

**SELEKSI PROBIOTIK ISOLAT BAKTERI ASAM LAKTAT (BAL)  
BERDASARKAN AKTIVITAS ANTIMIKROBIA PATOGEN SECARA IN  
VITRO**

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**INTISARI**

Probiotik merupakan mikroorganisme hidup yang memberikan manfaat bagi kesehatan *host* ketika dikonsumsi pada jumlah yang cukup. Pada penelitian sebelumnya, telah diisolasi 22 isolat Bakteri Asam Laktat (BAL) dari *Ganoderma lucidum*, *Physalis angulata* L., *Muntingia calabura* L., yang memiliki potensi sebagai probiotik berdasarkan kemampuan dalam menurunkan kadar gula darah pada diabetes tipe 2. Tujuan dari penelitian ini untuk menseleksi 22 isolat BAL berdasarkan aktivitas antimikrobia terhadap patogen secara *in vitro*. Supernatan atau *cell free supernatant* digunakan untuk mengetahui aktivitas antimikrobia terhadap bakteri patogen menggunakan pengujian *disc diffusion* dan *broth microdilution*. Berdasarkan hasil *disc diffusion assay* bahwa isolat BAL memiliki aktivitas antimikrobia tertinggi terhadap bakteri patogen *Escherichia coli* FNCC 194, *Clostridium acetobutylicum* FNCC 0085, *Staphylococcus aureus* FNCC 0047, *Salmonella typhimurium* FNCC 0165 berturut-turut sebesar  $0,295 \pm 0,068$  cm;  $0,348 \pm 0,305$  cm;  $0,304 \pm 0,057$  cm;  $0,428 \pm 0,061$  cm. Berdasarkan pengujian *broth microdilution assay*, penambahan supernatant dengan konsentrasi rendah mampu menghambat masing-masing bakteri patogen. Tujuh isolat yang mempunyai aktivitas antimikrobia tinggi yaitu L18, TL11.7, TL5.8, TL8.7, TL7.8, TL2.7, CP7.7 diuji ketahanan terhadap antibiotik menggunakan *microdilution assay*. Isolat TL11.7 sensitif terhadap antibiotik kanamycin, chloramphenicol dan ampicillin sedangkan isolat L18 sensitif terhadap antibiotik streptomycin.

Kata Kunci: Probiotik; Bakteri Asam Laktat (BAL); Antimikrobia; Antibiotik

**SCREENING FOR PROBIOTIC BASED ON ANTIMICROBIAL  
ACTIVITY OF LACTIC ACID BACTERIA (LAB) AGAINST  
PATHOGENIC USING IN VITRO MODEL**

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**ABSTRACT**

Probiotics are defined as a live microorganisms which when administered in adequate amounts confer a health benefit on the host. In the previous study, 22 Lactic Acid Bacteria (LAB) had been isolated from *Ganoderma lucidum*, *Physalis angulata* L., *Mungtingia calabura* L., which has potential as probiotics based on their ability to reduce blood sugar level in type 2 diabetes. The aim of this research was to screening some selected isolates from 22 isolate of LAB using in vitro screening assays based on antimicrobial activity. The cell free supernatants were examined to measure their antimicrobial activity against pathogenic by disc diffusion and broth microdilution assay. The result of disc diffusion assay showed that LAB isolates had the higher antimicrobial activity against pathogenic for *Escherichia coli* FNCC 194, *Clostridium acetobutylicum* FNCC 0085, *Staphylococcus aureus* FNCC 0047, *Salmonella typhimurium* FNCC 0165 are  $0.295 \pm 0.068$  cm;  $0.348 \pm 0.305$  cm;  $0.304 \pm 0.057$  cm;  $0.428 \pm 0.061$  cm. In broth microdilution assay, by added lower supernatant concentration can effects in inhibiting bacterial grow of pathogen. Seven isolates that have higher antimicrobial activity are L18, TL11.7, TL5.8, TL8.7, TL7.8, TL2.7, CP7.7 then tested to antibiotics susceptibility by broth microdilution assay. TL11.7 that susceptible to kanamycin, chloramphenicol and ampicillin. Then L18 susceptible to streptomycin.

**Keywords:** Probiotic; Lactic Acid Bacteria (LAB); Antimicrobial; Antibiotic