

ABSTRAK

ISOLASI DAN KARAKTERISASI BAKTERI KANDIDAT PROBIOTIK PADA USUS HALUS AYAM PETELUR (*GALLUS GALLUS DOMESTICUS*)

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Performa dan produktivitas telur dapat dipengaruhi secara langsung oleh kesehatan saluran pencernaan pada ayam petelur. Probiotik merupakan mikroba yang bermanfaat dalam memperbaiki keseimbangan mikroba di dalam saluran pencernaan. Penelitian ini bertujuan untuk mengisolasi dan mengkarakterisasi bakteri kandidat probiotik dari usus halus ayam petelur.

Sebanyak lima ekor ayam petelur sehat strain Isa Brown berumur 10 minggu digunakan dalam penelitian ini. Metode penelitian meliputi pengambilan sampel dari usus halus (duodenum, jejunum, ileum) untuk diisolasi dan karakterisasi bakteri melalui pengamatan morfologi koloni, morfologi sel, serta uji biokimia dan fisiologi meliputi fermentasi karbohidrat, motilitas, katalase, urease, NaCl, dan ketahanan terhadap lingkungan asam.

Dari duodenum 50% sel bakteri berbentuk batang Gram negatif, 30% batang Gram positif, dan 20% berbentuk kokus Gram positif. Jejunum, 30% sel berbentuk batang Gram negatif, 10% berbentuk kokus Gram negatif, 10% memiliki berbentuk batang Gram positif, dan 50% berbentuk kokus Gram positif. Ileum bakteri batang Gram positif dan batang Gram negatif sama. Dari enam belas isolat Gram positif (batang/kokus) setelah dilakukan uji biokimia dan fisiologis lebih lanjut ditemukan satu isolat bakteri kandidat probiotik dari organ jejunum kode 1B sebagai bakteri asam laktat (BAL) genus *Lactobacillus*.

Kata Kunci: Duodenum, jejunum, ileum, probiotik, bakteri asam laktat

ABSTRACT

ISOLATION AND CHARACTERISATION OF PROBIOTIC CANDIDATE BACTERIA IN THE SMALL INTESTINE OF LAYERING HENS (GALLUS GALLUS DOMESTICUS)

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The performance and productivity of eggs can be directly influenced by the health of the digestive tract in laying hens. Probiotics are beneficial microorganisms that help improve the microbial balance in the digestive tract. This study aims to isolate and characterize potential probiotic bacteria from the small intestine of laying hens (*Gallus gallus domesticus*).

A total of five healthy laying hens of the Isa Brown strain, aged 10 weeks, were used in this research. The methodology involved sampling from the small intestine (duodenum, jejunum, ileum) of the laying hens and characterizing the bacteria through observation of colony morphology, cell morphology using Gram staining, as well as biochemical and physiological tests such as carbohydrate fermentation, motility, catalase, urease, NaCl, and acid tolerance.

From the duodenum, 50% of the bacterial cells were rod-shaped Gram-negative, 30% were rod-shaped Gram-positive, and 20% were cocci-shaped Gram-positive. In the jejunum, 30% of the cells were rod-shaped Gram-negative, 10% were cocci-shaped Gram-negative, 10% were rod-shaped Gram-positive, and 50% were cocci-shaped Gram-positive. The ileum showed an equal distribution of Gram-positive and Gram-negative rod-shaped bacteria. Among the sixteen Gram-positive isolates (rod/coccus), further biochemical and physiological tests showed that one bacterial isolate from the jejunum organ with the code 1B was identified as a candidate probiotic bacteria, belonging to the genus *Lactobacillus* and classified as a lactic acid bacteria (LAB).

Keyword: Duodenum, jejunum, ileum, probiotics, lactic acid bacteria