



HEAVY METAL RESIDUES IN MILK FROM DAIRY FARMS OF MOLDAVIA, ROMANIA

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Abstract

The present paper is a study based on the survey of the heavy metal milk residue levels (Pb, Cd, Hg, Ni, Cu, Zn) in the NE Romania (Moldavia) and on the statistical interpretation of the analytical results that allowed for assessment of the contamination seasonality of the substrates during a four-year period.

The analytical results revealed that the residues of Pb were found in 71.43 to 85.71% of samples at average concentrations of 2.49 to 3 µg/L, below the accepted legal limits (20 µg/L); those of Cd and Hg were zero in the analyzed samples or were in lower quantities than the method detection limits; those of Ni, Cu and Zn were determined in all investigated samples at average concentrations ranging from 11.24 to 11.90 µg/L, 237.10 to 303.43 µg/L and 2051.21 to 2628.64 µg/L, respectively. The investigated heavy metals showed higher seasonality during the autumn ($cs_i = 1.00$ to 1.21) and winter ($cs_i = 1.09$ to 1.34), and a lower one in spring ($cs_i = 0.58$ to 0.92). Ni was determined less than the provisional tolerable daily intake set by the World Health Organization for human consumers (5 µg/kg). Cu was found at concentrations considered as legal (-) for cow's milk and some concentrations of Zn were found at levels that could provide the daily human consumption requirements of 3-10 mg.

Key words: heavy metal residues, milk, seasonality

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