

Partial ablation of uropygial gland effects on growth hormone concentration and digestive system histometrical aspect of Akar Putra chicken

ABSTRACT

Partial ablation of the uropygial gland is being used in the poultry industry as a new way to enhance body performance of chickens. However, limited data are available estimating the efficacy of partial uropygialectomy (PU) to improve body organ activity. The present study evaluated the effect of partial ablation of the uropygial gland on the serum growth hormone concentration level and digestive system histology of 120 Akar Putra chickens in 5 trials with 3 replicates per trial. The experimental treatments consisted of a control treatment T1; partial ablation of the uropygial gland was applied in the T2, T3, T4, and T5 treatments at 3, 4, 5, and 6 wk of age, respectively. Feed and water were provided ad libitum. All treatment groups were provided the same diet. Venous blood samples were collected on wk 7, 10, and 12 to assay the levels of growth hormone concentration. On the last d of the experiment, 4 birds per replicate were randomly isolated and euthanized to perform the necropsy. Digestive system organs' cross sections were measured by a computerized image analyzer after being stained with haematoxylin and eosin. In comparison with the control group, surgical removal of the uropygial gland, especially at wk 3, had a greater ($P < 0.01$) effect on the total duodenum, jejunum, and ilium wall thickness. In addition, effects ($P < 0.05$) were observed on the wall thickness of malesø cecum and colon. Moreover, the wall layers of the esophagus, proventriculus, gizzard, and rectum were not affected by the treatment. However, removing the uropygial gland showed significant impact ($P < 0.05$) in malesø growth hormone concentration level at wk 7 and ($P < 0.01$) effects at wk 12 in both sexes. This study provides a novel and economic alternative to enhance the body performance of poultry in general and Akar Putra chickens particularly.

Keyword: Growth hormone; Uropygial gland; Akar putra chicken