

Cd and Pb determination in some Romanian south eastern region cereals

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Abstract The purpose of this paper is to present original studies about the internal validation of trace Cd and Pb determination in cereals using flame atomic absorption spectrometry (FAAS) technique before the metal occurrence in real samples investigation. The following criteria have been assessed: selectivity, repeatability, reproducibility, limits of detection (LOD), limits of determination (LOQ) and the uncertainties of the assigned values. Certified reference materials ZC 73009 wheat flour and ZC 73010 maize, a GBC Avanta FAAS spectrometer and high purity reagents have been used to perform the proposed investigations. Samples have been mineralized by wet digestion with HCl, HNO₃ and hydrogen peroxide in several steps. The obtained results for method validation demonstrated that the studied method corresponds to determine low concentrations of Cd and Pb in different cereals matrix. 108 samples of wheat, maize, rice, barley, two-row barley and mixed cereals grains from the Romanian south eastern region collected in 2007 and 2008 have been analyzed using FAAS technique and the results show that Cd and Pb levels in all samples are below the imposed limits.

Keywords: cadmium, lead, cereals, FAAS, internal validation, uncertainty
