

Table S1. The average recovery for the most of the elements to be determined (*value obtained for information value).

Analyte	Recovery (%)			
	M-4 CormTis	M-3 HerTis	M-5 CodTis	DOLT-4
Na	101.8 ± 4.9	99.8 ± 9.6	107 ± 12	-
K	89.2 ± 2.1	105 ± 11	105 ± 11	-
P	84.5 ± 3.9	86.2 ± 4.1	87.6 ± 6.0	-
Fe	112.9 ± 4.8	104 ± 10	97.5 ± 6.1	94.6 ± 9.7
Ca	99.7 ± 8.1*	-	-	-
As	89.7 ± 6.3	85.1 ± 4.0	87.9 ± 6.3	85.2 ± 4.9
Se	83.9 ± 1.4	96.8 ± 9.7	90.4 ± 4.9	86.2 ± 5.4
Zn	102.1 ± 5.6	93.5 ± 7.4	110.1 ± 6.9	96.3 ± 3.7
Cd	94.0 ± 7.8	90.2 ± 3.9	-	87.8 ± 5.9
Mg	98.4 ± 5.7	107.9 ± 6.1	97.5 ± 8.4	-
Pb	94.4 ± 6.1	88.7 ± 6.5	-	92.0 ± 7.3
Cu	94.8 ± 8.1	93.1 ± 8.1	86.2 ± 5.1	91.2 ± 6.4
Ag	-	87.6 ± 3.8	-	-
Co	95.7 ± 7.1	87.0 ± 5.1	-	-
Ni	-	84.9 ± 3.7	-	86.3 ± 4.7
Mo	-	85.0 ± 3.0	-	-
Al	-	-	-	-
Mn	88.9 ± 5.3	98.0 ± 2.7	95.2 ± 5.9	-
Sr	90.7 ± 7.0	-	88.7 ± 7.0	-
Cr	-	100.1 ± 6.9	-	93.7 ± 6.3
Ba	-	87.6 ± 5.0	90.1 ± 8.4	-
Li	-	88.6 ± 3.4	-	-

Table S2. Results of the determination of the selected elements' content in conventional and organic beetroot samples ($x_m \pm U$, ($k = 2$)).

Type	No.	Sample	Concentration (Conti) $\pm U$ (mg/100 g f.w.)														
			Na	K	P	Mg	Ca	Fe	Se	Zn	Cu	Mn	Sr	Ba	Al	As	Cd
conventional	1.	1Bo	51.64 ± 0.53	263.32 ± 0.79	28.48 ± 0.18	24.47 ± 0.20	25.54 ± 0.41	0.6971 ± 0.0039	<LOQ	<LOQ	0.08166 ± 0.00080	1.640 ± 0.013	0.10518 ± 0.00056	0.15049 ± 0.00062	0.4588 ± 0.0018	3.246 ± 0.090	<LOQ
	2.	3Bo	18.539 ± 0.050	214.63 ± 0.94	19.19 ± 0.21	15.84 ± 0.13	22.23 ± 0.97	0.7124 ± 0.0031	0.541 ± 0.064	0.4075 ± 0.0043	0.1058 ± 0.0010	0.174 ± 0.016	0.1782 ± 0.0010	0.2483 ± 0.0016	0.6573 ± 0.0092	<LOQ	<LOQ
	3.	4Bo	46.28 ± 0.15	291.5 ± 1.94	16.37 ± 0.33	26.64 ± 0.22	21.68 ± 0.18	0.8263 ± 0.0042	<LOQ	<LOQ	<LOQ	0.250 ± 0.0031	0.13330 ± 0.00056	0.12181 ± 0.00031	0.8190 ± 0.0076	<LOQ	<LOQ
	4.	5Bo	24.84 ± 0.91	294.63 ± 0.57	19.12 ± 0.52	22.82 ± 0.12	17.55 ± 0.40	0.50106 ± 0.00042	<LOQ	0.353 ± 0.0016	0.10370 ± 0.00087	0.2433 ± 0.0022	0.13402 ± 0.00027	0.17946 ± 0.00039	<LOQ	<LOQ	0.0639 ± 0.0010
organic	5.	2Bo	61.04 ± 0.57	527.3 ± 1.36	38.09 ± 0.10	38.31 ± 0.20	51.05 ± 0.41	0.883 ± 0.055	<LOQ	<LOQ	<LOQ	0.4227 ± 0.0041	0.5003 ± 0.0030	0.22311 ± 0.00073	1.905 ± 0.020	3.684 ± 0.095	<LOQ
	6.	6Bo	16.54 ± 0.10	260.6 ± 1.54	36.97 ± 0.30	23.73 ± 0.15	25.38 ± 0.43	0.698 ± 0.071	<LOQ	<LOQ	<LOQ	0.2460 ± 0.0026	0.0934 ± 0.0026	0.19275 ± 0.0016	0.2265 ± 0.0035	<LOQ	<LOQ
	7.	7Bo	19.05 ± 0.22	279.3 ± 1.0	37.56 ± 0.22	28.64 ± 0.18	26.82 ± 0.15	0.8766 ± 0.0028	<LOQ	<LOQ	<LOQ	0.4062 ± 0.0022	0.1153 ± 0.0030	0.23533 ± 0.00092	0.4066 ± 0.0094	<LOQ	<LOQ

