

THE EFFECT OF DIFFERENT LEVELS OF PHYTASE ENZYME AND ORGANIC ACID ON JEJUNAL AND ILEAL MORPHOLOGY OF BROILERS FED LOW PHOSPHOROUS DIETS

Siamak Shojaei, Seyed Ali Tabeidian, Majid Toghyani

Department of Animal Science, Khorasgan Branch (Isfahan), Islamic Azad University, Isfahan, Iran
Corresponding Author E-mail: siamak_shojaie@yahoo.com

INTRODUCTION

Since monogastrics particularly poultry has no effective endogenous phytase, 60 to 70 percent of phosphorous existed in feed has been not available in ration based on oilseed and cereals. Therefore, poultry ration has been supplemented with phytase enzyme. On the other hands, the efficiency of phytase enzyme depends on intestinal pH, which is effective in pH between 2.5 or 5. To cause the optimal pH, Organic acids have been used. So, the current study was carried out to evaluate the effect of different levels of phytase enzyme and organic acid on jejunal and ileal morphology of broilers fed low phosphorous diets.

MATERIALS AND METHODS

A total of 336 Ross 308 broiler chicks were randomly assigned into the 7 experimental treatments with 4 replicates of 12 birds each. Experimental treatments consisted of 2 levels of phytase (0, 500 IU/kg) and three levels of organic acid (0, 600 and 1000 g/ton) in P-deficient diets and a positive control containing Ross308 recommendation level of phosphorus. to evaluate the intestinal morphology, 2 birds of each cage were slaughtered at 28 d of age and 2 cm of jejunal and ileal samples were exactly separated. Afterthat, tissue samples were fixed in lamella and stained to evaluate the intestinal height and crypt depth.

RESULTS AND DISCUSSION

Results of trial showed that dietary inclusion of phytase and organic acid had no significant effect on villus height in ileum and jejunum of broilers fed on low-phosphoroud diets. In addition, crypt depth was uninfluenced by dietary supplementation of phytase enzyme and organic acid in birds received low-phosphorous diets. Inclusion of phytase and organic acid to low phosphorous diets did not affect villi height to crypt depth ratio (VH:CD); but it was numerically improved by dietary treatments. This might be attributed to stimulatory activity of villi growth and microbial decreasing effect of dietary organic acids and phytase (Jahanian et al., 2011).

Key words: phytase, organic acid, intestinal morphology, broilers

REFERENCES:

- Jahanian R. 2011. Effect of varying levels of butyric acid glycerides on performance, immune responses and jejuna epithelium morphology of broiler chicks. European Symposium on Poultry Nutrition, Izmir, turkey, Oct-Nov 29-4, pp. 213-215.



The 1st International Conference on New Ideas in Agriculture
Islamic Azad University Khorasgan Branch
26-27 Jan. 2014, Isfahan, Iran

