

SELENIUM CONTENT BY ICP-MS IN REFINED BRAZILIAN COLD-PRESSED OILS: IMPLICATIONS FOR FOOD SAFETY.

Nicola Cicero^{1,2}, Ambrogina Albergamo¹, Roberta Tardugno¹ Giuseppe Daniel Bua,¹ Giuseppa Di Bella,¹ Giacomo Dugo^{1,2}

¹*Department of Biomedical, Dental, and of Morphological and Functional Images Sciences (BIOMORF), University of Messina, Messina (Italy)*

²*Science4Life S.r.l., Spin Off Company – University of Messina, Messina (Italy)*

Mineral elements are important healthy micro and macro nutrients, on the other hand an excessive assimilation of these constituents could have toxic effects on human health.

Among all, also Selenium (Se) is an important microelement, it is essential for the normal physiological activity in human body, but it taken in large quantities far above the recommended limits, it can negatively affect human health.

In this study, different specialty extra virgin oils, produced by cold-pressing fruits/nuts (olive, pequi, palm, avocado, coconut, macadamia and Brazil nut) and seeds (grapeseed and canola), all reetailed in the Brazilian region of Minas Gerais, were explored for mineral elements composition in particular Se contents. The analyses were carried out by means a quadrupole ICP-MS, equipped with autosampler. All determinations were conducted in triplicate.

Se was found in 2/3 of analyzed edible oils. Specifically, the nut oil was characterized by the highest Se content (0.19 µg/Kg, $p < 0.05$), followed by pequi and palm oils, both marked by similar levels of such trace element (0.16 µg/Kg, $p > 0.05$). The lowest levels of Se (0.14-0.12 µg/Kg, $p > 0.05$) resulted in the cold-pressed olive, grapeseed, canola and avocado oils.

The obtained data could be useful to deep the knowledge about the minerals composition of such oils, and to provide scientific evidence for improving the food safety and quality of the human diet. The data obtained were compared with TWI (Tolerable Weekly Intake), and Provisional Tolerable Weekly Intake (PTWI) established by Joint FAO/WHO Expert Committee on Food Additives (JECFA 1999) and confirmed by JECFA (2010).

Reference

Joint FAO/WHO Expert Committee on Food Additives (JECFA) (1999) Joint FAO/WHO Expert Committee on Food Additives: summary and conclusions. In: 53rd Meeting, Rome, 1–10 June 1999
Joint FAO/WHO Expert Committee on Food Additives (JECFA) (2010) Joint FAO/WHO Expert Committee on Food Additives. 2010. Seventy-second meeting, Rome, 16–25 Feb 2010