LOQ Se=0.30 $\mu\text{g/g}$, LOQ Zn=0.96 $\mu\text{g/g}$, LOQ Cu=0.21 $\mu\text{g/g}$, LOQ Al=0.81 $\mu\text{g/g}$, LOQ As=0.30 $\mu\text{g/g}$, LOQ Cd=0.69 $\mu\text{g/g}$; U – expanded uncertainty of measurement at 95% confidence level obtained for three replicates

Table S3. Results of the determination of the content of selected elements in beetroot-based food supplements samples ($\bar{x}_m \pm U$, ($k = 2$)).

Form	No.	Sample	Concentration $\pm U$ ($\mu\text{g/d.u. of product}$)											
			Na	K	P	Mg	Ca	Fe	Zn	Mn	Sr	Al	As	Cd
capsules	1.	1GyA	302.94 ± 4.35	679.50 ± 4.35	<LOQ	107.64 ± 0.45	218.15 ± 0.60	19.91 ± 0.032	<LOQ	<LOQ	<LOQ	8.75 ± 0.28	<LOQ	61.17 ± 0.46
	2.	1GyB	328.55 ± 3.75	698.0 ± 0.024	<LOQ	112.17 ± 0.33	192.90 ± 1.85	18.75 ± 0.022	<LOQ	<LOQ	<LOQ	17.38 ± 0.25	93.90 ± 3.40	<LOQ
	3.	2PhA	323.65 ± 4.35	690.950 ± 0.024	<LOQ	109.10 ± 0.35	192.60 ± 2.10	18.48 ± 0.075	<LOQ	<LOQ	<LOQ	20.61 ± 0.25	95.0 ± 1.10	<LOQ
	4.	2PhB	317.0 ± 5.50	700.950 ± 0.024	<LOQ	111.10 ± 0.40	188.70 ± 1.70	18.32 ± 0.15	<LOQ	<LOQ	<LOQ	11.31 ± 0.14	92.70 ± 2.15	<LOQ
	5.	3GaA	474.36 ± 2.26	5409.296 ± 0.029	660 ± 15	488.06 ± 2.21	488.72 ± 1.55	2797.0 ± 2.32	3.880 ± 0.089	19.751 ± 0.066	2.724 ± 0.024	221.65 ± 2.92	<LOQ	3.302 ± 0.032
	6.	3GaB	477.63 ± 2.03	5206.060 ± 0.029	862.41 ± 5.96	487.23 ± 2.26	520.61 ± 2.26	2720 ± 12	<LOQ	19.38 ± 0.15	3.041 ± 0.027	226.54 ± 0.72	<LOQ	<LOQ
	7.	6HeA	464.36 ± 4.42	4948.450 ± 0.031	952.97 ± 1.17	971.43 ± 5.59	464.82 ± 2.99	1275.30 ± 7.80	<LOQ	14.869 ± 0.051	<LOQ	6.58 ± 0.25	<LOQ	<LOQ
	8.	6HeB	577.20 ± 6.50	5943.080 ± 0.031	855 ± 21	1297.01 ± 2.60	543.99 ± 2.21	2945 ± 18	4.53 ± 0.12	14.235 ± 0.072	3.239 ± 0.027	<LOQ	<LOQ	3.278 ± 0.042
