ISOLASI BAKTERI ENDOFIT DAUN PUCUK MERAH (*Syzygium myrtifolium* Walp.) DAN POTENSINYA SEBAGAI ANTIBAKTERI TERHADAP *Cutibacterium acnes*

SKRIPSI

diajukan untuk memenuhi sebagian syarat untuk memperoleh gelar Sarjana Sains
Program Studi Biologi

oleh :

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UNIVERSITAS PENDIDIKAN INDONESIA

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Skripsi yang diajukan untuk memenuhi sebagian syarat memperoleh gelar Sarjana Sains pada Program Studi Biologi Fakultas Pendidikan Matematika dan Ilmu Pengetahuan Alam

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LEMBAR PERNYATAAN

Dengan ini saya menyatakan bahwa skripsi dengan judul “Isolasi Bakteri Endofit Daun Pucuk Merah (*Syzygium myrtifolium* Walp.) dan Potensinya sebagai Antibakteri terhadap *Cutibacterium acnes*". ini beserta seluruh isinya adalah benar-benar karya saya sendiri. Saya tidak melakukan penjiplakan atau pengutipan dengan cara-cara yang tidak sesuai dengan etika ilmu yang berlaku dalam masyarakat keilmuan. Atas pernyataan ini, saya siap menanggung risiko/sanksi apabila di kemudian hari ditemukan adanya pelanggaran etika keilmuan atau ada klaim dari pihak lain terhadap keaslian karya saya ini.

Bandung, Agustus 2024
Yang membuat pernyataan,

Fiqha Azkiya

Isolasi Bakteri Endofit Daun Pucuk Merah (*Syzygium myrtifolium* Walp.) dan Potensinya sebagai Antibakteri terhadap *Cutibacterium acnes*

ABSTRAK

Tanaman pucuk merah (*Syzygium myrtifolium* Walp.) merupakan tanaman perdu yang berasal dari Asia Tenggara. Daun tanaman pucuk merah diketahui mengandung bakteri endofit yang mampu menghambat pertumbuhan bakteri. *Cutibacterium acnes* merupakan salah satu bakteri penyebab jerawat. Tujuan dari penelitian ini adalah untuk mengetahui genus bakteri endofit pada daun *S. myrtifolium* Walp. dan potensinya sebagai antibakteri terhadap *C. acnes*. Penelitian diawali dari proses pengambilan sampel, isolasi bakteri endofit, pembiakan kultur murni bakteri endofit, identifikasi bakteri endofit, pembuatan kurva tumbuh bakteri, ekstraksi supernatan bakteri endofit, uji aktivitas antibakteri mencakup *Disc Diffusion Assay* (DDA), *Minimal Inhibitory Concentration* (MIC), *Minimum Bactericidal Concentration* (MBC) serta tahap terakhir yaitu analisis data. Bakteri endofit daun *S. myrtifolium* Walp. teridentifikasi memiliki kemiripan dengan genus *Bacillus, Pseudomonas, Micrococcus, Acinetobacter, Neisseria, Arthrobacter,* dan *Enterobacter*. Aktivitas antibakteri pada ekstrak supernatan bakteri endofit isolat M1 dan M2 terhadap bakteri patogen *C. acnes* menghasilkan diameter zona hambat yang berbeda signifikan. Ekstrak supernatan bakteri endofit isolat M2 dengan konsentrasi 50 mg/mLmenghasilkan diameter zona hambat terbesar, yaitu 14,67 mm pada isolat M1 dan 15,33 mm pada isolat M2. Aktivitas antibakteri pada ekstrak supernatan bakteri endofit isolat M1 dan M2 terhadap bakteri patogen *C. acnes*, memiliki nilai MIC yaitu 2,5 mg/mLdan nilai MBC yaitu 3,0 mg/mL Hasil tersebut menunjukkan bahwa ekstrak supernatan bakteri endofit daun *S. myrtifolium* Walp. memiliki aktivitas antibakteri terhadap *C. acnes.* Penelitian ini diharapkan dapat menjadi acuan dalam pengembangan obat antibakteri terhadap *C. acnes.*

Kata Kunci: Antibakteri, bakteri endofit, *Cutibacterium acnes*, *Syzygium myrtifolium*

Isolation of Endophytic Bacteria from the Leaves of Redbud (Syzygium myrtifolium Walp.) and Their Potential as Antibacterial Agents against Cutibacterium acnes

ABSTRACT

The redbud trees (Syzygium myrtifolium Walp) is a shrub that originates from Southeast Asia. The leaves of the red shoot plant are known to contain endophytic bacteria which can inhibit bacterial growth. Cutibacterium acnes is one of the bacteria that causes acne. The aim of this research was to determine the genus of endophytic bacteria on the leaves of S. myrtifolium Walp. and its potential as an antibacterial against C. acnes. The study began with the process of sampling, isolation of endophytic bacteria, cultivation of pure cultures of endophytic bacteria, identification of endophytic bacteria, creation of growth curves of bacteria, extraction of endophytic bacterial supernatants, antibacterial activity tests including Disc Diffusion Assay (DDA), Minimal Inhibitory Concentration (MIC), Minimum Bactericidal Concentration (MBC) and the final stage is data analysis. Endophytic bacteria in S. myrtifolium Walp. leaves were identified as having similarities with the genera Bacillus, Pseudomonas, Micrococcus, Acinetobacter, Neisseria, Arthrobacter, and Enterobacter. Antibacterial activity of the supernatant extract of endophytic bacteria isolates M1 and M2 against pathogenic bacteria C. acnes produced significantly different inhibition zone diameters. The supernatant extract of endophytic bacteria isolate M2 with a concentration of 50 mg/mL produced the largest inhibition zone diameter, which was 14.67 mm in isolate M1 and 15.33 mm in isolate M2. The antibacterial activity of the supernatant extract of endophytic bacteria isolates M1 and M2 against pathogenic bacteria C. acnes, had a MIC value of 2.5 mg/mL and an MBC value of 3.0 mg/mL. These results indicate that the supernatant extract of endophytic bacteria from S. myrtifolium Walp. leaves has antibacterial activity against C. acnes. This study is expected to be a reference in the development of antibacterial drugs against C. acnes.

Keywords: Antibacterial, endophytic bacteria, Cutibacterium acnes, Syzygium myrtifolium

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