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Assessment of use of mycotoxin binders via aflatoxin M1 detection in milk

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Aflatoxins are toxic secondary metabolites produced by species of *Aspergillus*. The most extensively investigated aflatoxins are aflatoxin B1 and aflatoxin M1, because according with the IARC they are carcinogenic and potentially carcinogenic for human, respectively. Since the AFM1 is a metabolite of AFB1 eliminated through milk; AFM1 levels in milk are an excellent biomarker to AFB1 consumption. The problems caused by aflatoxins have been reported since their discovery. In the same way, methods to minimize the effects on human and animal health caused by consumption of contaminated feed and food have been documented; however aflatoxins prevail. The feeds in the dairy farms were naturally contaminated. Five aflatoxin binders (bentonite, montmorillonite, aluminumsilicate, clay and glucomannans) were evaluated in the three dairy farms in Aguascalientes, Mexico. Samples of milk for each dairy farm were taken along seven months and assessed via ELISA kit. Preliminary results show that 89% of all milk samples had detectable AFM1 levels; in the dairy farm 1:46% samples had detectable levels of AFM1; dairy farm 2: 31.1% and dairy farm 3: 22.2%. The 53.7% of the all samples exceeded the maximum levels established by the European Union, but none surpassed permitted levels by the Norma Oficial Mexicana. The results show that in this particular application of aflatoxin binders in three dairy farms, binders were ineffective in terms of reducing aflatoxin in feed.

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