

Bioaccumulation capacity of onion (*Allium cepa* L.) tested with heavy metals in biofortification

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Table S1. Comparison of average manganese content ($\mu\text{g g}^{-1}$ DW) in the bulbs, roots and assimilation leaves of *A. cepa* depending on the concentration in the solution (mg L^{-1}). Data are presented as mean \pm SD.

Part of the plant	Concentration of Mn^{2+} in the solution (mg L^{-1})					
	0	25	50	100	200	400
	Content of accumulated Mn^{2+} ($\mu\text{g g}^{-1}$ DW \pm SD)					
Bulbs	1.21 \pm 0.01	4.49 \pm 0.48	31.94 \pm 0.32	61.10 \pm 0.88	147.54 \pm 3.28	186.38 \pm 1.30
Roots	11.65 \pm 0.01	3723.18 \pm 112.49	3589.09 \pm 29.57	5912.34 \pm 47.61	4075.00 \pm 23.58	3883.16 \pm 3.06
Assimilation leaves	0.64 \pm 0.01	5.16 \pm 0.13	51.33 \pm 3.96	256.32 \pm 4.68	521.36 \pm 6.43	1600.92 \pm 1.29

Table S2. Comparison of average nickel content ($\mu\text{g g}^{-1}$ DW) in the bulbs, roots and assimilation leaves of *A. cepa* depending on the concentration in the solution (mg L^{-1}). Data are presented as mean \pm SD.

Part of the plant	Concentration of Ni^{2+} in the solution (mg L^{-1})					
	0	25	50	100	200	400
	Content of accumulated Ni^{2+} ($\mu\text{g g}^{-1}$ DW \pm SD)					
Bulbs	nd ¹	43.85 \pm 2.19	17.38 \pm 1.73	66.17 \pm 1.26	89.89 \pm 1.12	128.82 \pm 1.56
Roots	nd	2084.00 \pm 18.38	1057.85 \pm 5.59	2956.00 \pm 43.84	na ²	na
Assimilation leaves	nd	30.22 \pm 0.06	27.94 \pm 0.54	224.70 \pm 1.63	na	na

¹ nd- not detected

² na- not analyzed

Table S3. Comparison of average lead content ($\mu\text{g g}^{-1}$ DW) in the bulbs, roots and assimilation leaves of *A. cepa* depending on the concentration in the solution (mg L^{-1}). Data are presented as mean \pm SD.

Part of the plant	Concentration of Pb^{2+} in the solution (mg L^{-1})					
	0	25	50	100	200	400
	Content of accumulated Pb^{2+} ($\mu\text{g g}^{-1}$ DW \pm SD)					
Bulbs	nd ¹	2.40 \pm 0.37	5.46 \pm 0.03	7.19 \pm 0.08	8.38 \pm 0.36	144.47 \pm 1.09
Roots	nd	805.10 \pm 17.68	1313.80 \pm 7.92	3961.00 \pm 35.36	na ²	na
Assimilation leaves	nd	1.17 \pm 0.21	0.70 \pm 0.04	0.92 \pm 0.01	na	na

¹ nd- not detected

² na- not analyzed

Table S4. Comparison of average cadmium content ($\mu\text{g g}^{-1}$ DW) in the bulbs, roots and assimilation leaves of *A. cepa* depending on the concentration in the solution (mg L^{-1}). Data are presented as mean \pm SD.

Part of the plant	Concentration of Cd^{2+} in the solution (mg L^{-1})					
	0	25	50	100	200	400
	Content of accumulated Cd^{2+} ($\mu\text{g g}^{-1}$ DW \pm SD)					
Bulbs	nd ¹	0.60 \pm 0.01	1.21 \pm 0.09	2.86 \pm 0.16	50.36 \pm 0.82	138.08 \pm 21.13
Roots	nd	5478.00 \pm 22.63	na ²	na	na	na
Assimilation leaves	nd	20.03 \pm 4.03	na	na	na	na

¹ nd- not detected

² na- not analyzed

Table S5. Comparison of average zinc content ($\mu\text{g g}^{-1}$ DW) in the bulbs, roots and assimilation leaves of *A. cepa* depending on the concentration in the solution (mg L^{-1}). Data are presented as mean \pm SD.

Part of the plant	Concentration of Zn^{2+} in the solution (mg L^{-1})					
	0	25	50	100	200	400
	Content of accumulated Zn^{2+} ($\mu\text{g g}^{-1}$ DW \pm SD)					
Bulbs	1.52 \pm 0.01	39.21 \pm 0.69	44.22 \pm 0.85	49.13 \pm 0.41	51.75 \pm 0.16	53.97 \pm 1.57
Roots	30.41 \pm 1.32	2015.34 \pm 15.08	3269.68 \pm 24.04	5743.33 \pm 0.00	na ²	na
Assimilation leaves	nd ¹	62.34 \pm 0.98	134.50 \pm 1.17	457.06 \pm 8.68	na	na

¹ nd- not detected

² na- not analyzed

Table S6. Comparison of average strontium content ($\mu\text{g g}^{-1}$ DW) in the bulbs, roots and assimilation leaves of *A. cepa* depending on the concentration in the solution (mg L^{-1}). Data are presented as mean \pm SD.

