

Identification of Aflatoxin Contamination in the Milk of Cows Fed on Moldy Dry Bread as a Part of Their Ration

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ABSTRACT:

Introduction: Contamination of foodstuffs with fungi and the toxins produced by them is a very important problem in human and animal feeding. In most villages around Shiraz, in small-scale dairy farms, dry leftover bread which is mostly contaminated with fungi is used as a part of food ration for animals. The thin-layer chromatographic method which was used for determination of aflatoxin. Ingestion of this aflatoxin contaminated milk by calves and man results in different diseases and mortality in calves and different types of cancers and teratogenicity in human.

Method and Materials: A total of 20 samples from dry breads, 60 milk samples from small scale milk producers which feed their animals on these breads and 10 milk samples from large-scale milk producers which use relatively modern methods of storing animal feeds, were collected. The thin-layer chromatographic and ELISA methods used for detection of aflatoxin M₁ and M₂ in cows' milk.

Result: The results of both methods were approximately the same and all 20 dried bread samples analyzed were found to be contaminated with aflatoxin B₁ much higher than the standard level of aflatoxin B₁ in animal foodstuffs, the aflatoxin B₁ in animal foodstuffs should not exceed 0.02 mg/kg. All 60 milk samples collected from milk producers using dry bread were found to be contaminated with aflatoxin M₁ which exceeded the legal level of aflatoxin M₁ in milk.

Samples have high level of aflatoxin M₁ and M₂ (100-400 µg/ml), while their levels in milk from industrial

Conclusion: dairy farms which did not use dry bread were much lower . These results identify potentially hazardous public health problems from dairies produced in substandard small-scale dairy farms.

Key words: Aflatoxin, Milk, Dairy, Food, Shiraz.

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