

Abstract

This thesis deals with food from the point of view of the content of constituents, especially contaminants. The health risks associated with the consumption of contaminated foods are mentioned, and a more detailed look is given to heavy metals. The monitoring of dietary contaminant load in the Czech Republic and the method of ensuring food safety are described. Special attention is paid to the Rapid Alert System for Food and Feed (RASFF).

The practical part is devoted to the analysis of the notifications in the heavy metals hazard category shared in RASFF by the member countries in the period January 2020 to April 2021. A total of 116 notifications were submitted by 16 countries, concerning 117 above-limit occurrences of heavy metals in food. 44 notifications were classified as the alert notification, 56 as the information notification and 16 as the border rejection notification. 92% of the notifications are classified as serious in the context of a risk decision. The most frequently taken measure was the destruction of the contaminated food and/or its withdrawal from the market. Mercury was the subject of 57 notifications, cadmium was cited 46 times, lead 12 times and arsenic 2 times.

Cadmium was present in cephalopods (43.5%), fish (15.2%) and to a lesser extent in foods from other groups. Non-compliant products contained on average 1.66 mg cadmium/kg. Excessive levels of lead were detected mainly in food supplements, with between 0.16 and 38 mg lead/kg found in non-compliant foods. Above-limit mercury levels were found almost exclusively in fish. On average, they contained 1.86 mg mercury/kg. Most reports concerned swordfish, with the highest mercury concentration of 4.27 mg/kg.

Based on a model example of an increase in dietary mercury load when fish are included in the diet, it was found that compared to the riskier species identified from RASFF (mainly large marine predatory fish), regular consumption of fish from Czech waters and the sales network should not pose a risk of exceeding the tolerable intake of mercury.

Keywords:

heavy metals, cadmium, lead, mercury, RASFF, dietary exposure