

EFFECT OF CELMANAX® SUPPLEMENTATION ON PERFORMANCE AND IN PROTECTING BROILERS AGAINST A MODERATE COCCIDIOSIS CHALLENGE

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Introduction: Celmanax® is an enzymatically hydrolyzed yeast and yeast culture manufactured as a combined supplement. Celmanax contains complex sugars like galactosamine, mannose and mannan oligosaccharide (MOS). Some of these sugars play an important role in preventing infections by some pathogenic bacteria and parasites. Ability of Celmanax to agglutinate *E. coli* and *Salmonella spp* has been shown before. In this study, effect of Celmanax on *Eimeria* challenged broiler chicks was assessed.

Objective: Effect of Celmanax supplementation on performance and in protecting broilers against a moderate coccidiosis challenge was tested.

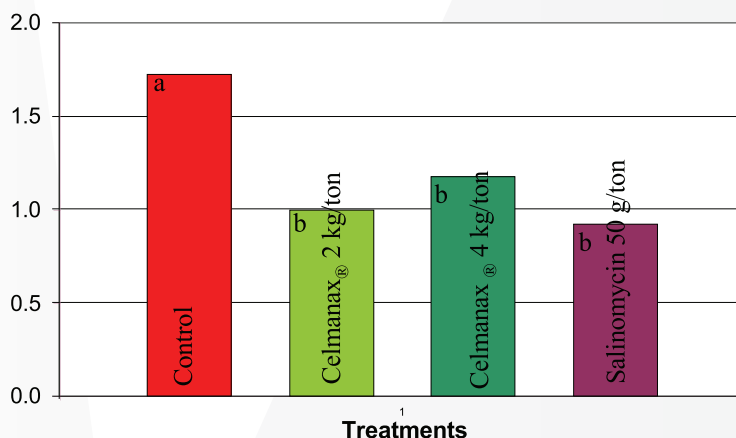
Materials and Methods: Zero days old Cobb 500 chicks were assigned in 8 replications to 12 treatments with 10 birds/pen in a 4x3 factorial arrangement. The treatment additives included 1) no treatment (Control), 2) Celmanax 2 kg/MT(4lbs/ton) (Cel 2), 3) Celmanax 4 kg/MT (8lbs/ton) (Cel 4), 4) Salinomycin 50g/MT (Sal). Chicks were on the treatment diets from day 0- 21. Chicks were (a) non-challenged, (b) challenged with 31,000 *E. tenella* (ET) oocysts/bird, (c) challenged with ~37,500 *E. acervulina* (EA) oocysts and ~25,000 *E. maxima* (EM) oocysts/bird. The birds were infected at 15 days of age with *Eimeria*. Treatments were assigned to brooding cages using a complete randomized block design. Efficacy was evaluated by measuring body weight, feed intake and adjusted feed conversion (AFC), and intestinal lesion scores. Data was analyzed by Tukeys' mean separation test.

Results: The Lesion score data indicates that the Sal, Cel 2 and Cel 4 treatments significantly decreased the ET lesion scores (0.93, 1.0 and 1.18 respectively $p<0.001$) compared to the untreated *Eimeria* Control (1.73) (Fig 01). Both Cel 2 and Sal improved weight gain (0.306 and 0.31 kg respectively) but only Cel 2 improved AFC (1.389) in chicks challenged with ET compared to Control, non-challenged chicks (0.3 kg and 1.393) (Fig 02). The non-challenged treatments with Cel 2 and 4 performed well and had numerically improved weight gain (0.32 and 0.31 kg respectively) than the Control, non-challenged (0.3 kg) (Fig 03). The 15-21 day data indicates that the Celmanax treatments challenged with EA and EM did not prevent a significant impact on weight gain and AFC as the Sal (Fig 04). The lesion score data indicates that the EM and EA challenge was controlled significantly with Sal treatment ($p<0.001$), but not by Cel 2 and 4 treatments (Fig 05).

Conclusion: Overall, Celmanax appeared to have performance improving properties when fed to non-challenged broilers, and showed significant efficacy against *E. tenella* but not against *E. maxima* and *E. acervulina* challenge.

