

EFFECT OF SUPPLEMENTAL ENZYME MIXTURE CONTAINING LIPASE AND PROTEASE ON DIGESTIBILITY OF FAT AND PROTEIN OF BROILERS FED WITH RICE BRAN BASED DIETS

K.G.P. Prasanna¹, S.S.P. Silva² and W.A.D. Nayananjali¹

¹ *Department of Agricultural Systems, Faculty of Agriculture, Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka.*

² *Animal Nutrition Division, Veterinary Research Institute, Peradeniya, Sri Lanka.*

Poultry is one of the fastest growing sectors in the country with an annual growth rate of 15% to 18%. With the expanding of poultry sector, demand for high quality feed is increasing. To cater this increasing demand, most of the time, country imports required feed ingredients. Feed formulated with imported ingredients are expensive. To minimize the high cost of feeds, low cost and locally available substitutes can be used in feed formulation. Rice bran is a good source of energy, protein, fat, minerals and vitamins but, it suffers from a problem associated with nutrient digestibility. There is a high potential to produced good quality feed with rice bran that is being supplemented with enzymes. The aim of this study was to investigate the effect of an enzyme cocktail composed of protease and lipase on the performance and nutrient utilization of broilers fed on a rice-bran based feed.

Four identical diets were formulated with different levels of rice bran (0, 20, 30 & 40%) and were supplemented with a commercially available enzyme at the rate of 200 g/ton in pair with the commercial recommendation. Three hundred and twenty, day old broiler chicks were fed on commercial broiler starter feed for the first 12 days and were randomly allocated to eight different treatments on day 12. Birds were reared in metabolism cages and each treatment was replicated eight times with five birds per each. Excreta samples were collected during 21-24 days and 38-42 days. Feed intake, body weight and excreta weight were recorded. Feed samples and excreta samples were chemically analyzed to determined digestibility of fats and protein. Data was analyzed using Genstat Statistical package. The effects of enzyme, level of rice bran and their interaction were analyzed using two-way ANOVA with randomized blocks.

Results demonstrated that, an exogenous enzymes containing lipase and protease was not much effective in improving the performance in digesting fat and protein of broiler chicks fed with rice bran based feed. The level of rice bran was directly having an effect on the digestibility of fat and protein. Overall result of digestibility had a significant difference ($P < 0.05$) with rice bran levels. Results revealed that, the 20% rice bran level had the best digestibility of protein. Also digestibility of fat increased gradually with the level of rice bran. But, there was no significant difference ($p > 0.05$) in digestibility of fat and protein with the enzymes. There is no effect on digestibility of crude fat and crude protein with use of the particular enzymes with rice bran based feeds in broiler at least at the rates used. There is a clear effect of levels of rice bran in the diet on

digestibility. Digestibility of crude protein is higher in 20% rice bran based broiler feeds and digestibility of crude fat gradually increased with the levels of rice bran.

Key words: Broiler, Rice bran, Broiler feed, Lipase, Protease