

**ISOLATION AND CHARACTERIZATION OF LACTIC ACID BACTERIA FROM  
PRESERVED WHITE RADISH (*Rhapanus sativus* L.) AS ANTIBACTERIAL  
AGENT AGAINST *Escherichia coli* AND *Staphylococcus aureus***

**Abstract**

Preserved white radish is a fermented foods that contains lactic acid bacteria. Lactic acid bacteria produce several antibacterial compounds, one of which is bacteriocin to inhibit other microorganisms including pathogenic bacteria. This research was conducted to isolate and characterize lactic acid bacteria from preserved white radish and tested for antibacterial activity against *Escherichia coli* and *Staphylococcus aureus*. Isolation of lactic acid bacteria by *pour plate* method in *deMan Rogose Sharpe* medium with calcium carbonate (CaCO<sub>3</sub>) addition. Isolates of LAB are identified based on *Bergey's Manual of Determinative Bacteriology*, which are suspected to contain 2 genera of lactic acid bacteria, i.e. Genus *Lactobacillus* and Genus *Pediococcus*. Based on the results, the Genus *Lactobacillus* was suspected to be *Lactobacillus brevis* (isolate LA3) and *Lactobacillus plantarum* (isolate LA4). The antibacterial test using the agar diffusion method generated the greatest inhibitory activity against *Escherichia coli* was shown by isolate LA1 (*Pediococcus sp*) with an inhibition zone of 3.53 mm at 72 hours of fermentation and the greatest inhibitory activity against *Staphylococcus aureus* was shown by isolate LA3 (*Lactobacillus brevis*) at 72 hours fermentation with an inhibition zone of 1.13 mm. The results of the inhibition zone are in the weak category, namely  $\leq 5$  mm.

Key words : Antibacterial, Lactic acid bacteria, Preserved white radish

**ISOLASI DAN KARAKTERISASI BAKTERI ASAM LAKTAT ASAL LOBAK  
PUTIH ASIN (*Rhapanus sativus* L.) SEBAGAI AGEN ANTIBAKTERI  
TERHADAP *Escherichia coli* DAN *Staphylococcus aureus***

**Abstrak**

Lobak putih asin merupakan salah satu makanan fermentasi yang mengandung bakteri asam laktat. Bakteri asam laktat menghasilkan beberapa senyawa antibakteri salah satunya adalah bakteriosin untuk menghambat mikroorganisme lainnya termasuk bakteri patogen. Penelitian ini telah dilakukan untuk mengisolasi dan mengkarakterisasi bakteri asam laktat dari lobak putih asin dan diuji aktivitas antibakteri terhadap *Escherichia coli* dan *Staphylococcus aureus*. Isolasi bakteri asam laktat menggunakan metode *pour plate* pada media *deMan Rogose Sharpe* dengan penambahan Kalsium karbonat ( $\text{CaCO}_3$ ). Isolat BAL yang diperoleh dan diidentifikasi berdasarkan *Bergey's Manual of Determinative Bacteriology* diduga terdapat 2 genus bakteri asam laktat yaitu Genus *Lactobacillus* dan Genus *Pediococcus*. Hasil Genus *Lactobacillus* diduga *Lactobacillus brevis* (isolat LA3) dan *Lactobacillus plantarum* (isolat LA4). Uji antibakteri dengan menggunakan metode difusi agar yang menghasilkan aktivitas penghambatan terbesar terhadap *Escherichia coli* ditunjukkan isolat LA1 (*Pediococcus sp*) dengan zona penghambatan 3,53 mm pada waktu fermentasi 72 jam dan aktivitas penghambatan terbesar terhadap *Staphylococcus aureus* ditunjukkan isolat LA3 (*Lactobacillus brevis*) pada waktu fermentasi 72 jam dengan zona penghambatan 1,13 mm. Hasil zona hambat tersebut termasuk kategori lemah yaitu  $\leq 5$  mm.

Kata kunci: Antibakteri, Bakteri asam laktat, Lobak putih asin