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Figure 1: *E. tenella* Lesion Score



ab Means are statistically different ($p < 0.001$) by Tukey's mean separation test

Figure 2: Performance Data With *E. tenella* Challenge

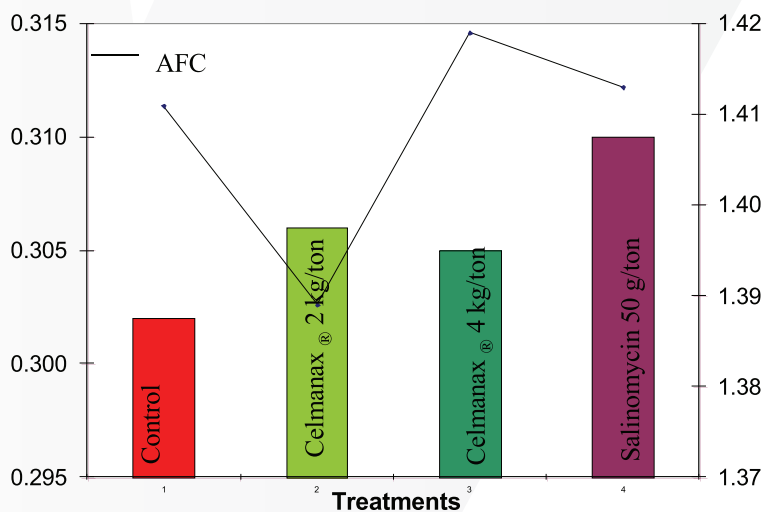


Figure 3: Performance Data Non Challenged

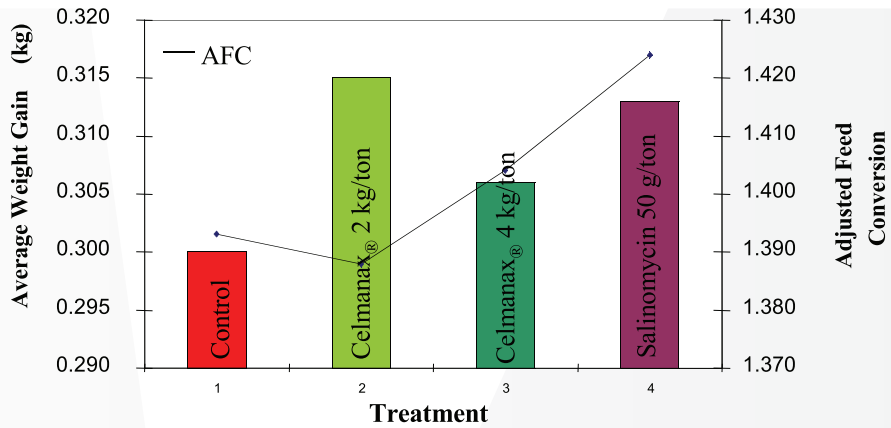


Figure 4: Performance Data with *E. maxima* and *E. acervulina* Challenge

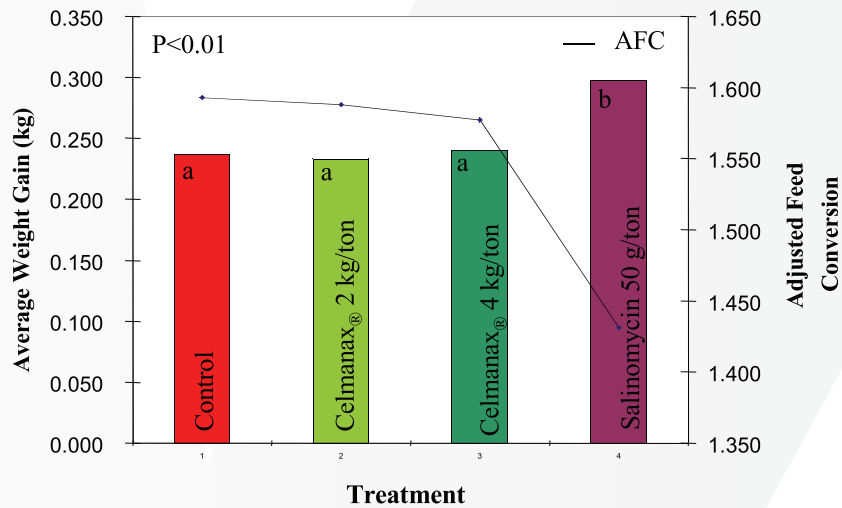
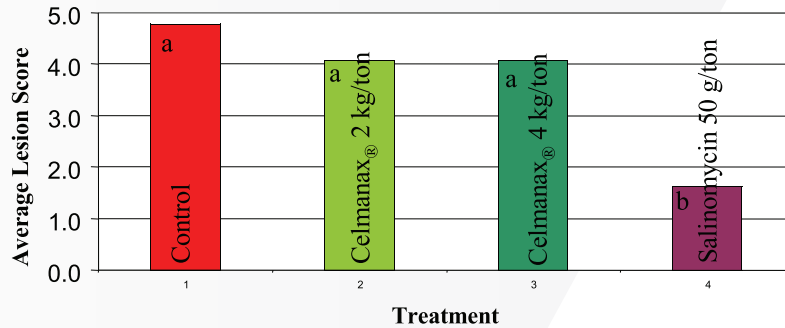


Figure 5: *E. maxima* and *E. acervulina* Lesion Score



ab Means are statistically different ($p < 0.001$) by Tukey's mean separation test