Part of the plant	Concentration of Sr^{2+} in the solution (mg L^{-1})					
	0	25	50	100	200	400
	Content of accumulated Sr^{2+} ($\mu\text{g g}^{-1}$ DW \pm SD)					
Bulbs	nd ¹	0.93 \pm 0.13	3.03 \pm 0.65	7.87 \pm 0.01	14.50 \pm 0.57	55.07 \pm 2.45
Roots	nd	8.48 \pm 0.80	573.14 \pm 4.56	768.50 \pm 0.83	1668.64 \pm 8.36	3727.27 \pm 2.57
Assimilation leaves	nd	9.41 \pm 0.09	17.78 \pm 0.74	18.70 \pm 0.42	151.64 \pm 0.52	626.64 \pm 14.14

¹ nd- not detected

Table S7. Comparison of average chromium content ($\mu\text{g g}^{-1}$ DW) in the bulbs, roots and assimilation leaves of *A. cepa* depending on the concentration in the solution (mg L^{-1}). Data are presented as mean \pm SD.

Part of the plant	Concentration of Cr^{3+} in the solution (mg L^{-1})					
	0	25	50	100	200	400
	Content of accumulated Cr^{3+} ($\mu\text{g g}^{-1}$ DW \pm SD)					
Bulbs	0.54 \pm 0.01	0.92 \pm 0.11	1.83 \pm 0.07	3.24 \pm 0.17	8.19 \pm 0.01	66.37 \pm 0.04
Roots	47.02 \pm 0.02	459.25 \pm 0.35	1008.42 \pm 8.37	938.01 \pm 3.52	na	na
Assimilation leaves	nd ¹	0.88 \pm 0.04	9.56 \pm 0.04	na ²	na	na

¹ nd- not detected

² na- not analyzed

Table S8. Comparison of average iron content ($\mu\text{g g}^{-1}$ DW) in the bulbs, roots and assimilation leaves of *A. cepa* depending on the concentration in the solution (mg L^{-1}). Data are presented as mean \pm SD.

Part of the plant	Concentration of Fe^{3+} in the solution (mg L^{-1})					
	0	25	50	100	200	400
	Content of accumulated Fe^{3+} ($\mu\text{g g}^{-1}$ DW \pm SD)					
Bulbs	8.70 \pm 0.05	5.26 \pm 1.12	10.32 \pm 0.42	71.04 \pm 0.54	9.64 \pm 0.15	98.25 \pm 0.24
Roots	16.80 \pm 0.15	306.70 \pm 0.14	1370.80 \pm 41.01	97.79 \pm 3.69	212.80 \pm 0.28	577.30 \pm 2.69
Assmilation leaves	4.74 \pm 0.03	15.40 \pm 0.07	33.49 \pm 1.06	30.39 \pm 0.27	15.28 \pm 0.29	5.46 \pm 0.35

Table S9. Comparison of average cobalt content ($\mu\text{g g}^{-1}$ DW) in the bulbs, roots and assimilation leaves of *A. cepa* depending on the concentration in the solution (mg L^{-1}). Data are presented as mean \pm SD.

Part of the plant	Concentration of Co^{2+} in the solution (mg L^{-1})					
	0	25	50	100	200	400
	Content of accumulated Co^{2+} ($\mu\text{g g}^{-1}$ DW \pm SD)					
Bulbs	nd ¹	10.54 \pm 0.01	7.51 \pm 0.51	15.04 \pm 0.26	29.88 \pm 2.60	49.79 \pm 3.66
Roots	nd	71.80 \pm 0.10	205.20 \pm 2.55	302.49 \pm 2.36	na ²	na
Assimilation leaves	nd	25.86 \pm 0.69	29.70 \pm 1.28	37.77 \pm 0.32	na	na

¹ nd- not detected

² na- not analyzed

Table S10. Comparison of average copper content ($\mu\text{g g}^{-1}$ DW) in the bulbs, roots and assimilation leaves of *A. cepa* depending on the concentration in the solution (mg L^{-1}). Data are presented as mean \pm SD.

Part of the plant	Concentration of Cu^{2+} in the solution (mg L^{-1})					
	0	25	50	100	200	400
	Content of accumulated Cu^{2+} ($\mu\text{g g}^{-1}$ DW \pm SD)					
Bulbs	0.51 \pm 0.10	2.22 \pm 0.08	1.38 \pm 0.12	3.86 \pm 0.33	1.82 \pm 0.31	2.26 \pm 0.90
Roots	10.88 \pm 0.18	1347.66 \pm 14.62	3420.34 \pm 8.01	5013.33 \pm 0.00	na ²	na
Assimilation leaves	nd ¹	4.74 \pm 0.74	5.73 \pm 0.01	14.28 \pm 0.08	na	na

¹ nd- not detected

² na- not analyzed