

P12. DISTRIBUTION AND STABILITY OF AFLATOXIN M1 DURING THE PROCESSING AND RIPENING OF RAW SHEEP'S MILK CHEESE

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Aflatoxin M1 (AFM1) is the hydroxylated metabolite of aflatoxin B1 (AFB1) and can be found in milk and dairy products obtained from livestock that have ingested contaminated feed. However, the available scientific information on the transfer of AFM1 from milk to dairy products is scarce, especially in the case of products made from sheep's milk. This study aimed to elucidate the distribution and fate of AFM1 in raw sheep's milk cheese and whey during cheese making as well as the stability of the toxin during cheese ripening.

Six batches of cheese were manufactured from naturally contaminated sheep's milk (AFM1 between 172 - 216 ng/L) obtained from dairy sheep exposed to an AFB1 challenge in feed. AFM1 in raw milk, whey and cheese was determined by a method based on immunoaffinity cleanup (IAC) and Ultra High Performance Liquid Chromatography (UPLC) coupled to fluorescence detector (FLD), with limits of detection of 0.92 ng/kg in milk and whey and 9.86 ng/kg in cheese. The carry-over rate of AFM1 was calculated as the percentage of the total amount of AFM1 in the starting raw milk that was present in the final products (whey and cheese at manufacturing, 60 and 120 days of ripening), taking into account the cheese yield. During cheese making, 45% of the AFM1 present in the sheep milk passed into the whey, while 55 % was retained in the curd. It has been reported that AFM1 tends to bind more to casein than to whey proteins, resulting in higher toxin content in curds than in whey. After 60- and 120-days ripening, the concentrations of AFM1 in cheese were 3.67 and 3.98 times higher, respectively, than in the initial milk. Sheep cheese has been shown to retain an important part of the aflatoxin M1 present in milk, so the impact of its consumption on public health should be examined.

Keywords: aflatoxin M1, sheep, cheese, whey, milk, carry-over

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