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Occurrence of aflatoxin M₁ in domestic milk in Japan during the winter season

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Abstract

A total of 208 samples of commercial pasteurized milk gathered from retail outlets across Japan during the winter season were analysed for aflatoxin M₁ (AFM₁). Japan was divided into 11 regions from north to south, and nine to 45 milk samples from each region were randomly purchased between December 2001 and February 2002. Each milk sample was cleaned up by an immunoaffinity column, and AFM₁ was quantified by liquid chromatography with fluorescence detection in four independent laboratories. The limit of detection of the method was 0.001 µg kg⁻¹. The identity of the putative AFM₁ in milk sample was confirmed by the formation of AFM₁ hemi-acetal with trifluoroacetic acid. Based on the results obtained with spiked samples (0.05 µg AFM₁ kg⁻¹), the mean recovery was 91.4%, the relative standard deviation for repeatability was 4.6%, and the relative standard deviation for reproducibility was 8.0% among four

independent laboratories. AFM₁ was detected in 207 (99.5%) of 208 milk samples at 0.001–0.029 µg kg^{−1}, with a mean of 0.009 µg kg^{−1} and a 90th percentile of 0.014 µg kg^{−1}. No significant difference of the level of AFM₁ contamination was observed among the regions.

Keywords:

- survey
- aflatoxin M1
- milk
- immunoaffinity column
- liquid chromatography

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Related Research Data

- Investigation of aflatoxins contamination in foods and foodstuffs.
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- Reverse Phase Liquid Chromatographic Determination and Confirmation of Aflatoxin M1 in Cheese
Source: Journal of AOAC INTERNATIONAL
- Natural occurrence of aflatoxin M1 in imported and domestic cheese. Studies on mycotoxins in foods. VI.
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Source: Mycopathologia
- Occurrence of mycotoxins in raw ingredients used for animal feeding stuffs in the United Kingdom in 1992
Source: Food Additives & Contaminants
- Determination of aflatoxin M1in milk by reversed-phase high-performance liquid

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