Supplementary Materials

Appendix A Linear regression equations, limits of detection (LOD) and limits of quantification (LOQ) of various elements.

	Regressive equation	R	Wavelength(nm)	LOD(μg g^{-1})	LOQ (μg g^{-1})
Ca	y = 3138.5x + 845.59	0.9995	317.933	0.12	0.40
Na	y = 21778x + 1199.3	1	589.592	0.135	0.45
K	y = 180657x + 3458.2	1	769.896	0.03	0.10
Al	y = 45195x + 22822	0.9994	396.152	0.195	0.65
Mg	y = 47552x + 3795.1	0.9999	285.213	0.015	0.05
P	y = 64.288x + 2.9095	1	177.495	0.885	2.95
Fe	y = 19231x + 12653	0.9998	239.562	0.015	0.05
Si	y = 18890x + 3286.7	0.9996	251.611	0.045	0.15
Zn	y = 22976x + 2529.1	0.9998	206.2	0.03	0.10
B	y = 28726x + 3019	0.9998	249.678	0.045	0.15
Co	y=18584x+1480.1	0.9998	228.618	0.015	0.05
Cr	y=3619.8x+667.81	1	283.563	0.135	0.45
Cu	y = 32641x + 1847.4	0.9999	327.396	0.06	0.20
Mn	y = 101526x + 11153	0.9998	260.569	0.015	0.05
Mo	y = 1709.3x + 57.586	1	204.598	0.075	0.25
Ni	y = 5673.2x + 432.11	0.9999	231.604	0.03	0.10
Se	y = 1239.4x + 93.457	0.9999	196.09	0.09	0.30
Sn	y = 3919.5x + 365.41	0.9998	283.999	0.27	0.90
Sr	y = 28393x + 2635.4	0.9997	346.446	0.06	0.20
Ti	y = 117384x + 8264.1	0.9999	323.452	0.015	0.05
V	y = 41690x + 1484.9	1	292.402	0.015	0.05
Hg	y = 4058.3x + 318.14	0.9999	184.95	0.03	0.10
Cd	y = 43354x + 4590.9	0.9997	226.502	0.015	0.05
Pb	y = 264.15x + 166.9	0.9884	182.205	0.21	0.70

Appendix B Certified and found values of CRM (GBW10011).[a]

	Certified value (μg g^{-1})	Uncertainty	Found value (μg g^{-1})	Uncertainty
Ca	340	5.9%	335.75	7.4%
Na	17	29%	14.22	2.2%
K	1400	4.3%	1145	1.7%
Al	104	9.6%	115.12	6.2%
Mg	450	16%	463.08	1.6%
P	1540	4.6%	1516.2	6.1%
Fe	18.5	17%	15.45	24%
Si	80		71.38	1.5%
Zn	11.6	6.0%	12.14	3.6%
B	0.55		0.87	49%
Co	0.008		<0.05	
Cr	0.096	15%	<0.45	
Cu	2.7	7.4%	2.48	9.0%
Mn	5.4	5.6%	5.195	6.9%
Mo	0.48	10%	0.475	36%
Ni	0.06	33%	<0.1	
Se	0.053	13%	<0.3	
Sn	-		<0.9	
Sr	2.5	12%	2.57	20%
Ti	2		1.57	22%
V	0.034	35%	<0.05	
Hg	0.0016		<0.1	
Cd	0.018	22%	<0.05	
Pb	0.065	37%	<0.7	

[a] Co, Cr, Ni, Se, Sn, V, As, Hg, Cd and Pb contents were lower than LOQ.

Appendix C Element concentrations in the seed of buckwheat (K4-K8).

