

Supplementary material

Table S1: Elements determined and wavelengths used for their quantification. The parameters are computed on all the product samples as a whole: seed, bran, semolina and flour in a unique set. (**) indicates the elements, whose means, give a significant two tailed t-test comparison ($\alpha=0.05$) between organic products and the conventional ones.

Element	Wavelength (nm)	LOD (mg/Kg)	LOQ (mg/Kg)	Organic			Conventional		
				Mean $\pm$ SD (mg/Kg)	Median (mg/Kg)	Min – Max (mg/Kg)	Mean $\pm$ SD (mg/Kg)	Median (mg/Kg)	Min – Max (mg/Kg)
Ag (**)	328.068	7 $\times$ 10 ⁻⁴	0.002	0.003 $\pm$ 0.002	LOQ	LOD - 0.007	0.004 $\pm$ 0.003	0.003	LOD - 0.013
Al (**)	396.152	3 $\times$ 10 ⁻⁴	0.001	6.940 $\pm$ 5.875	5.311	1.788 - 44.802	4.089 $\pm$ 1.517	4.117	1.447 - 7.705
As	189.042	0.002	0.007	0.069 $\pm$ 0.029	0.067	0.021 - 0.182	0.086 $\pm$ 0.066	0.065	0.020 - 0.363
B (**)	249.773	8 $\times$ 10 ⁻⁴	0.003	1.182 $\pm$ 0.890	1.250	LOD - 2.502	1.894 $\pm$ 0.624	1.844	1.109 - 3.185
Ba	493.409	3 $\times$ 10 ⁻⁵	1 $\times$ 10 ⁻⁴	0.748 $\pm$ 0.367	0.626	0.285 - 1.953	0.688 $\pm$ 0.403	0.584	0.266 - 2.057
Be	313.042	2 $\times$ 10 ⁻⁵	6 $\times$ 10 ⁻⁵	0.001 $\pm$ 0.001	0.001	LOD - 0.006	0.001 $\pm$ 0.001	0.001	LOD - 0.003
Ca	393.366	0.007	0.024	460.897 $\pm$ 31.085	460.871	391.647 - 519.332	456.418 $\pm$ 38.296	457.874	372.960 - 531.502
Cd (**)	214.438	1 $\times$ 10 ⁻⁴	4 $\times$ 10 ⁻⁴	0.024 $\pm$ 0.011	0.021	0.010 - 0.053	0.018 $\pm$ 0.008	0.017	0.008 - 0.036
Co	228.616	0.001	0.003	LOQ $\pm$ 0.003	LOQ	LOD - 0.011	LOQ $\pm$ 0.003	LOQ	LOD - 0.012
Cr	267.716	7 $\times$ 10 ⁻⁴	0.002	0.090 $\pm$ 0.054	0.083	0.034 - 0.382	0.081 $\pm$ 0.077	0.072	0.024 - 0.615
Cu (**)	327.396	8 $\times$ 10 ⁻⁴	0.003	3.579 $\pm$ 1.131	3.535	2.000 - 5.848	4.065 $\pm$ 1.481	3.964	2.138 - 7.457
Fe	259.940	4 $\times$ 10 ⁻⁴	0.001	24.698 $\pm$ 10.022	25.202	9.983 - 48.132	21.413 $\pm$ 10.410	22.031	7.844 - 41.784
K	769.896	0.003	0.011	2679.148 $\pm$ 882.771	2968.295	1377.052 - 4242.568	2833.772 $\pm$ 969.482	3072.834	1623.165 - 4540.521
Mg	279.553	1 $\times$ 10 ⁻⁴	4 $\times$ 10 ⁻⁴	463.610 $\pm$ 91.025	504.347	300.566 - 603.480	453.129 $\pm$ 96.758	488.754	314.100 - 603.324
Mn	259.373	1 $\times$ 10 ⁻⁴	3 $\times$ 10 ⁻⁴	26.278 $\pm$ 16.906	29.341	6.734 - 61.671	26.906 $\pm$ 19.292	28.613	7.456 - 73.585
Mo	202.030	7 $\times$ 10 ⁻⁴	0.002	0.953 $\pm$ 0.502	0.852	0.539 - 4.341	0.994 $\pm$ 0.260	0.935	0.659 - 1.644
Na (**)	588.995	0.001	0.004	28.037 $\pm$ 10.448	25.428	16.225 - 74.832	36.871 $\pm$ 25.143	25.317	15.214 - 141.929
Ni	231.604	0.001	0.004	0.161 $\pm$ 0.138	0.139	0.027 - 0.920	0.161 $\pm$ 0.098	0.143	0.041 - 0.580

