	3019 (661)	3570 (210) ^B	45 (3) ^D
MS 1	27.1 (1) ^B	16477 (840) ^{CD}	0.370 (0.01) ^{CD}	0.10 (0.0) ^B	10.0 (1) ^{BC}	34.1 (7) ^B	50416 (1012) ^{AB}	2034 (263) ^C	20 (1) ^C	0.32 (0.1) ^C	3235 (287)	4892 (413) ^A	85 (5) ^C
MS 2	25.2 (0.3) ^B	15784 (602) ^{CDE}	0.278 (0.003) ^{CD}	0.06 (0) ^B	10.7 (1.4) ^B	29.5 (1) ^B	55170 (2192) ^{AB}	2130 (179) ^C	20 (1) ^C	0.33 (0.12) ^C	2619 (201)	5137 (223) ^A	72 (6) ^{CD}
PG 1	24.5 (2) ^{BCD}	12765 (427) ^{DEF}	0.178 (0.01) ^D	0.09 (0.0) ^B	8.1 (0.5) ^{BCD}	21.2 (3) ^B	56237 (4165) ^{AB}	935 (160) ^{EFG}	8 (2) ^C	0.67 (0.1) ^C	2808 (416)	3969 (248) ^B	47 (2) ^D
PG 2	20.7 (2) ^D	11066 (1411) ^F	0.241 (0.03) ^{CD}	0.18 (0.0) ^B	5.1 (0.3) ^{CD}	23.5 (3) ^B	54360 (2128) ^{AB}	2019 (630) ^{CD}	21 (5) ^C	0.63 (0.1) ^C	2723 (115)	3257 (262) ^{BCD}	51 (6) ^D
SC 1	51.2 (2) ^A	24834 (1098) ^A	0.943 (0.1) ^A	0.06 (0.0) ^B	25.4 (5.3) ^A	47.8 (3) ^B	37885 (6260) ^C	9374 (763) ^A	184 (33) ^B	1.22 (0.7) ^C	3458 (307)	4932 (238) ^A	269 (30) ^A
SC2	52.3 (0.017) ^A	23707 (1155) ^{AB}	0.752 (0.29) ^{AB}	9.88 (7.95) ^A	19.74 (3.23) ^A	81.1 (42) ^A	36319 (8759) ^C	6088 (172) ^B	268 (73) ^A	6.80 (1.8) ^A	3226 (822)	3542 (417) ^{BC}	222 (16.10) ^B

*ns=no significant difference. ‡ Control stands for no treatment in soil, LM 1 and 2 stand for lime 0.6% and 1.3%, respectively; MC 1 and 2: municipal green waste compost 2.5% and 5%, respectively, SD 1 and 2: sawdust composted with animal offals 2.5% and 5%, respectively; MS 1 and 2: mushroom industry residue compost 2.5% and 5%, respectively; PG 1 and 2: pig manure composted with sawdust 2.5% and 5%, respectively; SC 1 and 2: shredded corn stover 2.5% and 5%, respectively.

Table S2. Elemental composition of potato leaf grown under different treatments. Standard errors are given in brackets (n=3). Values in the same column with the same letters are not significantly different.

