ABSTRAK

UJI BIOAKTIVITAS ANTIMALARIA EKSTRAK N-HEKSANA RUMPUT LAUT G*racilaria* sp. TERHADAP PARASIT *Plasmodium falciparum* STRAIN 3D7 SECARA *In Vitro*

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Tingginya tingkat resistensi terhadap obat Antimalaria menjadi salah satu hambatan utama dalam upaya pengendalian malaria. Salah satu pendekatan untuk mengatasi masalah ini adalah dengan mencari dan mengembangkan bahan alam potensial, seperti rumput laut *Gracilaria* sp. Tujuan penelitian ini yaitu untuk mengetahui kandungan senyawa fitokimia dengan melibatkan analisis uji alkaloid, flavonoid, steroid, terpenoid, saponin, dan tanin, serta bioaktivitas antimalaria rumput laut *Gracilaria* sp. secara *in vitro* dengan menggunakan pelarut n-Heksana. Penelitian dilakukan secara eksperimental dengan Rancangan Acak Lengkap (RAL) untuk mengeksplorasi efek ekstrak n-Heksana *Gracilaria* sp. dari berbagai konsentrasi (0,01µg/ml, 0,1µg/ml, 1µg/ml, 10µg/ml, 50µg/ml, dan 100µg/ml) terhadap stadium trofozoit *Plasmodium falciparum* strain 3D7. Data persen (%) parasitemia, pertumbuhan, dan penghambatan parasit dianalisis secara statistik menggunakan ANOVA, serta analisis probit nilai IC_{50} menggunakan *software* SPSS berdasarkan data rata-rata persen (%) penghambatan. Hasil pengujian fitokimia menunjukan bahwa ekstrak n-Heksana memiliki senyawa metabolit sekunder Alkaloid, Flavonoid, Steroid, Terpenoid, Saponin, dan Tanin. Hasil uji bioaktivitas antimalaria menunjukan adanya penurunan persentase parasitemia dan pertumbuhan, serta adanya peningkatan persentase penghambatan seiring dengan tingginya konsentrasi ekstrak. Berdasarkan data rata-rata persentase penghambatan ekstrak n-Heksana *Gracilaria* sp., nilai IC_{50} yang didapatkan sebesar 118,61µg/ml yang mengindikasikan bahwa ekstrak memiliki potensi sebagai antimalaria tetapi tidak memenuhi kriteria sebagai antimalaria yang aktif.

Kata kunci: Antimalaria, *Plasmodium falciparum, Gracilaria* sp., n-Heksana, Metabolit sekunder

ABSTRACT

ANTIMALARIA BIOACTIVITY TEST OF N-HEXANE EXTRACT OF SEAWEEDS Gracilaria sp. AGAINST Plasmodium falciparum PARASITE STRAIN 3D7 IN VITRO

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The high level of resistance to Antimalarial drugs is one of the main obstacles in malaria control efforts. One approach to overcome this problem is to find and develop potential natural materials, such as Gracilaria sp. seaweed. The purpose of this study was to determine the content of phytochemical compounds by involving the analysis of alkaloid, flavonoid, steroid, terpenoid, saponin, and tannin tests, as well as the antimalarial bioactivity of Gracilaria sp. seaweed in vitro using n-Hexane solvent. The study was conducted experimentally with a Completely Randomized Design (CRD) to explore the effects of n-Hexane extract of Gracilaria sp. of various concentrations (0.01 µg/ml, 0.1 µg/ml, 1 µg/ml, 10 µg/ml, 50 µg/ml, and 100 µg/ml) on the trophozoite stage of Plasmodium falciparum strain 3D7. Data on the percentage (%) of parasitemia, growth, and parasite inhibition were analyzed statistically using ANOVA, as well as probit analysis of IC50 values using SPSS software based on the average percentage (%) of inhibition data. The results of phytochemical tests showed that the n-Hexane extract had secondary metabolite compounds of Alkaloids, Flavonoids, Steroids, Terpenoids, Saponins, and Tannins. The results of the antimalarial bioactivity test showed a decrease in the percentage of parasitemia and growth, and an increase in the percentage of inhibition along with the high concentration of the extract. Based on the average percentage of inhibition data of the n-Hexane extract of Gracilaria sp., the IC50 value obtained was 118.61 µg / ml which indicated that the extract had the potential as an antimalarial but did not meet the criteria as an active antimalarial.

Keyword: *Antimalarial, Plasmodium falciparum, Gracilaria sp., n-Hexane, Secondary metabolites*