

ABSTRACT

Nabila Syalist Fitria. 24020120120014. Histological Structure of Broiler Duodenum after Inclusion of a Combination of Spirulina Flour Additive and Liquid Nanochitosan. Supervised by Sunarno and Kasiyati.

Spirulina is a microalgae of protein, fat, carbohydrates, minerals, chlorophyll-a, phycocyanin, beta carotene, linoleic acid, and vitamins. Nanokitosan is a polymer compound derived from chitin which is composed of amine groups, primary and secondary carboxylates. The use of these two additives has a role in increasing digestion, absorption, and improving the duodenal structure of broiler. The study aimed to analyze the effect of a combination of spirulina flour additives and liquid nanocytosan and their interaction on the histological structure of the duodenum of broiler. The research design used was a completely randomized design (CRD) 3x2 factorial pattern with 4 replicates. The first factor was spirulina flour at 0%, 3%, and 6%. The second factor was liquid nanocytosan at 0% and 5%. The variables observed and measured were duodenal weight and length, villus height, epithelial layer thickness, muscular layer thickness, and lumen diameter. The data were analyzed by ANOVA at 5% significance level. The results showed spirulina flour without nanokitosan had an effect on lumen diameter ($P < 0.05$). Nanocytosan without spirulina flour had no effect on duodenal length, villi height, epithelial layer thickness, muscularis layer thickness, and lumen diameter ($P > 0.05$). The combination of spirulina flour and nanocytosan gave a significant effect on duodenal weight ($P < 0.05$), but had no effect on duodenal length, villi height, epithelial layer thickness, muscularis layer thickness, and lumen diameter. The study concluded that the combination of spirulina flour and liquid nanocytosan can increase lumen diameter and duodenal weight, without an increase in duodenal length, villi height, epithelial layer thickness, and muscularis layer thickness

Keywords: epithelial layer, lumen duodenal, muscularis layer, villi duodenal