INVESTIGATIONS CONCERNING THE POLLUTION WITH HEAVY METALS AND RADIONUCLEIDs OF RAW MILK COLLECTED IN CLUJ DISTRICT

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SUMMARY

The contamination with heavy metals and arsenic can be found in milk as a consequence of environmental pollution with these contaminants. The main sources of heavy metals contamination (Pb, Cd, St, Cu, Cr, Ni, Hg) and arsenic are represented by the polluting soil and the contaminated waters with wastes. Following these routes the metals get into the vegetal tissue and indirect in the human body, through milk secreted by the animals which are contaminated plants. The package and the industrial machines can leave some traces of metals to milk.

The determination of the contents with heavy metals and arsenic was done through the method spectrophotometry of atomical absorbtion. In order to have a general view concerning the pollution with hard metals of milk, during the period 2003-2006 there were effectuated 140 tests of raw milk collected from different farms and household of Cluj district.

Analysing the results in order to emphasize the potential of toxicity and the arsenic in the milk, it was concluded that the majority were kept within the maximum admitted limits. In a number of 10 tests (7.14%) was identified a bigger quantity of zinc was identified and a number of 4 tests (2.85%) were identified of being inappropriate concerning the contents of copper. Regarding the contents of Pb, Cd, and As no additional quantities were signaled.

Added to multiple possibilities of chemical and biological pollution, the milkcow can be subject to an intense physical pollution with radionuclides. There were effectuated 64 tests of milk raw material collected from farms and the households from Cluj county. The tests were analysed using spectrometry the range with iodine of sodium, results representing the sum of Cesiul34 and Cesiul 137. The determinations were effectuated during 2003-2006 and there were obtained values of 10-32 Bq/kg.

The small number of inappropriate tests shows an accidental, fortuitous pollution of milk with hard metals. The presence of these metals with a potential of toxicity can be the results of the industrial emissions, of the usage of zinc receptacle or galvanants.

In what the evaluation of contamination with radioactive elements is concerned, these were far above the maximum admitted limits.

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