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AFLATOXIN M1 CONTAMINATION OF COMMERCIAL CHEESE SAMPLES

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Aflatoxin M1 (AFM1) is excreted in the milk of animals consuming feed contaminated with aflatoxin B1. This is a cause for concern since this mycotoxin is hepatotoxic and immunosuppressive and it can exhibit carcinogenic, teratogenic and mutagenic effects affecting various organs such as the liver and kidney.

Aflatoxin M1 is very stable as well as heat resistant so that it is also found in dairy products made from contaminated milk. Specifically, studies carried out also show variations in the concentration of AFM1 in cheeses depending on the variety, the technologies used in its processing and the amount of water removed on it. Therefore, in order to evaluate the risk of exposure to this mycotoxin it is necessary to know the contamination of dairy products such as cheese. The general objective of this study was to evaluate AFM1 contamination of commercial samples of cheeses with different characteristics.

The cheese samples (n=61) were analyzed following a method previously validated in our laboratory based on an extraction step with organic solvents of the conditioned samples and the subsequent purification of the extract using immunoaffinity columns (Vicam, IAC aflaM1TMM). Finally, a determination of aflatoxin M1 content was carried out by ultra-performance liquid chromatography (UPLC) coupled to a fluorescence detector (FLD).

Aflatoxin M1 was detected in 54.1% of the samples analyzed at concentrations between 8.1 and 470.7 ng/kg of cheese. Although legislation does not establish specific maximum limits for AFM1 in dairy products, it is noteworthy that 7 of the analyzed samples (11.48%) had concentrations above the maximum limit established for milk (50 ng/kg). Moreover, one of the samples exceeded the maximum limit of 250 ng/kg established in other countries for cheese. The presence of AFM1 in the analyzed cheese samples confirms the need for controls to assess the risk of exposure to this mycotoxin.

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