

Aluminum and Tin levels in imported canned dairy products

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Abstract

Many sources of heavy metal pollution especially aluminum and tin, have been recently reported as a consequence of industrial, agricultural activities and mining. These heavy metal pollutants have become a danger imminents that threaten the health of humans and animals due to the cumulative effect of these elements in the soil, plants and tissues of the animal's body, such as cows and sheep which affects the overall health of the person consuming meat and milk of these animals. Whereas the dairy and its products are most popular for humans, especially children, so it was important to conduct this study on forty six samples of imported canned dairy products (16 infant formula, 15 milk powder and 15 sweetened condensed milk samples) which collected from different markets in Zagazig and Kafrsakr cities, Sharkia governorate, during the period from November 2014 to January 2015 to measure the concentration of heavy metals (aluminum and tin), compare these concentrations with local and international permissible limits and discuss health importance of each element on human health. The findings achieved in the study revealed that the average concentration of aluminum and tin in the examined infant formula, milk powder and sweetened condensed milk samples were 7.13, 3.59 and 10.58 mg/kg and 22.6, 22.6 and 22.5 mg/kg, respectively. Moreover, 90%, 100% and 50% of the examined positive samples of infant formula, milk powder and sweetened condensed milk had aluminium residues above the permissible limits, while all the examined samples had tin residues below the permissible limits. In conclusion, heavy metal (aluminum and tin) residues have reported in the study area with various levels. These heavy metal residues may be attributed to their adding to milk and milk products during production, processing and storage as well as by contamination from containers.

Keywodrs: Aluminum, Tin, Milk powder, infant formula, condensed milk.