P	177.495	0.001	0.004	2725.118 ± 1078.984	3082.185	1286.050 - 4748.610	2803.837 ± 1200.185	3065.615	1337.920 - 4985.480
Pb	220.353	0.004	0.012	0.076 ± 0.027	0.072	0.036 - 0.148	0.070 ± 0.036	0.066	0.026 - 0.263
Sb	217.581	0.005	0.015	LOD ± 0.004	LOD	LOD - 0.019	LOD ± 0.003	LOD	LOD - 0.020
Se (**)	196.090	0.001	0.005	0.217 ± 0.038	0.217	0.151 - 0.290	0.148 ± 0.039	0.155	0.077 - 0.222
Si	251.611	8×10 ⁻⁵	3×10 ⁻⁴	23.961 ± 14.109	21.451	6.314 - 85.435	19.116 ± 13.210	15.465	4.997 - 69.089
Sn	189.989	3×10 ⁻⁴	9×10 ⁻⁴	0.007 ± 0.003	0.006	0.003 - 0.016	0.008 ± 0.010	0.005	0.002 - 0.059
Ti (**)	323.452	4×10 ⁻⁴	0.001	0.051 ± 0.068	0.032	0.007 - 0.484	0.031 ± 0.019	0.025	0.007 - 0.099
Tl	190.856	5×10 ⁻⁴	0.002	0.003 ± 0.007	LOD	LOD - 0.033	0.004 ± 0.009	LOD	LOD - 0.043
V (**)	292.402	6×10 ⁻⁴	0.002	0.012 ± 0.011	0.010	LOQ - 0.075	0.035 ± 0.080	0.010	LOQ - 0.520
Zn	202.548	6×10 ⁻⁴	0.002	23.564 ± 11.829	25.262	8.952 - 45.948	23.629 ± 12.273	24.680	9.035 - 47.971

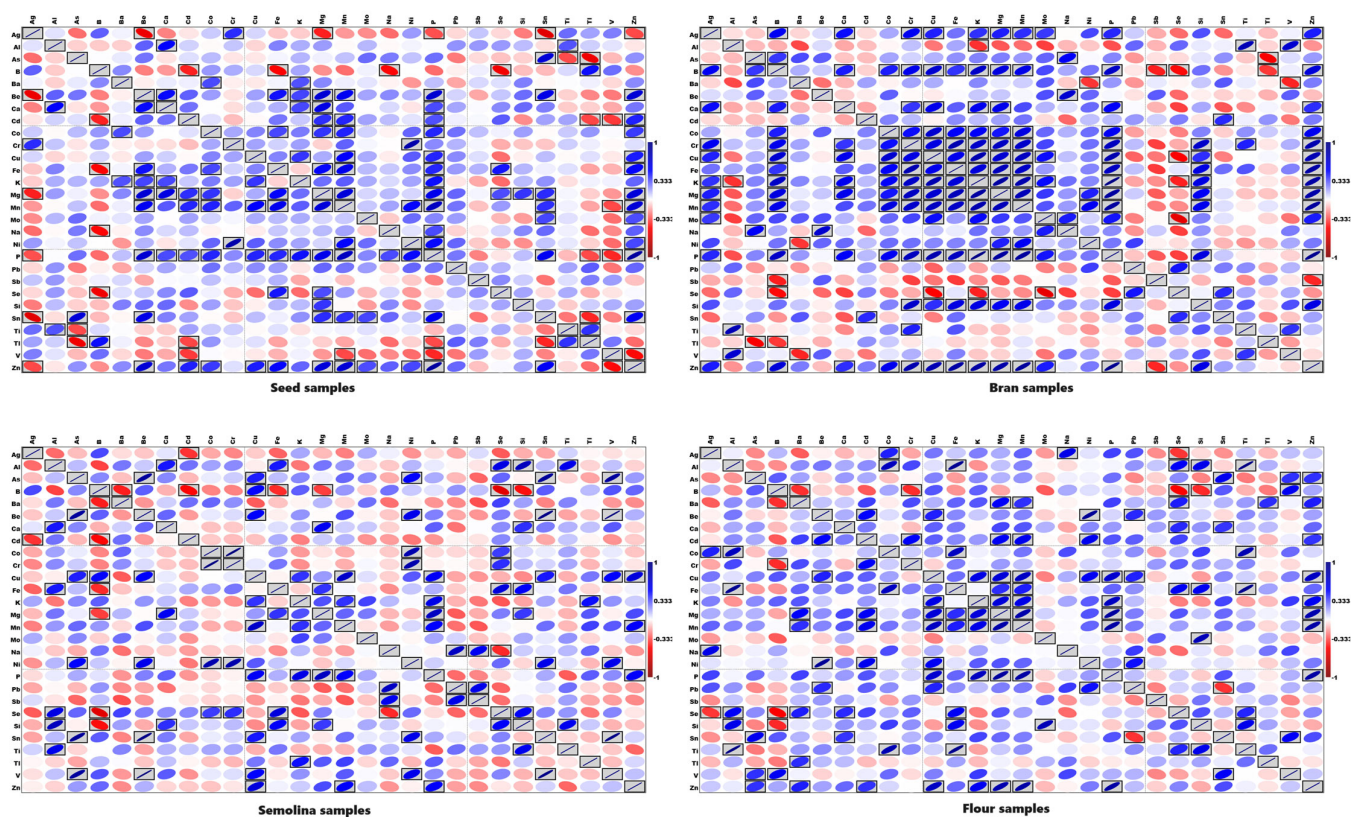


Figure S1. Plots of Pearson's correlation coefficient between element concentrations within the product sets. Statistically significant ($p\text{-value} \leq 0.05$ in a two tails t-test) coefficient are boxed within the plots.