	9.	9SoA	6040 ± 37	5161.890 ± 0.033	<LOQ	194.85 ± 0.69	203.76 ± 1.24	203.78 ± 0.51	<LOQ	<LOQ	<LOQ	5.24 ± 0.15	<LOQ	<LOQ
	10.	9SoB	6947 ± 10	5663.520 ± 0.033	1023.96 ± 8.28	225.35 ± 1.52	287.52 ± 0.61	18.22 ± 0.17	<LOQ	<LOQ	<LOQ	14.80 ± 0.083	<LOQ	<LOQ
tablets	11.	4HeA	287.26 ± 6.39	2999.728 ± 0.018	512 ± 11	266.51 ± 1.65	270.83 ± 1.17	1492 ± 23	<LOQ	11.22 ± 0.11	<LOQ	3.83 ± 0.23	<LOQ	<LOQ
	12.	4HeB	336.90 ± 3.76	3321.584 ± 0.018	438.45 ± 1.28	311.29 ± 0.79	324.49 ± 5.26	1576 ± 18	<LOQ	12.34 ± 0.094	1.9514 ± 0.0064	136.90 ± 0.22	<LOQ	1.9037 ± 0.0094
	13.	5BoA	774.95 ± 6.60	5358.100 ± 0.027	631.95 ± 9.90	306.50 ± 0.30	290.35 ± 0.99	14.413 ± 0.030	<LOQ	4.058 ± 0.014	<LOQ	10.58 ± 0.46	<LOQ	<LOQ
	14.	5DoB	870 ± 10	5777.20 ± 0.027	722.70 ± 8.80	616.28 ± 4.07	421.262 ± 0.050	15.752 ± 0.044	<LOQ	4.472 ± 0.048	<LOQ	4.862 ± 0.019	<LOQ	<LOQ
	15.	7CoA	1057 ± 16	9009.50 ± 0.045	1056 ± 10	1922 ± 13	687.83 ± 3.89	41.656 ± 0.027	<LOQ	18.65 ± 0.18	<LOQ	18.32 ± 1.20	<LOQ	<LOQ
	16.	7CoB	1155.14 ± 4.16	8865.20 ± 0.045	979.95 ± 8.70	1857 ± 13	611.61 ± 3.61	39.36 ± 0.17	<LOQ	14.91 ± 0.10	<LOQ	21.47 ± 0.29	<LOQ	<LOQ
	17.	8SwA	3275.94 ± 4.12	2617.060 ± 0.069	<LOQ	363.52 ± 1.99	1771 ± 21	20.79 ± 0.26	<LOQ	<LOQ	2.330 ± 0.037	<LOQ	<LOQ	7.11 ± 0.16

LOQ P=11 $\mu\text{g/g}$, LOQ Zn=0.96 $\mu\text{g/g}$, LOQ Mn=0.16 $\mu\text{g/g}$, LOQ Sr=0.20 $\mu\text{g/g}$, LOQ Al=0.81 $\mu\text{g/g}$, LOQ As=0.30 $\mu\text{g/g}$, LOQ Cd=0.69 $\mu\text{g/g}$; U – expanded uncertainty of measurement at 95% confidence level obtained for three replicates

Table S4. Results of the realisation of dietary recommendation (%) for selected elements by a 100 g portion of conventional and organic beetroot samples.

