

ABSTRAK

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ANALISIS KANDUNGAN *Lactobacillus* sp. DAN ISOLASI *Lactobacillus delbrueckii* DARI SUSU SAPI LOKAL

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(xv + 56 halaman; 3 gambar; 5 tabel; 2 lampiran)

Susu sapi mengandung banyak nutrisi yang baik bagi kesehatan manusia dan berbagai jenis mikroba salah satunya bakteri asam laktat seperti *Lactobacillus* sp. Pada penelitian ini dilakukan analisis kandungan *Lactobacillus* sp. dan isolasi *Lactobacillus delbrueckii* dari susu sapi lokal. Isolasi dilakukan dengan metode *spread* pada agar MRS kemudian koloni yang tumbuh dihitung. Selanjutnya, pemurnian dilakukan dengan metode *four-way streak*. Morfologi koloni dari isolat murni diamati secara langsung pada MRS agar, sedangkan morfologi sel diamati melalui pewarnaan Gram, endospora dan tahan asam. Selanjutnya, isolat dikarakterisasi secara biokimia melalui uji katalase dan uji fermentasi gula. Hasil yang diperoleh menunjukkan bahwa sampel susu sapi mengandung bakteri asam laktat sebanyak $6,99 \times 10^4$ CFU/ml. Sebanyak 50 isolat memiliki morfologi koloni seperti *Lactobacillus*, yaitu berwarna putih, berbentuk bulat, elevasi raised atau convex, dan margin entire. Sebanyak 35 dari 50 isolat menunjukkan morfologi sel *Lactobacillus*, yaitu berbentuk batang, Gram positif, tidak menghasilkan endospora dan tidak tahan asam. Selain itu, aktivitas katalase tidak terdeteksi pada 35 isolat tersebut. Berdasarkan uji fermentasi gula, sebanyak 15 isolat mampu fermentasi glukosa dan sukrosa sehingga diduga sebagai *L. delbrueckii* dan *L. acidophilus*, sebanyak 16 isolat hanya mampu fermentasi glukosa sehingga diduga sebagai *L. helveticus*. Namun, karakterisasi lebih lanjut dan identifikasi molekuler perlu dilakukan untuk memastikan spesies dari isolat-isolat yang diperoleh. Hasil penelitian ini mengindikasikan bahwa susu sapi adalah sumber yang baik untuk mendapatkan bakteri jenis *Lactobacillus* yang berpotensi sebagai probiotik.

Kata kunci: susu sapi, bakteri asam laktat, *Lactobacillus delbrueckii*, probiotik

Referensi: 49 (1994-2021)

ABSTRACT

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ANALYSIS of *Lactobacillus* sp. CONTENT AND *Lactobacillus delbrueckii* ISOLATION FROM LOCAL COW'S MILK

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(x + 56 pages; 3 pictures; 5 tables; 2 appendices)

Cow's milk contains many nutrients that are good for human health and various types of microbes, one of which is lactic acid bacteria such as *Lactobacillus* sp. In this study, an analysis of the content of *Lactobacillus* sp. and isolation of *Lactobacillus delbrueckii* from local cow's milk. Isolation was carried out by the spread method on MRS agar and then the colonies that grew were counted. Furthermore, purification was carried out by the four-way streak method. Colony morphology of pure isolates was observed directly on MRS agar, while cell morphology was observed through Gram staining, endospores and acid resistance. Furthermore, the isolates were characterized biochemically through the catalase test and the sugar fermentation test. The results obtained showed that the cow's milk sample contained lactic acid bacteria as much as 6.99×10^4 CFU/ml. A total of 50 isolates had colony morphology like *Lactobacillus*, which were white, round in shape, raised or convex elevation, and entire margin. As many as 35 of the 50 isolates showed the morphology of *Lactobacillus* cells, which were rod-shaped, Gram-positive, did not produce endospores and were not acid-fast. In addition, catalase activity was not detected in these 35 isolates. Based on the sugar fermentation test, 15 isolates were able to ferment glucose and sucrose so that it was suspected as *L. delbrueckii* and *L. acidophilus*, as many as 16 isolates were only able to ferment glucose, so it was suspected as *L. helveticus*. However, further characterization and molecular identification need to be done to ascertain the species of the isolates obtained. The results of this study indicate that cow's milk is a good source for obtaining *Lactobacillus* bacteria which have the potential as probiotics.

Keywords: cow milk, lactic acid bacteria, *Lactobacillus delbrueckii*, probiotic

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