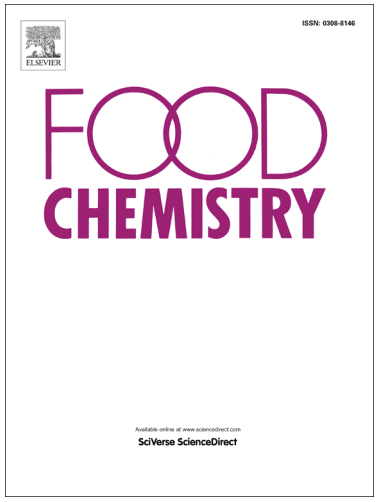

Determination of essential and toxic elements in Hungarian honeys

Nikolett Czipa, Dávid Andrási, Béla Kovács

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Determination of essential and toxic elements in Hungarian honeys

Nikolett Czipa*, Dávid Andrási, Béla Kovács

Institute of Food Science

Faculty of Agricultural and Food Sciences and Environmental Management

University of Debrecen, H-4032 Böszörményi Street 138. Debrecen, Hungary

Abstract

The aim of this present study was determination of essential and toxic element concentrations in 34 mono- and multi-floral honey samples from four geographical regions of Hungary, and examination of the connection between the floral origin and the element content. Ten elements (Al, Ca, Cu, Fe, K, Mg, Mn, P, S and Zn) were identified by ICP-OES and six (As, Cd, Cr, Mo, Pb, Se) were analysed by ICP-MS. Potassium, calcium, and phosphorus were the most abundant elements with mean concentrations of 372, 47.9 and 44.3 mg kg^{-1}, respectively. The essential element content was very low in the analysed samples and generally below literature values. The concentrations of toxic elements were sufficiently low as to pose no risk to human health. The concentrations of aluminium, arsenic, cadmium and lead were low, with mean concentrations of 1028, 15.6, 0.746 and 45.5 µg kg^{-1}, respectively. Three honey groups (acacia, rape and sunflower) were distinguished by linear discriminant analysis from their element content.

Keywords: honey, essential element, toxic element, ICP-OES, ICP-MS

*Corresponding author.
Tel: +36 30 3662383
Fax: +36 52 417572
E-mail address: nikolettczipa@gmail.com