Treatments (Leaf)	B (mg/kg)	Ca (mg/kg)	Cd (mg/kg)	Cr (mg/kg)	Cu (mg/kg)	Fe (mg/kg)	K (mg/kg)	Mg (mg/kg)	Mn (mg/kg)	Mo (mg/kg)	P (mg/kg)	S (mg/kg)	Zn (mg/kg)
Control‡	66.1 (4) ^{CDE}	26124 (1395) ^{CDE}	0.258 (0.005) ^{AB}	0.19 (0.02) ^{BC}	8.3 (1) ^{CDE}	125 (9) ^A	37096 (1547) ^{ABC}	2806 (231) ^E	79 (5) ^B	1 (0.2) ^C	2590 (35) ^B	5432 (258) ^{DEFG}	30 (2) ^{BC}
LM 1	72.9 (1) ^{ABC}	27815 (1074) ^{BC}	0.114 (0.003) ^C	0.15 (0.06) ^{BCD}	9.0 (1) ^C	108 (10) ^{ABC}	33144 (1160) ^{BC}	2020 (175) ^F	53 (2) ^{CD}	6 (1) ^B	2398 (127) ^B	7184 (763) ^{BC}	23 (1) ^{CD}
LM 2	69.3 (2) ^{ABCD}	27352 (1083) ^{BCD}	0.201 (0.01) ^{ABC}	0.13 (0.05) ^{CD}	7.9 (0) ^{CDE}	85 (4) ^C	30145 (1823) ^C	1950 (136) ^F	57 (2) ^{CD}	6 (1) ^B	2292 (174) ^B	5829 (480) ^{CDEF}	18 (1) ^D
MC 1	58.3 (3) ^{DEF}	25332 (1963) ^{CDEF}	0.265 (0.05) ^{AB}	0.10 (0.05) ^{CD}	6.5 (0) ^E	114 (14) ^{AB}	35957 (3953) ^{ABC}	4578 (201) ^{BC}	66 (7) ^{BCD}	1 (0.1) ^C	2522 (300) ^B	4289 (563) ^{GH}	27 (3) ^C
MC 2	63.6 (5) ^{CDEF}	22713 (1187) ^F	0.236 (0.06) ^{AB}	0.11 (0.02) ^{CD}	6.7 (0) ^{DE}	101 (7) ^{BC}	41615 (3921) ^A	4339 (276) ^C	58 (5) ^{CD}	1 (0.2) ^C	2212 (92) ^B	3294 (178) ^H	28 (3) ^{BC}
SD 1	55.7 (3) ^{EF}	22888 (759) ^{EF}	0.170 (0.1) ^{BC}	0.13 (0.07) ^{CD}	7.4 (1) ^{CDE}	109 (8) ^{ABC}	32459 (1224) ^{BC}	2704 (24) ^E	63 (3) ^{CD}	1 (0) ^C	2359 (91) ^B	5038 (85) ^{EFG}	29 (2) ^{BC}
SD 2	56.7 (2) ^{EF}	24297 (1659) ^{DEF}	0.173 (0.01) ^{BC}	0.12 (0.02) ^{CD}	7.0 (1) ^{CDE}	117 (8) ^{AB}	35388 (3285) ^{ABC}	2829 (21) ^E	65 (4) ^{BCD}	1 (0.2) ^C	2479 (282) ^B	4189 (359) ^{GH}	25 (1) ^{CD}
MS 1	66.2 (7) ^{CDE}	27748 (752) ^{BC}	0.254 (0.04) ^{AB}	0.10 (0.04) ^{CD}	8.8 (1) ^{CD}	102 (9) ^{ABC}	35401 (1422) ^{ABC}	2653 (254) ^E	66 (2) ^{BCD}	1 (0.1) ^C	1917 (120) ^B	7493 (236) ^{AB}	27 (4) ^C
MS 2	69.2 (5) ^{ABCD}	28422 (680) ^{BC}	0.214 (0.01) ^{ABC}	0.12 (0.03) ^{CD}	8.0 (1) ^{CDE}	106 (4) ^{ABC}	38320 (4342) ^{AB}	3092 (183) ^{DE}	68 (4) ^{BC}	0.9 (0.1) ^C	2011 (223) ^B	8782 (980) ^A	23 (2) ^{CD}
PG 1	68.7 (3) ^{BCD}	23903 (94) ^{EF}	0.195 (0.03) ^{BC}	0.10 (0.04) ^{CD}	7.8 (0) ^{CDE}	112 (3) ^{AB}	37052 (1674) ^{ABC}	3651 (101) ^D	64(2) ^{CD}	1 (0.1) ^C	2378 (133) ^B	5957 (181) ^{CDE}	25 (1) ^{CD}
PG 2	52.5 (4) ^F	27460 (820) ^{BCD}	0.296 (0.03) ^A	0.06 (0.01) ^D	8.0 (1) ^{CDE}	101 (4) ^{BC}	38362 (1982) ^{AB}	4941 (241) ^{BC}	72 (4) ^{BC}	1 (1) ^C	2456 (47) ^B	4557 (547) ^{FGH}	37 (5) ^B
SC 1	80.4 (5) ^A	34853 (862) ^A	0.126 (0.02) ^C	0.34 (0.03) ^A	16.6 (1) ^A	122 (12) ^{AB}	36391 (1425) ^{ABC}	6617 (216) ^A	158 (10) ^A	5 (3) ^{BC}	6684 (927) ^A	7191 (309) ^{BC}	29 (4) ^{BC}
SC 2	79.3 (5) ^{AB}	30580 (1151) ^B	0.123 (0.03) ^C	0.26 (0.02) ^{AB}	13.8 (1) ^B	107 (5) ^{ABC}	39282 (1167) ^{AB}	5100 (498) ^B	169 (8) ^A	15 (5) ^A	6898 (1847) ^A	6849 (255) ^{BCD}	47 (2) ^A

*ns=no significant difference. ‡ Control stands for no treatment in soil, LM 1 and 2 stand for lime 0.6% and 1.3%, respectively; MC 1 and 2: municipal green waste compost 2.5% and 5%, respectively, SD 1 and 2: sawdust composted with animal offals 2.5% and 5%, respectively; MS 1 and 2: mushroom industry residue compost 2.5% and 5%, respectively; PG 1 and 2: pig manure composted with sawdust 2.5% and 5%, respectively; SC 1 and 2: shredded corn stover 2.5% and 5%, respectively.