

ABSTRAK

FORMULASI SPRAY ANTI NYAMUK ALAMI MENGGUNAKAN KOMBINASI EKSTRAK SERAI (*Cymbopogon citratus*) DAN KULIT JERUK (*Citrus aurantiifolia*) DENGAN EMULSIFIER DAN GLISEROL

Spray anti nyamuk alami merupakan salah satu alternatif pengendalian nyamuk yang lebih aman dan ramah lingkungan dibandingkan penggunaan repelan sintetis. Penelitian ini bertujuan untuk menganalisis pengaruh variasi rasio ekstrak serai (*Cymbopogon citratus*) dan ekstrak kulit jeruk terhadap kualitas spray antinyamuk alami berdasarkan parameter pH, kadar flavonoid, daya proteksi, dan viskositas pada konsentrasi gliserol 2 mL. Ekstrak diperoleh melalui metode maserasi menggunakan etanol 96% dan diformulasikan dalam rasio 1:2, 2:1, 2:4, 4:2, dan 4:4. Pengujian meliputi pH, kadar flavonoid, viskositas, dan daya proteksi terhadap nyamuk. Hasil penelitian menunjukkan bahwa variasi rasio ekstrak berpengaruh terhadap karakteristik spray antinyamuk alami yang dihasilkan. Nilai pH berkisar 5,4–5,8, kadar flavonoid 8,0–11,5 mg QE/g, daya proteksi 80–100%, dan viskositas 14,35–18,95 cP. Formulasi terbaik diperoleh pada rasio ekstrak serai : kulit jeruk 4:4 dengan kadar flavonoid 11,5 mg QE/g, daya proteksi 100%, viskositas 18,95 cP, dan pH 5,5. Berdasarkan hasil penelitian, variasi rasio ekstrak serai dan kulit jeruk berpengaruh terhadap kualitas spray antinyamuk alami. Rasio 4:4 merupakan formulasi optimum berdasarkan nilai pH, kadar flavonoid, viskositas, dan daya proteksi.

Kata kunci: spray antinyamuk alami, ekstrak serai, ekstrak kulit jeruk, flavonoid, daya proteksi.

ABSTRACT

FORMULATION OF NATURAL MOSQUITO REPELLENT SPRAY USING A COMBINATION OF LEMONGRASS (*Cymbopogon citratus*) EXTRACT AND LIME PEEL (*Citrus aurantiifolia*) EXTRACT WITH EMULSIFIER AND GLYCEROL

Natural mosquito repellent spray is a safer and more environmentally friendly alternative to synthetic repellents for mosquito control. This study aimed to analyze the effect of different ratios of lemongrass (*Cymbopogon citratus*) extract and citrus peel extract on the quality of natural mosquito repellent spray based on pH, flavonoid content, protection efficacy, and viscosity using a glycerol concentration of 2 mL. The extracts were obtained by maceration using 96% ethanol and formulated at extract ratios of 1:2, 2:1, 2:4, 4:2, and 4:4. The formulations were evaluated for pH, flavonoid content, viscosity, and mosquito protection efficacy. The results showed that variations in the extract ratio affected the characteristics of the natural mosquito repellent spray. The pH values ranged from 5.4 to 5.8, flavonoid content from 8.0 to 11.5 mg QE/g, protection efficacy from 80% to 100%, and viscosity from 14.35 to 18.95 cP. The optimum formulation was obtained at a 4:4 ratio of lemongrass extract to citrus peel extract, with a flavonoid content of 11.5 mg QE/g, 100% protection efficacy, a viscosity of 18.95 cP, and a pH of 5.5. Based on these findings, the variation in the ratio of lemongrass and citrus peel extracts significantly influenced the quality of the natural mosquito repellent spray. The 4:4 extract ratio was identified as the optimum formulation based on pH, flavonoid content, viscosity, and protection efficacy.

Keywords: natural mosquito repellent spray, lemongrass extract, citrus peel extract, flavonoids, protection efficacy.