SOME ASPECTS OF THE INFLUENCE OF PROBIOTICS ON THE PERFORMANCE OF BROILER CHICKEN

Nimal Priyankarage
B.V.Sc (Peradeniya)

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ABSTRACT

Probiotics are live microbial feed supplements, which beneficially alter the intestinal microflora of animals to obtain maximum growth, efficient nutrient utilization and improving body defence mechanisms. It is also a potential alternative for the antibiotic growth promoters as an environmental friendly feed additive. With the restriction of the use antibiotic in animal feed especially in poultry feed, probiotics are widely used as a growth promotive feed additive in animal husbandry. However, their efficacies have not been investigated in Sri Lanka under local environmental conditions.

Therefore our main objectives of the study were to investigate the capabilities of probiotics on growth promotion and disease prevention especially on salmonellosis of broilers reared in local environmental conditions. A series of experiments including feeding trials, challenged experiment and digestibility trial were carried out with probiotics on broilers fed on locally available rice bi-product based diets. In addition, the effect of probiotics on intestinal microflora and gut fluid viscosity were also measured during the experiments. All the data was analysed using one-way ANOVA and means were separated using Tukey's pair wise comparison.

The effects of probiotics on growth performance have not been consistent in every instance. However, significant improvement on growth performance

was observed with some probiotics and the effects were more prominent in early ages and only marginal improvements on growth performance were observed in finisher stages of broilers. Further, in instances where the growth promotion was evident, effects were comparable to commercial antibiotic growth promoter, Zinc bacitracin.

Probiotics have significantly lowered the salmonella antibody titres in affected birds. However, the significant effects were observed with sub clinical levels of salmonella infection. This was contributed with their mode of actions; competitive exclusion and antagonistic activity. However, with the higher dose levels of salmonella organisms (lethal doses), the probiotics seem ineffective in reducing mortality or antibody titres.

There were no effects of probiotics on nutrient digestibilities, carcass characters and gut fluid viscosity with probiotics. The effect of probiotics on gut microflora was inconclusive. Rearing of birds with minimum stress and under good hygienic condition may have contributed to lack of evidence on said parameters.

In general, probiotics were shown to be able to improve the growth of broilers especially in young ages and can be used as a potential alternative for antibiotic growth promoters in Sri Lanka. The probiotics could play an

important role in salmonella control strategies in future in Sri Lanka. However, more research is needed to address the inconsistency of products in order to maximize benefits.