Aflatoxin Binders II: Reduction of aflatoxin M1 in milk by sequestering agents of cows consuming aflatoxin in feed

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Abstract Sequestering agents bind dietary aflatoxin B1 (**AFB1**) and reduce absorption from an animal's gastrointestinal tract. As a result, they protect an animal from the toxic effects of **AFB1** and reduce transfer of the metabolite, aflatoxin M1 (**AFM1**), into milk. Three experiments, using late-lactation Holstein cows fed **AFB1**-contaminated feed, were conducted to evaluate several potential sequestering agents for their abilities to prevent or reduce the transmission of **AFM1** into milk. Six agents previously tested in our laboratory for**AFB1** binding *in vitro* were evaluated in these experiments. These were: SA-20®, an activated carbon (**AC-A**); Astra-Ben-20®, a sodium bentonite (**AB-20**); MTB-100®, an esterified glucomannan (**MTB-100**); RedCrown®, a calcium bentonite (**RC**);Flow Guard®, a sodium bentonite (**FG**); and Mycrosorb®, a sodium bentonite (**MS**). Five of the six sequestering agents significantly ($P < 0.01$) reduced **AFM1** contamination of milk (**AB-20**, 61%; **FG**, 65%; **MS**, 50%; **MTB-100**, 59%; and **RC**, 31%); whereas, **AC-A**, activated carbon, had no effect on **AFM1** transmission at 0.25% of feed. By the first milking (1 day after cows consumed contaminated feed), **AFM1** appeared in milk, then reached maximum levels after three days, and was absent from milk within four days after **AFB1** was removed from the feed. Sodium bentonites at 1.2% of feed showed good potential as**AFB1** binders; **MTB-1OO**, a yeast cell wall product, was equally effective at 0.05% in feed. Potential**AFB1** binding agents should be evaluated experimentally to demonstrate efficacy. Our data show that sequestering agents can reduce **AFM1** in milk of cows fed **AFB1**-contaminated feed.

aflatoxin B1 - aflatoxin M1 - bentonite - activated carbon - esterified glucomannan - sequestering agents