

THE EFFECT OF PHYTASE SUPPLEMENTATION AND DIFFERENT LEVELS OF PROTEIN ON THE PERFORMANCE OF BROILER FED RICE BRAN BASED DIETS

A.R. Alimon and M.A. Ukil

*Department of Animal Science, Faculty of Agriculture
Universiti Putra Malaysia, 43400 UPM, Serdang, Selangor,
Malaysia*

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Introduction

Rice bran is not normally included in broiler ration at higher than 15 % level. This is because of the slightly high level of crude fibre and most important due to the content of phytic acid-phosphorus complex, which renders the phosphorus unavailable to poultry. As a result the absorption and utilisation of phosphorus may be affected. The phytate complex is also known to reduce the utilisation of protein and amino acids and therefore would affect protein digestibility. The present study examined the effect of supplemental phytase on the performance of broiler finisher fed high levels of rice bran.

Materials and Methods

In a 2x2 factorial experiment, 288 straight run Arbor Acres broiler chicks were distributed randomly to eight dietary treatments with each treatment being replicated six times. The birds were placed in cages containing six birds per cage with floor space according to requirement. They were given a commercial ration for 21 days after which they were given the respective experimental diets. The diets contained two levels of protein (18 vs 20 %) and four levels of phytase (3540, 700, 1050 and 1400 IU per kg diet). The diets were

isocaloric and contained 3198 Mcal ME/kg. The feeds were given daily and dry matter intake determined on a weekly basis. Water was made available at all times. The feeding trial was carried out until they were 42 days old after which an *in vivo* digestibility trial was performed. At the end of the digestibility trial the birds were slaughtered and samples of ileal contents were collected.

Results and Discussion

In general there were no significant differences in the effect of two levels of protein or the effect of level of phytase. However, there was an increase in feed intake for birds on 18 % crude protein, and a significant difference in intake due to phytase when the birds were 28-35 days of age. Feed intake was lowest with 700 IU phytase supplemented and highest with 350 IU. Higher levels of phytase did not affect intake significantly. In general the weight gains of birds fed 20 % CP was significantly higher at 700 IU phytase supplementation. The feed conversion ratio were similarly not affected by phytase or protein levels. However, over the whole period, the FCR was better at 700 and 1050 IU phytase supplementation for birds fed 20 % CP (2.1 and 2.2 respectively). For birds on 18 % CP the FCR ranged from 2.38-2.48 with different levels of phytase supplementation. Preliminary results of the protein and amino acid digestibility studies indicated that there appeared to be an improvement in their digestibility and therefore utilisation.

Conclusions

It can be concluded that phytase supplementation did not significantly affect intake, growth and FCR of birds fed rice bran based diets. However, supplementation at 700 and 1050 IU/kg appeared to improved weight gains and FCR, especially when the CP content of the diets was 20 %.