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EFFECT OF CELMANAX® SUPPLEMENTATION IN AFLATOXIN-CONTAMINATED STARTER DIETS ON BROILER PERFORMANCE

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Introduction: Celmanax® is an enzymatically hydrolyzed yeast and yeast culture manufactured as a combined supplement. Celmanax contains many yeast derived metabolites such as beta glucans, mannans and galactosamine. These complex sugars play an important role in modulating gut health and improving broiler production. Yeast derived mycotoxin binders have shown some success in both *in vitro* and *in vivo* systems. In previous studies Celmanax has shown mycotoxin binding abilities and an elimination of the cytotoxic effects of mycotoxins *in vitro* as well as some immune modulating functions. Consequently, a study was undertaken to evaluate if Celmanax could mitigate an aflatoxin induced challenge in broilers.

Objective: The purpose of this study was to evaluate the effect of Celmanax supplementation on broiler performance fed an aflatoxin-contaminated starter diets.

Materials and Methods: A typical broiler starter diet consisting of soybean meal and corn contaminated with aflatoxin (at 120 ppb) was fed to a total of 384 Ross 344 x 708 male broiler chicks during the growth period from 1 to 21 days of age. The chicks were randomly assigned to 32 battery cages with 12 chicks/cage, resulting in 8 replicate cages/treatment. Each pen was then randomly assigned to one of four dietary treatments: 1) Control (no supplementation), 2) BioFix® Plus1 kg/MT, 3) Celmanax Hi 2 kg/MT, 4) Celmanax Low 1 kg/MT. On day 1, the empty weight of each feeder was measured, and then 1.3 kg of feed was added. Feed and water were available *ad libitum* for the remainder of the experiment. All feed additions were weighed and recorded. Broiler chick performance during the experiment was evaluated by averaging the body weight of birds per cage at 7, 14, and 21 days of age. All feeders and amounts of feed added were also measured on these days to calculate feed intake and feed conversion (F/G). Weights of all mortalities and culls were recorded along with date of death so that feed conversion was adjusted for mortality. All birds were euthanized via cervical dislocation on day 21.

Results: All treatments improved weight gain compared to the control, with BioFix Plus and Celmanax Hi birds showing the greatest weight gain by day 21 (Fig. 1). Celmanax Hi birds also had the highest average feed consumption compared to all other treatments. Celmanax Low birds consumed the least amount of feed at all stages of the experiment (Fig 2). As seen in Fig. 3, all treatments decreased feed conversion ratio compared to the control. The greatest improvement was seen with the Celmanax treatments during days 14-21 with feed conversion decreasing from 1.60 in control to 1.49 with Celmanax.

Conclusions: Overall, the supplementation of Celmanax to aflatoxin-contaminated broiler starter diets numerically improved weight gain and decreased feed conversion compared to the control. Thus, Celmanax supplemented in the diet is able to improve the performance of broilers when faced with an aflatoxin challenge.

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Fig. 1: Effect of treatments on body weight

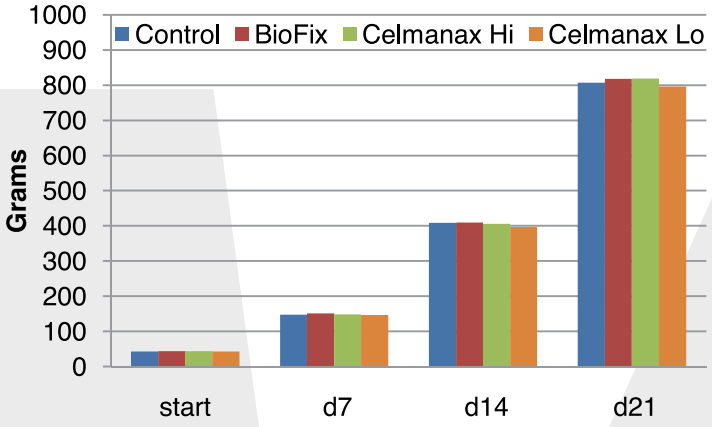


Fig. 2: Effect of treatments on feed consumption

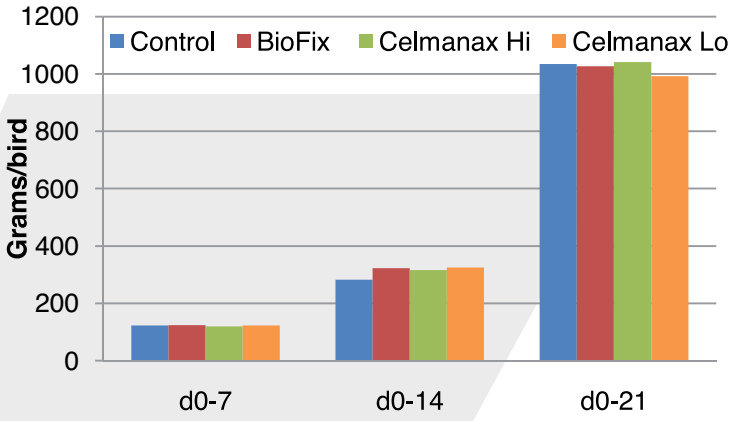
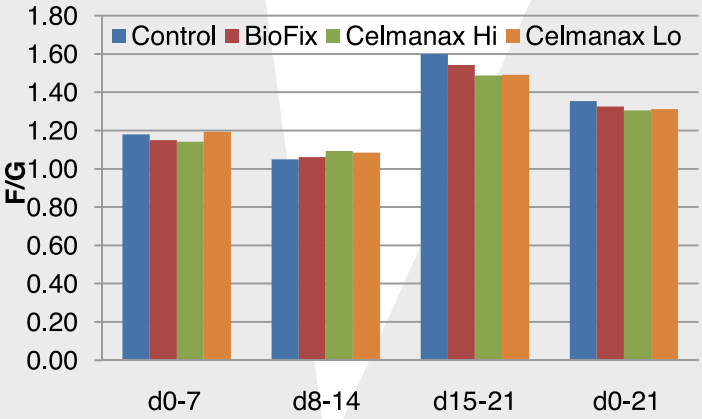


Fig. 3: Effect of treatments on feed conversion



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