

Title *Comparison of Histological Alterations in Intestinal Mucosa and Morphometry of Different Organs in Two Strains of Broiler Under Selected Dietary Conditions*

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Year 2012 **Pages** 45p. **Thesis No.** 1543

Abstract:

Organic acid are well known for their positive influence on the histomorphology of different organs of broiler birds. Present study aims to evaluate the effect of organic acid (formic acid and propionic acid) on histomorphology of two strains of broiler used in Pakistan. One hundred and twenty day old broiler chicks were divided into 4 groups (n=30). Out of 120 day old broiler chicks, 60 birds of Hubbard strain divided in two groups and remaining 60 birds comprising of Cobb strain and also divided in two groups. These Hubbard and Cobb strains further divided into Hubbard organic acid supplemented group (HOAS), Hubbard non-supplemented (HNS), Cobb organic acid supplemented group (COAS) and Cobb non-supplemented group (CNS).

All non-supplemented groups were fed a corn-soya based basal diet and supplemented groups were fed same diet with addition of organic acid (formic acid 70% and propionic acid 30%) in the ratio of 1gm per Kg of diet. At 21 day, fifteen birds of each group were slaughtered and measurements, weight of heart, liver, gizzard, proventriculus, small intestine and large intestine and also length of small and large intestine, were taken. Samples from all three segments of small intestine of all groups were processed for measurements of villus height by H&E staining. Same procedure was repeated after 42 days for remaining birds. Results showed that the organs of organic acid supplemented birds gained more weight than non-supplemented groups and supplemented birds gained more villus height than the non-supplemented groups. There was no significant difference of results showed between two strains of broiler except in case of villus length of duodenum and jejunum. All the results were same for both age groups (21 & 42 days).

It could be concluded from the results that organic acid has beneficial effect on the growth of different organs of broiler birds and supplementation with organic acid can positively influence the height of villus of small intestine but there is no significant difference between two strains of broiler in case of organic acid supplemented birds as well as non-supplemented group in case of villus length of duodenum and jejunum where hubbard strain of broiler perform significantly better than cobb strain of broiler. Hence organic acid improved the histomorphology of different organs of broiler birds which resulted in more absorption and utilization of nutrients which further led to improved growth performance of broiler birds.
