

EFFECT OF TYPE AND SELECTIVE FEEDING OF FIBER ON GUT MORPHOLOGY IN BROILER CHICKENS

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INTRODUCTION

Dietary fiber can be define as components of plants, which are resistant to digestion by endogenous enzymes and consists of non-digestible carbohydrates and lignin that are intrinsic and intact in plants. The functional fiber refers to isolated, extracted, or synthetic fiber that they can provide health benefits, with several physiological functions (Bersamin *et al.*, 2008). The objective of the present study was to investigate the effect of type and selective feeding of fiber on gut morphology in broiler chickens.

MATERIAL AND METHODS

Four hundred and twenty four one-day old broiler chicks (Ross 308) were used in this study in randomized complete design with seven treatments and five replicates for each treatment. The treatments included A: control diet, B: control diet with 3% soluble fiber, C: control diet with 3% insoluble fiber, D: control diet with 3% complex fiber (soluble and insoluble), E: control diet and selective soluble fiber, F: control diet and selective insoluble fiber, G: control diet and selective soluble and insoluble fiber. Intestinal morphology traits (villus height and crypt depth) were measured at 21d and sampled from duodenum, jejunum and ileum) as a bird per each replicates.

RESULTS AND DISCUSSION

Thr results shown that adding insoluble and complex fiber in diets significantly decreased duodenal villus height than control diet ($P<0.05$). Jejenal villus height significantly decreased by treatment D. However, adding and selective complex fiber (D and G groups) significantly decreased jejenal crypt depth ($P<0.05$). The intestinal mucosal architecture can reveal useful information on the intestinal function. Increasing villus height suggests an increased surface area for greater absorption of available nutrients (Awad *et al.*, 2008). Sarikhan *et al.* (2010) in contrast with this results reported that using 0.75% insoluble raw fiber concentrate increased villus height and villus height to crypt depth ratio at 21 d.

Key words: soluble fiber, insoluble fiber, intestinal morphology, broilers

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