

## ABSTRAK

### UJI BIOAKTIVITAS EKSTRAK ETANOL *Gracilaria* sp. SEBAGAI REPELAN NYAMUK *Aedes aegypti* DALAM SEDIAAN *SPRAY*

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Demam Berdarah *Dengue* mengalami peningkatan total kasus dan angka kematian setiap tahunnya. Pencegahan yang umumnya dilakukan adalah menggunakan repelan dengan kandungan DEET (N,N-dietil-meta-toluamid) yang bersifat korosif. Diketahui *Gracilaria* sp. mengandung alkaloid, flavonoid, saponin, triterpenoid, steroid dan tanin yang bersifat racun bagi nyamuk. Tujuan penelitian ini untuk mengetahui efektivitas ekstrak etanol *Gracilaria* sp. sebagai repelan terhadap nyamuk *Ae. aegypti* dalam sediaan *spray*, *Effective Concentration* 50% (EC<sub>50</sub>), efek iritasi, dan sifat fisik sediaan *spray* ekstrak etanol *Gracilaria* sp.. Penelitian ini menggunakan Rancangan Acak Lengkap (RAL) yang terdiri dari 5 konsentrasi dan 5 kali pengulangan. Daya proteksi dianalisis menggunakan *One Way* ANOVA dan dilanjutkan dengan uji *Least Significant Difference* (LSD). Efektivitas konsentrasi ekstrak etanol *Gracilaria* sp. sebagai repelan dianalisis dengan probit. Hasil penelitian menunjukkan *spray* konsentrasi 5%, 10%, 15%, dan 20% memiliki persentase daya proteksi berturut – turut sebesar 14,40%, 31,81%, 47,76%, dan 61,17%. Hasil *One Way* ANOVA menunjukkan nilai *p-value* = 0,00 dan dilanjutkan dengan uji LSD yang menunjukkan adanya perbedaan daya proteksi signifikan antar perlakuan, yaitu semakin tinggi konsentrasi ekstrak yang diberikan, semakin sedikit nyamuk yang hinggap pada lengan. Hasil analisis probit diperoleh nilai EC<sub>50</sub> pada konsentrasi 18,86%. *Spray* konsentrasi 0% berwarna putih bening dan tidak beraroma, *spray* konsentrasi 5%, 10%, 15%, dan 20% berwarna coklat muda hingga coklat kehitaman serta aroma amis yang khas dari rumput laut *Gracilaria* sp.. *Spray* bersifat homogen dan tidak memberikan efek iritasi pada kulit. Kesimpulan, *spray* ekstrak etanol *Gracilaria* sp. menunjukkan aktivitas sebagai repelan nyamuk *Ae. aegypti* terbaik pada konsentrasi 20%.

**Kata Kunci:** *Ae. aegypti*, Demam Berdarah *Dengue*, Repelan, *Gracilaria* sp.

## ABSTRACT

### BIOACTIVITY TEST OF ETHANOL EXTRACT *Gracilaria* sp. AS A MOSQUITO REPELLENT FOR *Aedes aegypti* IN SPRAY PREPARATION

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Dengue fever has increased in total cases and mortality every year. Prevention is generally done by using repellent with DEET (N,N-diethyl-meta-toluamide) which is corrosive. It is known that *Gracilaria* sp. contains alkaloids, flavonoids, saponins, triterpenoids, steroids and tannins that are toxic to mosquitoes. The purpose of this study was to determine the effectiveness of *Gracilaria* sp. ethanol extract as a repellent against *Ae. aegypti* mosquitoes in spray preparations, Effective Concentration 50% (EC<sub>50</sub>), irritating effects, and physical properties of *Gracilaria* sp. ethanol extract spray preparations. This study used a completely randomized design (CRD) consisting of 5 concentrations and 5 repetitions. The protection power was analyzed using One Way ANOVA and continued with the Least Significant Difference (LSD) test. The effectiveness of *Gracilaria* sp. ethanol extract concentration as repellent was analyzed by probit. The results showed that spray concentrations of 5%, 10%, 15%, and 20% had a percentage of protection power of 14.40%, 31.81%, 47.76%, and 61.17%, respectively. The results of One Way ANOVA showed a p-value = 0.00 and continued with the LSD test which showed a significant difference in protection power between treatments, namely the higher the concentration of extract given, the fewer mosquitoes that landed on the arm. The results of probit analysis obtained an EC<sub>50</sub> value at a concentration of 18,86%. Spray concentration 0% is clear white and unscented, spray concentration 5%, 10%, 15%, and 20% is light brown to blackish brown and has a fishy aroma typical of *Gracilaria* sp. seaweed. The spray was homogeneous and had no irritating effect on the skin. In conclusion, *Gracilaria* sp. ethanol extract spray showed activity as the best repellent for *Ae. aegypti* mosquitoes at 20% concentration.

**Keywords:** *Ae. aegypti*, Dengue Hemorrhagic Fever, Repellent, *Gracilaria* sp.