

## ABSTRAK

### **GAMBARAN HISTOLOGIS SEKUM AYAM PETELUR (*Gallus gallus domesticus*) DENGAN PEMBERIAN IMBUHAN PAKAN *Lactobacillus sp.***

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Penggunaan *antibiotic growth promoter* (AGP) pada ternak untuk meningkatkan produktivitas resmi dilarang di Indonesia karena adanya kasus resistensi antimikroba dan berpotensi meninggalkan residu antibiotik pada produk asal hewan. Perlu dikaji sebuah alternatif pengganti AGP sebagai *feed additive* probiotik *Lactobacillus sp.* Penelitian dilakukan untuk mempelajari pengaruh pemberian *Lactobacillus sp.* terhadap gambaran histologi sekum pada ayam petelur.

Penelitian ini menggunakan 6 ekor ayam petelur strain Isa Brown umur 14 minggu yang dibagi menjadi dua kelompok masing-masing 3 ekor. Kelompok kontrol (I) tidak diberi imbuhan pakan dan kelompok perlakuan (II) diberi *Lactobacillus sp.* sebanyak 10 ml dicampur dalam 800 g pakan setiap pagi selama 8 minggu. Setelah perlakuan, ayam dan dinekropsi untuk diambil organ sekum, kemudian sekum difiksasi pada *buffer* formalin 10%. Sekum diproses dengan metode parafin dan pewarnaan dengan hematoksilin-eosin (HE), kemudian diamati di bawah mikroskop cahaya yang dilengkapi Optilab. Hasil pengamatan dianalisis secara deskriptif dan secara statistik dengan mengolah data jumlah sel Goblet dan tinggi vili menggunakan SPSS 27.0 dengan uji *T-Test*.

Hasil penelitian menunjukkan bahwa penambahan *Lactobacillus sp.* pada pakan menyebabkan proliferasi sel epitel, beberapa lamina epitelialis berkelok-kelok. Terdapat peningkatan jumlah sel Goblet dan tinggi vili secara signifikan ( $P < 0,05$ ) dibandingkan kontrol. Dapat disimpulkan, penambahan *Lactobacillus sp.* sebagai probiotik meningkatkan luas bidang penyerapan nutrisi pada sekum ayam petelur berupa proliferasi sel epitel, beberapa lamina epitelialis berkelok-kelok, peningkatan jumlah sel Goblet, dan peningkatan tinggi vili sehingga berpotensi sebagai *growth promoter*.

**Kata kunci:** ayam petelur, *Lactobacillus sp.*, probiotik, sekum, vili

## ABSTRACT

### **HISTOLOGICAL STUDY OF THE CECUM OF LAYER CHICKENS (*Gallus gallus domesticus*) USING *Lactobacillus sp.* PROBIOTICS**

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Using antibiotic growth promoters (AGP) in livestock to increase productivity is officially prohibited in Indonesia due to cases of antimicrobial resistance and the potential as antibiotic residues in livestock products. Need to study an alternative replacement the AGP as feed additives such as *Lactobacillus sp.* as probiotic. This research was conducted to determine the effect of *Lactobacillus sp.* as a feed additive on the histological features of the cecum in layer chicken.

This study used 6 chicken 14 weeks old, strain Isa Brown that divided into two groups each consisted 3 chicken. The control group (I) was feed with normal chicken food and the treatment group (II) was treated with 10 ml *Lactobacillus sp.*, mixed in 800 g of feed every morning for 8 weeks. After the treatment, the chicken were slaughtered and necropsied to collect the cecum, and then the cecum was fixed in 10% formalin buffer. The cecum were processed using paraffin method and stained with hematoxylin-eosin (HE), then observed using a light microscope equipped with Optilab. Changes of histological cecum were analyzed descriptively and measurement of Goblet cells and villi intestinalis height analyzed statistically using the SPSS 27.0 with T-Test method.

The results showed that food addition of *Lactobacillus sp.* caused epithelial cell proliferation, folded some lamina epithelial. There were increased number of Goblet cells and villi height significantly ( $P < 0,05$ ) compared to the control group. In conclusion, addition of *Lactobacillus sp.* as probiotic increased area of nutrition absorption in layer chicken's cecum such as epithelial cell proliferation, folded some lamina epithelial, increased number of Goblet cells, and increased villi height so it can potentially used as growth promoter.

**Keywords:** layer chicken, *Lactobacillus sp.* probiotic, cecum, villi