

Multi-elementary metal and metalloid quantification by ICP-MS in edible insects commercialized in Spain

Aránzazu González, Jose M. Soriano*, Carla Soler

Food & Health Lab. Institut de Ciència dels Materials (ICMUV), Universitat de València, Catedrático José Beltrán 2, 46980 Paterna, Valencia, Spain

*E-mail: jose.soriano@uv.es

INTRODUCTION

ENTOMOPHAGY



Urgent need to be controlled...

Given the increasing world population and the consequent rising demand for protein by the consumers, novel sources of protein are being considered, such as edible insects. Entomophagy can be promoted for this purpose, with additional advantages including environmental, economic and social factors.

CURRENT REGULATION



Explore their components...

In the European Union, since January 2018, there is a new Regulation (EU) 2015/2283 on novel foods.

EDIBLE INSECTS



Screening opportunity...

The main components of edible insects' content are protein, followed by fat, fibre and ash but the presence of hazardous chemicals and heavy metals in edible insects have been reflected in the bibliography.

STUDY AIM



Carry out an analysis of 17 multi-elementary metal and metalloid quantification methods using inductively coupled plasma mass spectrometry (ICP-MS) from edible insects commercialized in Spain

METHODS

ACQUISITION OF EDIBLE INSECTS



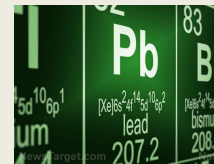
SAMPLE GRINDING



COUPLED PLASMA MASS SPECTROMETRY (ICP-MS) ANALYSIS



HEAVY METAL DETECTION



RESULTS

Li • 20-208.6 µg/kg	W • 112.1-1430.5 µg/kg	U • 1.5-42.3 µg/kg	Hg • 17.3-659.4 µg/kg
Ni • 1.6-2806.6 µg/kg	Tl • 5-61.8 µg/kg	Be • 10-21.6 µg/kg	Mg • 146.6-3229.4 mg/kg
As • 50-1691.7 µg/kg	Pb • 11.2-695.6 µg/kg	Sb • 10-57 µg/kg	Al • 1-509.8 mg/kg
Ag • 10-464.4 µg/kg	Bi • 10.5-214.3 µg/kg	Pt • 5-32.2 µg/kg	Cu • 95.1-2806.6 mg/kg
Cd • 25-4534.1 µg/kg			



Conclusion

In conclusion, the presence of hazardous metal from edible insects should be studied to guarantee the food safety

References

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