

**FAKULTAS KEDOKTERAN DAN ILMU KESEHATAN  
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**Isolasi Dan Karakterisasi Bakteri Asam Laktat Dari Tape Singkong (*Manihot esculenta fermentatum*) Tradisional Makassar Serta Uji Daya Hambat In Vitro Terhadap Pertumbuhan *Escherichia coli***

**ABSTRAK**

**Latar Belakang:** Penyakit infeksi yang disebabkan oleh *Escherichia coli* masih menjadi masalah kesehatan masyarakat, terutama dengan meningkatnya resistensi antibiotik. Produk fermentasi tradisional seperti tape singkong diketahui mengandung bakteri asam laktat (BAL) yang berpotensi menghasilkan senyawa antimikroba, sehingga berpeluang menjadi sumber agen antibakteri alami. **Tujuan:** Mengetahui hasil isolasi dan karakterisasi bakteri asam laktat dari tape singkong tradisional Makassar serta mengevaluasi potensi aktivitas antibakterinya terhadap *Escherichia coli* secara in vitro. **Metode:** Penelitian ini merupakan penelitian eksperimental laboratorium. Isolasi dilakukan dengan menanam air rendaman tape pada media MRS agar. Koloni yang tumbuh diamati secara makroskopis dan mikroskopis menggunakan pewarnaan Gram. Uji aktivitas antibakteri dilakukan dengan metode difusi sumuran menggunakan konsentrasi 25%, 50%, 75%, dan 100%. Kloramfenikol digunakan sebagai kontrol positif dan aquadest sebagai kontrol negatif. Diameter zona hambat diukur dalam milimeter. **Hasil:** Isolasi pada media MRS agar menunjukkan pertumbuhan koloni berwarna putih, berbentuk bulat, dengan karakter Gram positif berbentuk batang yang sesuai dengan

karakteristik bakteri asam laktat. Namun, pada uji antibakteri terhadap *Escherichia coli*, seluruh konsentrasi air rendaman tape (25%, 50%, 75%, dan 100%) tidak menunjukkan terbentuknya zona hambat (0 mm). Kontrol positif menunjukkan zona hambat yang jelas, sedangkan kontrol negatif tidak menunjukkan hambatan pertumbuhan. **Kesimpulan:** Tape singkong tradisional Makassar terbukti mengandung bakteri dengan karakteristik yang sesuai dengan bakteri asam laktat. Akan tetapi, air rendaman tape yang diuji tidak menunjukkan aktivitas antibakteri terhadap *Escherichia coli* dengan metode difusi sumuran.

**Kata Kunci:** Tape singkong, bakteri asam laktat, isolasi, karakterisasi, antibakteri, *Escherichia coli*.



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**Isolation And Characterization Of Lactic Acid Bacteria From Traditional Makassar Cassava Tape (*Manihot esculenta fermentatum*) And In Vitro Inhibition Test Against The Growth Of *Escherichia coli***

ABSTRACT

**Background:** Infectious diseases caused by *Escherichia coli* remain a public health concern, particularly with the increasing prevalence of antibiotic resistance. Traditional fermented products such as cassava tape are known to contain lactic acid bacteria (LAB), which have the potential to produce antimicrobial compounds and may serve as natural antibacterial agents. **Objective:** To determine the results of isolation and characterization of lactic acid bacteria from traditional Makassar cassava tape and to evaluate their potential antibacterial activity against *Escherichia coli* in vitro. **Methods:** This study was a laboratory experimental research. Isolation was performed by inoculating cassava tape soaking water onto de Man, Rogosa, and Sharpe (MRS) agar medium. The grown colonies were observed macroscopically and microscopically using Gram staining. Antibacterial activity was tested using the well diffusion method at concentrations of 25%, 50%, 75%, and 100%. Chloramphenicol was used as a positive control, and distilled water was used as a negative control. The diameter of inhibition zones was measured in millimeters. **Results:** Isolation on MRS agar showed the growth of white, circular

colonies with Gram-positive rod morphology consistent with the characteristics of lactic acid bacteria. However, in the antibacterial assay against *Escherichia coli*, all concentrations of cassava tape soaking water (25%, 50%, 75%, and 100%) showed no inhibition zones (0 mm). The positive control produced a clear inhibition zone, while the negative control showed no growth inhibition. **Conclusion:** Traditional Makassar cassava tape contains bacteria consistent with the characteristics of lactic acid bacteria. However, the cassava tape soaking water tested did not exhibit antibacterial activity against *Escherichia coli* using the well diffusion method.

**Keywords:** Cassava tape (*Manihot esculenta fermentatum*), lactic acid bacteria, isolation, antibacterial, characterization, *Escherichia coli*.