Element	Concentration (μg g^{-1})				
	K4	K5	K6	K7	K8
Ca	349.25 (7.1%)	564 (4.4%)	562.5 (4.4%)	582.5 (4.3%)	478.5 (5.2%)
Na	12.07 (2.6%)	16.74 (1.9%)	11.795 (2.7%)	16.415 (1.9%)	11.285 (2.8%)
K	817 (2.1%)	880.5 (1.9%)	1058 (1.6%)	1028 (1.6%)	832.5 (2.0%)
Al	53.85 (13%)	35.275 (20%)	54.85 (12%)	66.4 (11%)	91.85 (7.7%)
Mg	526.5 (0.69%)	611 (0.64%)	495.6 (0.72%)	687.5 (0.40%)	550 (0.59%)
P	1174 (0.47%)	2048 (0.24%)	1699.5 (0.49%)	1799 (0.67%)	1687.5 (0.18%)
Fe	74.8 (5.0%)	27.85 (13%)	142.9 (2.6%)	18.755 (19%)	121.3 (3.1%)
Si	48.97 (1.2%)	141 (0.64%)	181.7 (0.73%)	134.4 (0.80%)	73.5 (0.80%)
Zn	21.605 (2.0%)	29.18 (1.6%)	35.32 (1.2%)	35.725 (1.3%)	32.305 (1.4%)
B	7.07 (6.1%)	9.725 (4.4%)	11.105 (3.9%)	6.675 (6.4%)	5.16 (8.3%)
Co	<0.05	<0.05	0.34 (106%)	0.12 (302%)	0.07 (519%)
Cr	<0.45	<0.45	<0.45	<0.45	<0.45
Cu	4.56 (4.9%)	3.995 (5.6%)	6.085 (3.7%)	6.295 (3.6%)	4.985 (4.5%)
Mn	11.005 (3.3%)	13.445 (2.7%)	26.225 (1.5%)	18.62 (3.6%)	14.6 (2.5%)
Mo	0.82 (20%)	0.475 (35%)	1.23 (13%)	0.98 (17%)	0.895 (19%)
Ni	4.71 (7.1%)	4.7 (7.1%)	4.015 (8.4%)	7.05 (4.8%)	4.22 (7.9%)
Se	<0.30	<0.30	0.35 (94%)	<0.30	<0.30
Sn	<0.90	<0.90	<0.90	<0.90	<0.90
Sr	2.17 (23%)	3.795 (13%)	3.45 (14%)	2.875 (17%)	2.91 (17%)
Ti	0.4 (85%)	0.225 (152%)	1.44 (23%)	0.18 (190%)	1.28 (26%)
V	0.095 (177%)	<0.05	0.12 (140%)	0.165 (102%)	0.205 (82%)
Cd	0.105 (471%)	0.165 (300%)	0.075 (660%)	<0.05	<0.05
Pb	1.41 (208%)	4.465 (65%)	3.945 (74%)	1.755 (167%)	9.73 (30%)

[a] The relative standard uncertainty was given in bracket.

Appendix D Element concentrations in the seed of buckwheat (K9-K11, K15, K16).

Element	Concentration (μg g^{-1})				
	K9	K10	K11	K15	K16
Ca	554 (4.5%)	633 (3.9%)	627 (3.9%)	738 (3.4%)	685.5 (3.6%)
Na	10.56 (2.9%)	18.245 (1.7%)	16.64 (1.9%)	17.375 (1.8%)	17.74 (1.8%)
K	930.5 (1.9%)	1015.5 (1.6%)	770 (2.1%)	1100 (1.6%)	1049.5 (1.6%)
Al	50.15 (14%)	196.4 (3.6%)	334.7 (3.5%)	178.6 (3.9%)	173.4 (4.1%)
Mg	651.5 (0.56%)	573.5 (0.50%)	594.5 (0.60%)	714.4 (0.45%)	755 (0.50%)
P	1944.5 (0.50%)	1594 (0.58%)	1767.5 (0.38%)	1875 (0.49%)	2118.5 (0.44%)
Fe	80.3 (4.7%)	238.75 (1.6%)	362.55 (1.1%)	168.05 (2.3%)	183.93 (2.0%)
Si	156.85 (0.73%)	178.4 (0.36%)	269.65 (0.44%)	179.3 (0.56%)	182.95 (0.49%)
Zn	38.445 (1.2%)	32.125 (1.4%)	20.86 (2.1%)	28.355 (1.5%)	24.34 (1.8%)
B	6.53 (6.5%)	6.005 (7.1%)	4.71 (9.1%)	7.06 (6.1%)	8.6 (4.9%)
Co	0.18 (201%)	0.215 (169%)	0.23 (158%)	0.315 (115%)	0.15 (242%)
Cr	<0.45	0.475 (49%)	<0.45	<0.45	<0.45
Cu	6.825 (3.3%)	7.57 (2.9%)	3.235 (6.9%)	5.76 (3.9%)	5.63 (3.9%)
Mn	13.54 (2.7%)	14.545 (2.5%)	34.525 (1.2%)	19.62 (1.9%)	16.53 (2.2%)
Mo	1.445 (11%)	0.9 (18%)	<0.25	0.705 (24%)	0.525 (32%)
Ni	6.585 (5.1%)	3.4 (9.9%)	1.995 (16%)	2.645 (12%)	4 (8.4%)
Se	<0.30	<0.30	<0.30	<0.30	<0.30
Sn	<0.90	1.46 (25%)	<0.90	<0.90	<0.90
Sr	3.745 (13%)	3.51 (14%)	3.595 (14%)	4.125 (12%)	4.245 (12%)
Ti	2.86 (12%)	1.24 (27%)	14.955 (2.3%)	0.935 (36%)	0.545 (62%)
V	0.11 (153%)	0.445 (37%)	1.085 (15%)	0.445 (37%)	0.435 (38%)
Cd	0.055 (600%)	0.09 (350%)	0.085 (482%)	0.1 (295%)	0.1 (295%)
Pb	2.975 (98%)	21.155 (13%)	1.685 (174%)	1.72 (171%)	1.865 (157%)

[a] The relative standard uncertainty was given in bracket.