

ABSTRACT

Danish Andrian (00000007158)

ISOLATION AND CHARACTERIZATION OF *Lactobacillus* sp. FROM LOCAL COW'S MILK AS PROBIOTIC CANDIDATES

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(xiii + 65 pages: 11 figures; 4 tabels; 10 appendixes)

The genus *Lactobacillus* are a major constituent of the lactic acid bacteria group. Almost all of the *Lactobacillus* species are reported to be probiotic. Cow's milk provides a natural habitat of *Lactobacillus*. Isolation of *Lactobacillus* from Indonesia's local cow's milk is under-reported. This research aims to isolate *Lactobacillus* and evaluate their potentials as probiotic. Isolation *Lactobacillus* were done through colony's and cell's morphology observation and traditional biochemical analysis. Characterization after the isolated *Lactobacillus* were done through different condition of temperature (10°C and 45°C), NaCl salinity (2%, 4%, 5%), and ability to ferment various types of sugars (monosaccharide: glucose & lactose, polysaccharide: lactose, maltose, sucrose, raffinose, mannitol, sorbitol). Identification of strains were conducted through 16S rRNA sequencing. Probiotic profiling includes: acidity tolerance, bile salt tolerance, antibacterial activity, coaggregation ability and antibiotic susceptibility evaluation. The results are *Lactobacillus delbrueckii* DRZ94/L4, *Lactobacillus casei* DRZ97/L3, dan *Lactobacillus fermentum* DRZ107/L1. The three isolates have different probiotic properties. Further researches are required to support those isolates as a safe probiotic to be used.

Keywords: Isolation, characterization, *Lactobacillus*, probiotic.

References: 76 (2017 - 1906).

ABSTRAK

Danish Andrian (00000007158)

ISOLASI DAN KARAKTERISASI *Lactobacillus* sp. DARI SUSU SAPI LOKAL SEBAGAI KANDIDAT PROBIOTIK

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(xiii + 65 halaman: 11 gambar; 4 tabel; 10 lampiran)

Genus *Lactobacillus* merupakan bakteri asam laktat dengan hampir seluruh spesies tergolong probiotik. Diketahui bahwa susu sapi merupakan salah satu habitat alami dari *Lactobacillus*. Penelitian ini bertujuan untuk mengisolasi kandidat probiotik dari genus *Lactobacillus* yang berasal dari susu sapi dan mengevaluasi potensi sebagai probiotik, yang sejauh ini belum dilakukan di Indonesia. Pendekatan awal metode untuk mendapatkan kandidat probiotik yaitu isolasi; karakterisasi; dan identifikasi berdasarkan isolasi dan seleksi awal; karakterisasi suhu (10°C and 45°C), NaCl (2%, 4%, 5%), dan uji fermentasi gula (monosakarida: glukosa & laktosa, polisakarida: laktosa, maltosa, sukrosa, rafinosa, manitol, sorbitol). Identifikasi *strain* dilakukan dengan metode 16S. Lalu, karakterisasi sifat probiotik yang dilakukan mencakup, yaitu analisis toleransi terhadap pH rendah; toleransi terhadap garam empedu; aktivitas antibakteri; koagregasi; serta resistensi antibiotik. Hasil yang diperoleh adalah tiga kandidat probiotik, yaitu *Lactobacillus delbrueckii* DRZ94/L4, *Lactobacillus casei* DRZ97/L3, dan *Lactobacillus fermentum* DRZ107/L1. Dari hasil analisa, ketiga isolat memiliki sifat probiotik yang berbeda – beda. Dibutuhkan penelitian lebih lanjut untuk mendukung isolat sebagai probiotik yang aman digunakan.

Kata kunci: Isolasi, karakterisasi, *Lactobacillus*, probiotik.

Referensi: 76 (2017 - 1906).