

SKRIPSI SARJANA FARMASI

**UJI AKTIVITAS SUBSTRAT DAN EKSTRAK HASIL FERMENTASI
BAKTERI ENDOFIT ISOLAT DAUN SIRIH (*Piper betle* L.) TERHADAP
Methicillin Resistant Staphylococcus aureus (MRSA)**



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ABSTRAK

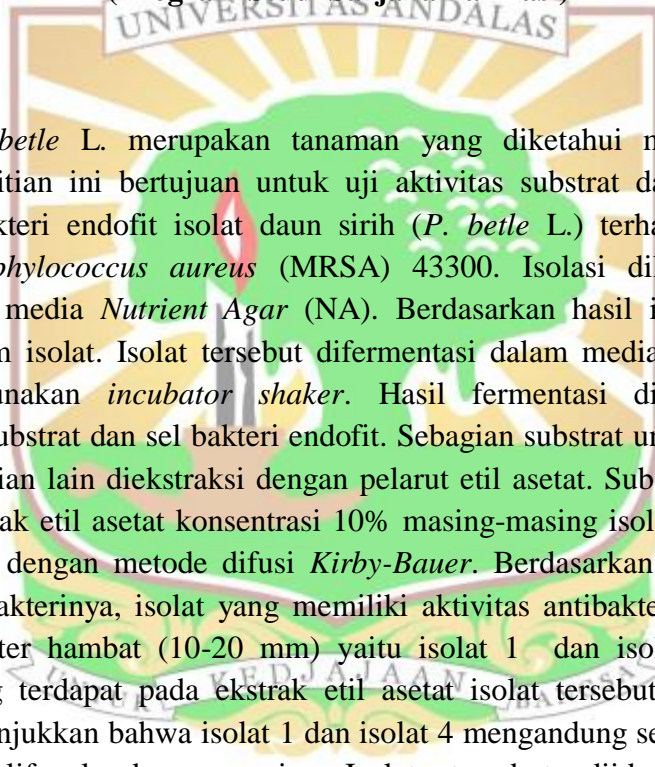
UJI AKTIVITAS SUBSTRAT DAN EKSTRAK HASIL FERMENTASI BAKTERI ENDOFIT ISOLAT DAUN SIRIH (*Piper betle L.*) TERHADAP *Methicillin Resistant Staphylococcus aureus* (MRSA)

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Piper betle L. merupakan tanaman yang diketahui memiliki bakteri endofit. Penelitian ini bertujuan untuk uji aktivitas substrat dan ekstrak hasil fermentasi bakteri endofit isolat daun sirih (*P. betle L.*) terhadap *Methicillin Resistant Staphylococcus aureus* (MRSA) 43300. Isolasi dilakukan dengan menggunakan media *Nutrient Agar* (NA). Berdasarkan hasil isolasi diperoleh sebanyak enam isolat. Isolat tersebut difermentasi dalam media *Nutrient Broth* (NB) menggunakan *incubator shaker*. Hasil fermentasi disentrifus untuk memisahkan substrat dan sel bakteri endofit. Sebagian substrat untuk uji aktivitas sementara bagian lain diekstraksi dengan pelarut etil asetat. Substrat konsentrasi 10% dan ekstrak etil asetat konsentrasi 10% masing-masing isolat diuji aktivitas antibakterinya dengan metode difusi *Kirby-Bauer*. Berdasarkan hasil pengujian aktivitas antibakterinya, isolat yang memiliki aktivitas antibakteri kategori kuat dengan diameter hambat (10-20 mm) yaitu isolat 1 dan isolat 4. Metabolit sekunder yang terdapat pada ekstrak etil asetat isolat tersebut dikarakterisasi, hasilnya menunjukkan bahwa isolat 1 dan isolat 4 mengandung senyawa alkaloid, flavonoid, polifenol dan saponin. Isolat tersebut diidentifikasi secara maskroskopis dan biokimia di Laboratorium Balai Veteriner Bukittinggi dengan hasil isolat 1 merupakan *Bacillus sp.* dan isolat 4 merupakan *Enterobacteria sp.*

Kata Kunci : *Piper betle L.*, Aktivitas Antibakteri, Metabolit Sekunder, MRSA
(*Methicillin Resistant Staphylococcus aureus*)

ABSTRACT

ACTIVITY TEST OF SUBSTRATE AND EXTRACT RESULTS OF FERMENTATION OF BACTERIA ENDOPHYTE ISOLATE OF BETLE LEAVE (*Piper betle* L.) AGAINST *Methicillin Resistant Staphylococcus aureus* (MRSA)

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Piper betle L. is a plant known to have endophytic bacteria. This study aimed to test the activity of the substrate and the fermented extract of betel leaf isolate (*P. betle* L.) against *Methicillin Resistant Staphylococcus aureus* (MRSA) 43300. Isolation was carried out using *Nutrient Agar* (NA) media. Based on the results of the isolation obtained as many as six isolates. The isolate was fermented in *Nutrient Broth* (NB) media using an *incubator shaker*. The results of the fermentation were centrifuged to separate the substrate and endophytic bacterial cells. Part of the substrate was used for the activity test while the other part was extracted with ethyl acetate solvent. The 10% concentration of substrate and 10% concentration of ethyl acetate extract were tested for their antibacterial activity using the *Kirby-Bauer* diffusion method. Based on the results of antibacterial activity testing, isolates that had strong antibacterial activity with inhibitory diameters (10-20 mm) were isolate 1 and isolate 4. The secondary metabolites contained in the ethyl acetate extract of the isolate were characterized, the results showed that isolate 1 and isolate 4 contained alkaloids, flavonoids, polyphenols and saponins. The isolates were identified macroscopically and biochemically at the Laboratory of the Bukittinggi Veterinary Center with the result that isolate 1 was *Bacillus* sp. and isolate 4 is *Enterobacteria* sp.

Keywords: *Piper betle* L., Antibacterial Activity, Secondary Metabolites, MRSA (*Methicillin Resistant Staphylococcus aureus*)