

RINGKASAN

Streptomyces sp. SAE4034 dan *Streptomyces* sp. SA32 diisolasi dari sedimen mangrove Segara Anakan diketahui mampu menghambat pertumbuhan beberapa bakteri patogen. Kemampuan antibakteri isolat terhadap pertumbuhan *Propionibacterium acnes* belum diketahui. Tujuan penelitian adalah untuk mengetahui kemampuan antibakteri *Streptomyces* spp. terhadap pertumbuhan *P. acnes* dan mengetahui nilai *Minimum Inhibitory Concentration* (MIC) senyawa antibakteri isolat *Streptomyces* spp. terhadap pertumbuhan *P. acnes*.

Penelitian ini dilakukan menggunakan metode Rancangan Acak Lengkap (RAL). Ekstrak kasar isolat *Streptomyces* spp. sebagai perlakuan, masing-masing dibuat 2 konsentrasi (50% dan 100%), serta diulang 5 kali sehingga terdapat 20 unit percobaan. Variabel bebas yaitu isolat *Streptomyces* spp. dan sebagai variabel terikat yaitu kemampuan penghambatan ekstrak kasar senyawa antibakteri terhadap pertumbuhan *P. acnes*. Parameter utama berupa diameter zona hambat yang diukur melalui metode difusi kertas cakram. Parameter pendukung meliputi nilai MIC dan bobot kering biomassa miselium. Data yang diperoleh dianalisis menggunakan metode ANOVA pada tingkat kepercayaan 95%.

Hasil penelitian didapatkan bahwa ekstrak kasar isolat *Streptomyces* spp. memiliki kemampuan penghambatan yang sangat kuat terhadap bakteri *P. acnes* dengan diameter zona hambat sebesar 37,0400 - 44,0850 mm. Diameter zona hambat terbesar dihasilkan oleh ekstrak kasar antibakteri *Streptomyces* sp. SAE4034 pada konsentrasi 100% yaitu 44,0850 mm. Bobot kering biomassa miselium untuk isolat *Streptomyces* sp. SAE4034 diperoleh sebesar 0,2197 g, sementara bobot kering biomassa miselium untuk isolat *Streptomyces* sp. SA32 adalah 0,2093 g. Ekstrak antibakteri isolat *Streptomyces* spp. memiliki nilai MIC terbaik masing-masing sebesar 32 µg/ml.

Kata Kunci: antibakteri, diameter zona hambat, MIC, *Propionibacterium acnes*, *Streptomyces*

SUMMARY

Streptomyces sp. SAE4034 and *Streptomyces* sp. SA32 have been isolated from Segara Anakan mangroves sediment. They are known inhibited on some pathogenic bacterial, but the antibacterial ability on the growth of *Propionibacterium acnes* are not known yet. The purpose of this study was to determine the antibacterial ability of *Streptomyces* spp. against *P. acnes* and determine the value of the Minimum Inhibitory Concentration (MIC) of antibacterial compounds isolated from *Streptomyces* spp. against *P. acnes*.

This research using a completely randomized design (CRD) method. The crude extract of *Streptomyces* spp. isolates as a treatment, each isolate was made in 2 concentrations (50% and 100%) and repeated 5 times, that there were 20 experimental units. The independent variable was *Streptomyces* spp. and the dependent variable is the inhibitory ability of crude extract of antibacterial compounds on the growth of *P. acnes*. The main parameter was the diameter of the inhibition zone measured by the paper disc diffusion method. The supporting parameters included MIC value and dry weight of mycelium biomass. The data obtained were analyzed using ANOVA method at a 95% confidence level.

The results showed that the crude extract of *Streptomyces* spp. isolates has a strong inhibitory ability against *P. acnes* around 37,0400 - 44,0850 mm. The largest diameter of the inhibition zone resulted by the *Streptomyces* sp. SAE4034 crude extract at a concentration of 100% is 44.0850 mm. Dry weight of mycelium biomass for *Streptomyces* sp. SAE4034 obtained 0.2197 g, while the dry weight of mycelium biomass for *Streptomyces* sp. SA32 is 0.2093 g. Antibacterial extract of *Streptomyces* spp. isolates each had the best MIC value of 32 µg/ml.

Keywords: antibacterial, inhibition zone diameter, MIC, *Propionibacterium acnes*, *Streptomyces*.