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AFLATOXINS AND THE PRESENCE IN MILK AND MILK PRODUCTS

Hasan Hüseyin KARA, Ahmet Metin KUMLAY, Abdullah ÇAĞLAR

*Afyon Kocatepe University. Engineering Faculty, Food Engineering Department
Afyonkarahisar, Turkey*

E-mail: hhkara@aku.edu.tr

Aflatoxins (AF) are extremely toxic mycotoxins basically produced by the common fungi *Aspergillus flavus*, *A. parasiticus* and *A. nomius*. These mycotoxins are found in many plant products such as peanuts, copra, soya, maize, rice and wheat. Aflatoxins are highly dangerous and carcinogenic for animals and humans, and can lead acute and chronic diseases such as liver damage, liver cirrhosis, and tumor induction and are also teratogenic and hepatic. These toxic mycotoxins are important for post harvest physiology of food and feed crops. Since the feeding of milking animals is important in animal husbandry, mycotoxin situation of harvested and stored agricultural products should have been taken account for healthy foods. Major aflatoxins found in food and feed are B₁, B₂, G₁, G₂, M₁ and M₂. In these compounds, aflatoxin B₁ (AFB₁) is a common and predominant type of AF, and it is the most toxic and a potent cancer causing agent. When dairy cows consumed feed contaminated with AFB₁, they excrete small amounts of AFM₁ in their milk. Be cause aflatoxin M₁ (AFM₁) very strong and resistant toxins it is very hard to inactivate and reduce these toxins by pasteurization, sterilization, autoclaving and other ways of food processing procedures. Since milk and milk products are largely consumed by infants and children, and they are considered more susceptible to the adverse effects of mycotoxins, the presence and determination of AFM₁ in milk and milk products is very important. It is even suggested in some investigations that AFM₁ can be bound with casein proteins and the level of AFM₁ can increase up to 5 times during cheese production process. Since it is very important and urgent subject in human nutrition, the effects of the AFM₁ on human health should be publicly announced and some precautions should have been taken. The purpose of this review is to examine AFM₁ studies which have been done in many countries. It is also goal of this study, to determine the mechanism of AFM₁ in milk and milk products. This review will also reveal many laboratory methods such as HPLC, Fluorometer and ELISA to determine AFM₁ levels in milk and milk products.

Key words: Aflatoxins, milk, health, analysis methods