METAL COMPOSITION OF TABLE OLIVES FROM THE PORTUGUESE MARKET

*Soares[1], E.; Bento[2], A.; Bastos[1], M. L.; Pereira[2] *, J.A.*

[1] REQUIMTE/Serviço de Toxicologia, Faculdade de Farmácia da Universidade do Porto, Rua Aníbal Cunha, 164, 4050-047 Porto, Portugal.
[2] CIMO/Escola Superior Agrária, Instituto Politécnico de Bragança, Campus de Santa Apolónia, Apartado 1172, 5301-855 Bragança, Portugal.
* jpereira@ipb.pt

Olive tree (*Olea europaea* L.) is one of the most important fruit trees in the Mediterranean countries. Their products, olive oil and also table olives, are important components of the Mediterranean diet and are largely consumed in the world. Table olives are well-known sources of compounds with important biological properties. The preparation of table olives follows three main trades, namely green or Spanish-style olives (Green Olives in Brine - GOB), black ripe or Californian-style olives (Black Ripe Olives), and naturally fermented olives (Direct Brined Olives – DBO). Heavy metals can be present in olive fruits for several reasons: endogenous, depending on the mineral constitution of the soils where the olive trees are located, or exogenous, resulting from the air pollution, contamination by phyto-chemical products and during technological processing. Besides the toxicological characteristics of these elements, the presence of transition metals in these fat matrices can negatively influence the organoleptic and nutritional properties as well as the shelf life of the products.
In this work, we present the quantification by Electrothermal Atomization Atomic Absorption Spectrometry of aluminium, cadmium, chromium, copper, iron, lead and nickel in 34 table olive samples commercialized in Portugal submitted to different preparations. Eight samples were classified as GOB, seven as BRO, and all the others were DBO being seven of Galega cultivar (DBO – G), seven purchased in traditional market (DBO – tm) and five from olives in different maturation index – turning collor, (DBO – TC). The contents of metals in the edible fraction of table olives were 0.69-1.22 μg/g, 1.11-1.84 ng/g, 1.63-3.15 μg/g, 3.58-68.84 ng/g, 3.98-208.06 μg/g, 51.37-86.19 ng/g and 32.99-45.52 ng/g, for Al, Cd, Cu, Cr, Fe, Ni, and Pb, respectively. The trade preparation showed an influence on the metal contents that justified the high content of Fe in BRO.

This work is supported by project INTERREG III A, Project MOABEPE "Identificación de los agentes patógenos y beneficiosos de los principales cultivos de las regiones fronterizas Trás-os-Montes y Castilla y León para la realización de estrategias de control razonadas".