

EFFECT OF PROBIOTICS ON GROWTH PERFORMANCE, CARCASS CHARACTERISTICS AND OCCURRENCE OF SALMONELLOSIS IN BROILERS FED ON LOCAL DIETS

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In the modern day intensive poultry farming, broilers are subjected to various kinds of stresses, which adversely effect the performance of birds and causes high incidences of diseases such as salmonellosis. Antibiotics have been widely used as feed additives to counteract these adverse effects and to control harmful organisms. However, continued use of sub therapeutic levels of antibiotics in animal feeding has been known to cause several public health hazards. Therefore the use of antibiotics as feed additives has been banned in several countries and the Sri Lankan authorities would soon follow the ban. Further indiscriminate use of antibiotics resulted in the emergence of resistant infective agents of certain diseases like salmonellosis.

Probiotics, which are live microbial feed supplements, are claimed to be environmentally friendly additives, which competitively excludes the pathogenic organisms and beneficially alters the intestinal microbial flora in order to enhance health status, growth performance and feed conversion efficiency of poultry. Although probiotics have been widely used as an alternative for antibiotics elsewhere, their efficacy under local conditions have not been studied.

In this experiment, the efficacy of a multi-strain commercial probiotic mixture on commercial broilers was assessed under local conditions.

A control diet (C) was formulated and three treatment diets were prepared by adding probiotics to the control diet at 0.01% (T1), 0.02% (T2) and 0.03% (T3) levels. All four diets were replicated three times and tested on 240, day old broiler chicks (20 birds per replicate) for the full period of 42 days. Performances were analysed at weekly intervals and carcass characteristics were assessed at the end of the experiment. Since the chicks that were used in the experiment were found to be infected with *Salmonella pullorum*, antibodies for *Salmonella pullorum* was tested using rapid agglutination test with stained *Salmonella pullorum* antigen on day 42. Results were analyzed using one-way ANOVA and means were separated by Tukey's pairwise comparison.

Although the numerical values for performance and carcass characteristics were better, for the treatment groups, than in the control group, these differences were not statistically significant. The effect of probiotic on salmonella on the other hand was statistically significant ($P>0.05$). Highest number of sero-positives (43%) was detected in control group and no sero-positives were found in T3 group. There was a negative correlation between level of probiotic in the diet and the incidence of salmonella in the flock (20% in T1 and 13% T2), which support the notion of competitive exclusion of probiotics. Further, economical analysis revealed that there is a cost advantage of adding probiotics to the diet at prevailing market prices.