Type	No.	Sample	Realisation of Dietary Recommendation (%)									
			Na	K	P	Mg	Ca	Fe	Se	Zn	Cu	Mn
			AI 1500 mg/day	AI 3500 mg/day	RDA 700 mg/day	RDA men 420 mg/day	RDA 1000 mg/day	RDA men 10 mg/day	RDA 0.055 mg/day	RDA men 11 mg/day	RDA 0.9 mg/day	AI men 2.3 mg/day
conventional	1.	1Bo	3.44	7.52	4.07	5.83	2.55	6.97	<LOQ	<LOQ	9.07	91.1
	2.	3Bo	1.24	6.13	2.74	3.77	2.22	7.12	983	3.7	11.8	9.69
	3.	4Bo	3.09	8.33	2.34	6.34	2.17	8.26	<LOQ	<LOQ	<LOQ	13.9
	4.	5Bo	1.66	8.42	2.73	5.43	1.75	5.01	<LOQ	3.21	11.5	13.5
organic	5.	2Bo	4.07	15.1	5.44	9.12	5.10	8.83	<LOQ	<LOQ	<LOQ	18.4
	6.	6Bo	1.10	7.44	5.28	5.65	2.54	6.98	<LOQ	<LOQ	<LOQ	10.7
	7.	7Bo	1.27	7.98	5.37	6.82	2.68	8.77	<LOQ	<LOQ	<LOQ	17.7

LOQ P=11 µg/g, LOQ Se=0.30 µg/g, LOQ Zn=0.96 µg/g, LOQ Cu=0.21 µg/g; AI and RDA values according to Jarosz et al. [27]

Table S5. Results of the realisation of dietary recommendation (%) for selected elements by a daily portion of dietary supplements.

Form	No.	Sample	Realisation of Dietary Recommendation (%)							
			Na	K	P	Mg	Ca	Fe	Zn	Mn
			AI 1500 mg/day	AI 3500 mg/day	RDA 700 mg/day	RDA men 420 mg/day	RDA 1000 mg/day	RDA men 10 mg/day	RDA men 11 mg/day	AI men 2.3 mg/day
capsules	1.	1GyA	0.02	0.02	<LOQ	0.03	0.02	0.20	<LOQ	<LOQ
	2.	1GyB	0.02	0.02	<LOQ	0.03	0.02	0.19	<LOQ	<LOQ
	3.	2PhA	0.02	0.02	<LOQ	0.03	0.02	0.18	<LOQ	<LOQ
	4.	2PhB	0.02	0.02	<LOQ	0.03	0.02	0.18	<LOQ	<LOQ
	5.	3GaA	0.06	0.31	0.19	0.23	0.10	55.9	0.07	1.72
	6.	3GaB	0.06	0.30	0.25	0.23	0.10	54.4	<LOQ	1.69
	7.	6HeA	0.09	0.42	0.41	0.69	0.14	38.3	<LOQ	1.94
	8.	6HeB	0.12	0.51	0.37	0.93	0.16	88.4	0.12	1.86
	9.	9SoA	0.81	0.29	<LOQ	0.09	0.04	4.08	<LOQ	<LOQ
	10.	9SoB	0.93	0.32	0.29	0.11	0.06	0.36	<LOQ	<LOQ
tablets	11.	4HeA	0.06	0.26	0.22	0.19	0.08	44.7	<LOQ	1.46
	12.	4HeB	0.07	0.28	0.19	0.22	0.10	47.3	<LOQ	1.61
	13.	5BoA	0.31	0.92	0.54	0.44	0.17	0.86	<LOQ	1.06
	14.	5DoB	0.35	0.99	0.62	0.88	0.25	0.95	<LOQ	1.17
	15.	7CoA	0.42	1.54	0.91	2.75	0.41	2.50	<LOQ	4.86
	16.	7CoB	0.46	1.52	0.84	2.65	0.37	2.36	<LOQ	3.89
	17.	8SwA	0.44	0.15	<LOQ	0.17	0.35	0.42	<LOQ	<LOQ

LOQ P=11 µg/g, LOQ Zn=0.96 µg/g, LOQ Mn=0.16 µg/g; AI and RDA values according to Jarosz et al. [27]

Table S6. Spearman's rank correlation of beetroot and dietary supplements samples (red font for statistically significant correlations).

