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ASSESSMENT OF TOXICOLOGICAL ASPECTS OF MILK PRODUCTION IN AREAS WITH DIFFERENT ENVIRONMENTAL BURDEN

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Title: Assessment of toxicological aspects of milk production in areas with different environmental burden

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INTRODUCTION

Industrial progress, industrialization, urbanization, as well as agricultural production have become a permanent source of foreign chemicals for living organisms. In recent years, food safety has been considered a key theme in the food industry, whether in terms of ever-tightening legislation, evolving and improving analytical methods of control, the introduction of quality management systems from agricultural production to final food production. This fact, as well as the current skepticism about several food chains, is caused by a few food scandals over the last fifteen years, making food safety a priority.

Increasing the efficiency of agricultural production brings with it the use of many chemical preparations, both in the production of feed and on farm in the production of milk. These substances subsequently enter agricultural products, including the milk of dairy cows, sheep, or goats, because of non-compliance with good technological practices. These foreign substances are not a natural part of milk but are excreted in milk. Success in food production depends to a large extent on the sufficiency of quality raw materials and good manufacturing practice. Therefore, it is worth noting the knowledge and problems of possible penetration of foreign substances into the food chain.

A group of chemical substance to which e.g. heavy metals, pesticides and polychlorinated biphenyls are collectively called xenobiotics. Xenobiotics, which are attributed the most common carcinogenic, mutagenic, and teratogenic effects, are among the most studied groups of substances that have an adverse effect on a living organism and can cause serious disorder in animal and human health.

The production of cow´s and sheep´s milk is an important part of agricultural production and has a long tradition in Slovakia. The Slovak agricultural literature has so far lacked a publication focused on the monitoring of xenobiotics in the soil-feed-product (milk) system. A thorough knowledge of the content of individual xenobiotics and their effects is important when including milk and dairy products in the diet of children or adults, as milk can be a potential source of some foreign substances. For researchers dealing with the topic and analysis of contaminants, this publication will explain the state of the environment in selected areas of Slovakia, where the production of milk and dairy products. In our publication, we focused on the description of selected xenobiotics, described the toxicological effect of these substances, their occurrence in milk and dairy products, and closed the chapter with the characteristics of the mammary gland as an organ where milk is produced. The main part of this publication consists of monitoring of selected xenobiotics in areas of Slovakia with

different environmental loads to determine the actual environmental contamination in selected areas, the representation of individual elements in sheep and cow milk and their transfer in the soil-feed-product system, followed by evaluation of whether the milk is suitable for direct consumption, further food processing and whether it does not pose a potential health risk to consumers.

We believe that studying this monograph will provide you an interesting knowledge of the toxicological effects of contaminants and the state of the environment in selected areas of Slovakia.

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