

**EFFECTS OF FEEDING TYPE ON THE
OCCURRENCE OF AFLATOXIN M₁ IN MILK
OF HIGH PRODUCING DAIRY COWS**

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ABSTRACT

Cow milk is an important source of nutrition in human, especially in infants. Contamination of milk with aflatoxin M₁ (AFM₁), when cows are fed with aflatoxin B₁ (AFB₁) contaminated feed, is a threat to human health as well as to the animals and dairy farmers. The aim of this study was to determine the levels of aflatoxin M₁ in raw milk obtained from high producing cows and evaluate the relationship between feeding type and detected AFM₁ levels.

Ten dairy farms were randomly selected from Hatton Veterinary Surgeon's area for the collection of raw milk samples and they were analysed for AFM₁ using the Official Methods of Analysis of Association of Official Analytical Chemists (AOAC) International in addition to detecting AFM₁ levels by High Performance Liquid Chromatography (HPLC) equipped with a fluorescence detector, consisting 360 nm and 440 nm for excitation and emission wavelengths respectively. Identification of AFM₁ in the milk samples was based on its retention time with respect to the daily prepared AFM₁ standard (500 µg L⁻¹).

Occurrence of AFM₁ was detected in 50% of the collected samples ranging from 8 ng L⁻¹ to 36 ng L⁻¹ with a mean level of 11.1 ng L⁻¹. None of the samples were exceeded the European Communities/Codex Alimentarius recommended limit of 50 ng L⁻¹.

Grasses given to the animals' diets showed no relationship with the occurrence of AFM₁ while concentrate feeds had a significant relationship with AFM₁ contamination. Out of the three types of concentrate feeds given to the animals, coconut poonac had the highest correlation with the occurrence of AFM₁ having a value of 0.65, while compound cattle feed and beer pulp having correlations of 0.52 and 0.41 respectively. Occurrence of AFM₁ had increased with concentrate feeds. Increasing grass content in the diet had reduced AFM₁ occurrence in milk.

The results suggest the importance of protecting feeds, especially concentrates, from aflatoxin like fungal growth during storage to minimize the risk of contamination of raw cow milk which is considered to be a health hazard threat.