	Na	K	P	Fe	Ca	Mg	Al	Mn	Sr	Ba
Na	1.000000	0.604376 ^{abc}	0.457918 ^{ab}	-0.059202	0.516345 ^{ab}	0.459717 ^{ab}	0.053445	0.259625	0.479073 ^{ab}	0.396698 ^a
K	0.604376 ^{abc}	1.000000	0.679524 ^{abc}	0.159588	0.867954 ^{abc}	0.811326 ^{abc}	0.250097	0.587449 ^{abc}	0.858606 ^{abc}	0.787954 ^{abc}
P	0.457918 ^{ab}	0.679524 ^{abc}	1.000000	0.396260 ^a	0.646503 ^{abc}	0.654371 ^{abc}	0.179348	0.618034 ^{abc}	0.565329 ^{abc}	0.594346 ^{abc}
Fe	-0.059202	0.159588	0.396260 ^{ab}	1.000000	0.340026 ^a	0.458430 ^{ab}	0.380554 ^a	0.719974 ^{abc}	0.249831	0.217395
Ca	0.516345 ^{ab}	0.867954 ^{abc}	0.646503 ^{abc}	0.340026 ^{ab}	1.000000	0.831918 ^{abc}	0.429105 ^{ab}	0.722557 ^{abc}	0.895982 ^{abc}	0.856791 ^{abc}
Mg	0.459717 ^{ab}	0.811326 ^{abc}	0.654371 ^{abc}	0.458430 ^{ab}	0.831918 ^{abc}	1.000000	0.334321 ^a	0.758207 ^{abc}	0.697167 ^{abc}	0.787137 ^{abc}
Al	0.053445	0.250097	0.179348	0.380554 ^a	0.429105 ^{ab}	0.334321 ^a	1.000000	0.465686 ^{ab}	0.396772 ^a	0.406891 ^a
Mn	0.259625	0.587449 ^{abc}	0.618034 ^{abc}	0.719974 ^{abc}	0.722557 ^{abc}	0.758207 ^{abc}	0.465686 ^{ab}	1.000000	0.535431 ^{abc}	0.575084 ^{abc}
Sr	0.479073 ^{ab}	0.858606 ^{abc}	0.565329 ^{abc}	0.249831	0.895982 ^{abc}	0.697167 ^{abc}	0.396772 ^a	0.535431 ^{abc}	1.000000	0.836054 ^{abc}
Ba	0.396698 ^a	0.787954 ^{abc}	0.594346 ^{abc}	0.217395	0.856791 ^{abc}	0.787137 ^{abc}	0.406891 ^a	0.575084 ^{abc}	0.836054 ^{abc}	1.000000

a = $p < 0.05$; b = $p < 0.01$; c = $p < 0.001$ **Table S7.** Spearman's rank correlation of beetroot samples (red font for statistically significant correlations).

	Na	K	P	Fe	Ca	Mg	Al	Mn	Sr	Ba
Na	1.000000	0.670175 ^{ab}	0.238596	0.366667	0.642105 ^{ab}	0.449123	0.328214	0.563158 ^a	0.464239 ^a	-0.045614
K	0.670175 ^{ab}	1.000000	0.278947	0.222807	0.526316 ^a	0.461404 ^a	0.021062	0.319298	0.587977 ^{ab}	0.010526
P	0.238596	0.278947	1.000000	0.521053 ^a	0.400000	0.512281 ^a	0.188679	0.540351 ^a	0.021939	0.345614
Fe	0.366667	0.222807	0.521053 ^a	1.000000	0.812281 ^{abc}	0.891228 ^{abc}	0.719614 ^{abc}	0.696491 ^{abc}	0.273804	0.743860 ^{abc}
Ca	0.642105 ^{ab}	0.526316 ^a	0.400000	0.812281 ^{abc}	1.000000	0.812281 ^{abc}	0.579201 ^{ab}	0.689474 ^{ab}	0.452830	0.440351
Mg	0.449123	0.461404 ^a	0.512281 ^a	0.891228 ^{abc}	0.812281 ^{abc}	1.000000	0.564283 ^a	0.780702 ^{abc}	0.300132	0.729825 ^{abc}
Al	0.328214	0.021062	0.188679	0.719614 ^{abc}	0.579201 ^{ab}	0.564283 ^a	1.000000	0.426503	0.214662	0.481790 ^a
Mn	0.563158 ^a	0.319298	0.540351 ^a	0.696491 ^{abc}	0.689474 ^{ab}	0.780702 ^{abc}	0.426503	1.000000	0.004388	0.457895 ^a
Sr	0.464239 ^a	0.587977 ^{ab}	0.021939	0.273804	0.452830	0.300132	0.214662	0.004388	1.000000	0.190434
Ba	-0.045614	0.010526	0.345614	0.743860 ^{abc}	0.440351	0.729825 ^{abc}	0.481790 ^a	0.457895 ^a	0.190434	1.000000

