

**Supplementary Table 1. Concentrations of rare earth elements and other minority elements in mussels from different types of conservation in the Spanish market. Median values are expressed in ng/g<sub>fresh weight</sub>**

	Preserved mussels (n=88)	Frozen mussels (n=80)	Fresh mussels (n = 20)
Ce	49,2	35,8	460,3
Dy	4,0	4,8	0,0
Er	1,8	2,6	19,5
Eu	0,0	4,0	13,7
Ga	7,4	21,0	87,1
Gd	5,8	7,2	66,1
Ho	0,8	1,0	0,0
In	0,0	0,2	0,0
La	28,9	21,4	297,1
Lu	0,0	0,5	2,0
Nb	3,2	3,9	29,7
Nd	24,6	22,5	253,4
Pr	6,3	5,0	61,0
Sm	6,3	5,3	54,8
Ta	0,0	0,3	0,0
Tb	0,0	3,8	9,4
Tm	0,0	1,1	2,5
Y	0,0	49,7	266,6
Yb	0,0	4,4	12,8

**Supplementary Table 1. Concentrations of essential and toxic elements in mussels from three different production areas. Median values are expressed in ng/g<sub>fresh weight</sub>**

	Production area (n=80)			
	Galician samples (n=36)	Chilean samples (n=32)	New Zealander samples (n=12)	<i>P value</i> <sup>a</sup>
<b>Essential elements</b>				
<b>Fe</b>	36085.4	30485.1	55467.0	<0.005

Zn	50710.0	47888.5	21337.5	<0.005
Cu	1644.0	1584.3	1021.3	<0.005
Se	1100.4	1116.9	861.0	<0.05.
Mn	1341.5	1461.9	2188.7	<0.005
Mo	179.7	115.8	346.6	<0.005
Co	46.8	53.4	144.1	<0.005
<b>Major toxic elements</b>				
As	3113.9	4484.5	6280.9	<0.005
Cd	283.8	535.4	587.0	<0.005
Hg	17.7	5.9	21.7	<0.005
Pb	266.8	18.9	77.7	<0.005
<b>Other toxic or potentially toxic elements</b>				
Ag	6.4	4.6	6.2	<0.05
Al	35882.4	26143.8	83801.8	<0.005
Ba	308.1	184.8	616.2	<0.005
Be	3.5	0.7	3.2	<0.005
Cr	117.4	58.8	141.4	<0.005
Ni	121.8	101.7	181.7	<0.005
Pd	0.1	0.1	0.1	n.s.
Sb	1.0	1.4	1.4	n.s.
Sn	16.9	5.5	5.4	<0.01
Sr	6999.0	6216.4	7649.2	<0.05
Th	7.4	1.5	10.4	<0.005
Tl	1.3	1.2	3.6	<0.05
U	32.0	38.8	26.4	n.s.
Sum REE <sup>a</sup>	277.5	143.2	1498.8	<0.005

<sup>a</sup> This is the sum of the individual concentrations of Ce, Dy, Er, Eu, Ga, Gd, Ho, In, La, Lu, Nb, Nd, Pr, Sm, Ta, Tb, Tm, Y, Yb

**Supplementary Table 2. Concentrations of essential and toxic elements in preserved mussels from name and store brands. Results are presented as median values and expressed in ng/g fresh weight**

	Name brands <sup>a</sup> (n=38)	Store brands <sup>a</sup> (n=34)	<i>P value</i> <sup>b</sup>
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Essential elements			
Fe	30671.1	35834.1	<0.05
Zn	37463.5	45988.8	<0.05
Cu	1200.9	1283.0	n.s.
Se	599.6	653.9	n.s.
Mn	1145.5	1249.1	n.s.
Mo	151.3	223.3	n.s.
Co	41.2	43.6	n.s.
Major toxic elements			
As	1632.5	1969.1	<0.01
Cd	224.2	224.5	n.s.
Hg	11.2	12.5	<0.05
Pb	181.0	209.6	n.s.
Other toxic or potentially toxic elements			
Ag	6.6	5.1	<0.05
Al	33950.0	33383.4	n.s.
Ba	335.9	248.5	<0.01
Be	3.3	1.0	<0.01
Cr	94.9	116.5	<0.05
Ni	94.2	111.6	<0.005
Pd	0.1	0.1	n.s.
Sb	1.4	1.0	n.s.
Sn	15.3	15.7	n.s.
Sr	7297.9	6116.6	n.s.
Th	7.3	2.7	<0.01
Tl	1.3	1.2	n.s.
U	33.7	34.2	n.s.
Sum REE <sup>c</sup>	419.5	155.2	<0.005

<sup>a</sup> This comparison was only possible between brands from Galician origin. because we could not find store brands from other origins

<sup>b</sup> Mann-Whitney test.

<sup>c</sup> This is the sum of the individual concentrations of Ce, Dy, Er, Eu, Ga, Gd, Ho, In, La, Lu, Nb, Nd, Pr, Sm, Ta, Tb, Tm, Y, Yb

n.s.: not significant.

**Supplementary Table 4. Concentrations of essential and toxic elements in frozen mussels produced under two different production methods. Median values are expressed in ng/g<sub>fresh weight</sub>**

	Conventional production (n=28)	Organic production (n=8)	<i>P value</i> <sup>a</sup>
<b>Essential elements</b>			
Fe	36439.6	28740.1	n.s.
Zn	60867.4	38803.3	< 0.01
Cu	1600.4	1714.9	n.s.
Se	1034.4	1168.3	n.s.
Mn	1344.4	1051.4	<0.05
Mo	186.8	153.8	<0.05
Co	47.4	44.4	n.s.
<b>Major toxic elements</b>			
As	3301.7	2288.2	<0.005
Cd	282.8	290.9	n.s.
Hg	18.0	16.2	<0.05
Pb	272.5	235.7	<0.05
<b>Other toxic or potentially toxic elements</b>			
Ag	9.4	7.1	<0.05
Al	58040.4	75981.3	<0.01
Ba	590.6	443.3	<0.05
Be	4.4	4.9	n.s.
Cr	117.4	104.1	n.s.
Ni	123.8	110.4	n.s.
Pd	0.1	0.1	n.s.
Sb	1.4	1.4	n.s.
Sn	18.8	20.4	n.s.
Sr	7218.9	7496.7	n.s.

Th	16.9	18.9	n.s.
Tl	1.7	1.9	n.s.
U	40.9	32.8	<0.05
Sum REE <sup>a</sup>	272.4	279.2	n.s.

<sup>a</sup> This is the sum of the individual concentrations of Ce, Dy, Er, Eu, Ga, Gd, Ho, In, La, Lu, Nb, Nd, Pr, Sm, Ta, Tb, Tm, Y, Yb