

## Supplementary Information

### Exposure and Risk Assessment to 15 toxic and essential elements in Spanish women of reproductive age: a case study.

Carmen Sáez<sup>1,2</sup>, Alfredo Sánchez<sup>1</sup>, Vicent Yusà<sup>3,4,5</sup>, Pablo Dualde<sup>3</sup>, Sandra F. Fernández<sup>3,5</sup>, Antonio López<sup>3</sup>, Francisca Corpas-Burgos<sup>3</sup>, Miguel Ángel Aguirre<sup>2</sup> and Clara Coscollà<sup>3\*</sup>

<sup>1</sup> Public Health Laboratory of Alicante, 6 Plaza de España, 03010 Alicante, Spain

<sup>2</sup> Department of Analytical Chemistry, Nutrition and Food Science, University Institute of Materials, University of Alicante, P.O. Box 99, 03080 Alicante, Spain

<sup>3</sup> Foundation for the Promotion of Health and Biomedical Research in the Valencian Region, FISABIO-Public Health, 21, Avenida Catalunya, 46020, Valencia, Spain.

<sup>4</sup> Public Health Laboratory of Valencia, 21, Avenida Catalunya, 46020 Valencia, Spain.

<sup>5</sup> Analytical Chemistry Department, University of Valencia, Edifici Jeroni Muñoz, Dr. Moliner 50, 46100 Burjassot, Spain

\* Correspondence: coscolla\_cla@gva.es; Tel.: +34 961926333; Fax: +34 961925704

**Table S1.** Analysis of metals in urine by ICP-MS. Determination mode and LoQ.

Analyte	Mass (amu)	Mode	Internal Standard	LoQ (µg/L)
Aluminium	<sup>27</sup> Al	Standard	<sup>45</sup> Sc	5.0
Barium	<sup>137</sup> Ba	Standard	<sup>89</sup> Y	0.021
Beryllium	<sup>9</sup> Be	Standard	<sup>45</sup> Sc	0.012
Cobalt	<sup>59</sup> Co	DRC	<sup>72</sup> Ge	0.008
Caesium	<sup>133</sup> Cs	Standard	<sup>89</sup> Y	0.005
Copper	<sup>65</sup> Cu	DRC	<sup>72</sup> Ge	0.055
Manganese	<sup>55</sup> Mn	DRC	<sup>72</sup> Ge	0.012
Nickel	<sup>60</sup> Ni	DRC	<sup>72</sup> Ge	0.053
Lead	<sup>206,207,208</sup> Pb	Standard	<sup>209</sup> Bi	0.014
Platinum	<sup>195</sup> Pt	Standard	<sup>193</sup> Ir	0.004
Antimony	<sup>121</sup> Sb	Standard	<sup>72</sup> Ge	0.009
Thorium	<sup>232</sup> Th	Standard	<sup>209</sup> Bi	0.013
Uranium	<sup>238</sup> U	Standard	<sup>193</sup> Ir	0.005
Vanadium	<sup>67</sup> VO	DRC	<sup>109</sup> NbO	0.064
Zinc	<sup>66</sup> Zn	DRC	<sup>72</sup> Ge	0.228

**Table S2.** ICP-MS instrumental operating conditions.

Component/Parameter	Type/Value/Mode
Nebulizer	PFA standard
Spray Chamber	Glass cyclonic, baffled and cooled
Sampler and Skimmer Cones	Platinum
Plasma Gas Flow	15 L/min
Auxiliary Gas Flow	1.2 L/min
Nebulizer Gas Flow	0.90-0.95 L/min
Sample Uptake Rate	1.00 mL/min
RF Power	1200 W
Sweeps	20
Points per peak	1
Replicates per Sample	4
Dwell time	100 ms (50 ms for IS)
Integration Time	2000 ms (1000 ms for IS)
Mode of Operation	Standard and DRC (using CH <sub>4</sub> and O <sub>2</sub> )

**Table S3.** Determined limits of detection (LoD) and limits of quantification (LoQ).

Analyte	LoD (µg/L)	LoQ (µg/L)
Al	1.6	5.0
Ba	0.006	0.02
Be	0.004	0.012
Co	0.002	0.008
Cs	0.002	0.005
Cu	0.016	0.06
Mn	0.004	0.012
Ni	0.016	0.05
Pb	0.004	0.014
Pt	0.001	0.004
Sb	0.003	0.009
Th	0.004	0.013
U	0.002	0.005
V	0.019	0.06
Zn	0.07	0.2

**Table S4.** Results for the Clinchek - Control / Urine control lyophilised / RECIPE® Level I and II.

Analyte	Level I		Level II	
	Obtained value (µg/L)	Certified range (µg/L)	Obtained value (µg/L)	Certified range (µg/L)
Al	78.2	76.2 – 114.2	133	118 – 178
Ba	2.07	(1.46 - 2.18)*	11.7	(8.6 - 13.0)**
Be	1.01	(0.84 - 1.26)*	9.8	(8.0 - 12.0)**
Co	2.11	1.80 - 2.70	34.0	28.5 - 42.7
Cs	2.26	(1.70 - 2.54)*	11.5	(8.9 - 13.3)**
Cu	58.2	46.9 - 70.3	108.3	88.8 – 133
Mn	3.66	3.34 - 5.02	19.1	15.8 - 23.6
Ni	6.42	4.98 - 7.46	41.8	35.8 - 53.6
Pb	20.2	19.2 - 28.8	45.9	51.4 - 77.2
Pt	1.08	(0.84 - 1.26)*	10.2	(8.0 - 12.0)**
Sb	11.4	9.6 - 14.4	44.3	38.2 - 57.4
Th	1.22	(0.86 - 1.30)*	10.2	(8.0 - 12.0)**
U	1.05	(0.80 - 1.20)*	9.9	(8.0 - 12.0)**
V	21.3	15.7 - 23.5	53.6	38.4 - 57.6
Zn	188	161 - 269	465	429 - 643

(\*) denotes sample spiked with 1 µg/L and (\*\*) denotes sample spiked with 10 µg/L.