a = $p < 0.05$; b = $p < 0.01$; c = $p < 0.001$

Table S8. Spearman's rank correlation of dietary supplements samples (red font for statistically significant correlations).

	Na	K	P	Fe	Ca	Mg	Al	Mn	Sr
Na	1.000000	0.556373 ^a	0.414424	-0.272059	0.220588	0.350490	-0.338443	-0.045714	0.100360
K	0.556373 ^a	1.000000	0.392090	0.144608	0.465686	0.816176 ^{abc}	-0.036787	0.553649 ^a	0.164226
P	0.414424	0.392090	1.000000	0.364792	0.201008	0.469019	-0.172576	0.447421	0.107771
Fe	-0.272059	0.144608	0.364792	1.000000	0.365196	0.453431	0.289393	0.787299 ^{abc}	0.492677 ^a
Ca	0.220588	0.465686	0.201008	0.365196	1.000000	0.536765 ^a	-0.025751	0.675554 ^{ab}	0.784633 ^{abc}
Mg	0.350490	0.816176 ^{abc}	0.469019	0.453431	0.536765 ^a	1.000000	-0.068670	0.711109 ^{ab}	0.228091
Al	-0.338443	-0.036787	-0.172576	0.289393	-0.025751	-0.068670	1.000000	0.289701	0.196279
Mn	-0.045714	0.553649 ^a	0.447421	0.787299 ^{abc}	0.675554 ^{ab}	0.711109 ^{ab}	0.289701	1.000000	0.537291 ^a
Sr	0.100360	0.164226	0.107771	0.492677 ^a	0.784633 ^{abc}	0.228091	0.196279	0.537291 ^a	1.000000

a= $p < 0.05$; b= $p < 0.01$; c= $p < 0.001$ **Table S9.** Relationships between the category of the analysed samples and the concentration of elements.

Category	Na	K	P	Fe	Ca	Mg	Al	Mn	Sr	Ba
Form of the product (vegetable-beetroot and dietary supplement)	9.767 ^b	25.968 ^c	14.278 ^c	21.392 ^c	27.056 ^c	18.034 ^c	4.690	19.052 ^c	28.157 ^c	29.262 ^c
Origin of beetroot	17.765 ^a	30.652 ^c	20.193 ^b	23.699 ^b	28.856 ^c	25.698 ^c	11.337	24.358 ^b	32.327 ^c	30.927 ^c
Type of main component of dietary supplement	2.451	7.010	7.584	12.647 ^a	7.569	11.758 ^a	5.804	14.368 ^b	7.894 ^a	-

 $p < 0.05$ ^a; $p < 0.01$ ^b; $p < 0.001$ ^c**Table S10.** Results of the Dunn's test for all the analysed samples (beetroot and dietary supplements).

	Beetroot	Dietary supplement enriched	Dietary supplement non-enriched
Beetroot	-	Na ^b , K ^b , Fe ^a , Ca ^a , Sr ^b , Ba ^c	K ^c , P ^c , Fe ^a , Ca ^c , Mg ^c , Mn ^c , Sr ^c , Ba ^c
Dietary supplement enriched	Na ^b , K ^b , Fe ^a , Ca ^a , Sr ^b , Ba ^c	-	Fe ^c , Mn ^b
Dietary supplement non-enriched	K ^c , P ^c , Fe ^a , Ca ^c , Mg ^c , Mn ^c , Sr ^c , Ba ^c	Fe ^c , Mn ^b	-

 $p < 0.05$ ^a; $p < 0.01$ ^b; $p < 0.001$ ^c