

Abstrak

FORMULASI DAN UJI AKTIVITAS ANTIBAKTERI SEDIAAN NANOEMULSI EKSTRAK ETANOL DAUN NAGASARI (*Mesua ferrea* L.) TERHADAP *Pseudomonas aeruginosa*

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Latar Belakang: Nagasari (*Mesua ferrea* L.) merupakan tanaman yang memiliki senyawa metabolit sekunder flavonoid, tanin, dan terpenoid yang kurang baik ketika diabsorpsi sehingga dibuat dalam sediaan nanoemulsi. Daun nagasari memiliki potensial antibakteri *P. aeruginosa*. Tujuan penelitian ini untuk mengetahui pengaruh variasi konsentrasi ko-surfaktan PEG 400 terhadap sifat fisik dan stabilitas fisik sediaan nanoemulsi dan aktivitas antibakteri nanoemulsi ekstrak etanol daun nagasari terhadap *P. aeruginosa*.

Metodologi : Pembuatan nanoemulsi menggunakan metode emulsifikasi dengan sonikator. Nanoemulsi diformulasikan menjadi 3 formula dengan variasi kadar PEG 400 1%, 3%, 5%. Selanjutnya diuji sifat fisik dan stabilitas yaitu organoleptis, pH, kelarutan, tipe emulsi, persen transmittan, ukuran partikel, zeta potensial dan daya sebar. Formula terpilih (FI) diuji aktivitas antibakteri dengan metode difusi sumuran. Data yang diperoleh dianalisis dengan statistika ANOVA dan LSD.

Hasil : Hasil penelitian menunjukkan bahwa peningkatan kadar PEG 400 menurunkan pH. Formula I diuji antibakteri karena zeta potensial yang mendekati pada rentang yang dipersyaratkan dengan daya hambat bakteri sebesar 18,35 mm

Kesimpulan : Variasi konsentrasi ko-surfaktan PEG 400 tidak mempengaruhi stabilitas tetapi mempengaruhi sifat fisik pH nanoemulsi. Formula I memiliki kriteria daya hambat antibakteri *Pseudomonas aeruginosa* termasuk kuat

Kata Kunci : Nanoemulsi, Daun Nagasari, PEG 400, *Pseudomonas aeruginosa*

Abstract

FORMULATION AND ASSESSMENT OF ANTI-BACTERIAL ACTIVITY OF NANOEMULSION OF NAGASARI LEAF ETHANOL EXTRACT (*Mesua ferrea* L.) AGAINST *Pseudomonas aeruginosa*

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Background: Nagasari (*Mesua ferrea* L.) is a plant which has not well absorbed secondary metabolite compounds flavonoid, tanin, and terpenoid so it is made in nanoemulsion preparations. Nagasari leaves have antibacterial potential of *P. aeruginosa*. The purpose of this study was to determine the effect of variations in the concentration of co-surfactant PEG 400 on the physical properties of nanoemulsion preparations and the antibacterial activity of the ethanol extract of Nagasari leaves against *P. aeruginosa*.

Methodology : Preparation of nanoemulsion using emulsification method with sonicator. The nanoemulsion was formulated into 3 formulas with varying levels of PEG 400 (1%, 3%, 5%). Furthermore, the physical and solution properties were tested, namely organoleptic, pH, type of emulsion, percent transmittance, particle size, zeta potential and dispersion. Selected formula (FI) was tested for antibacterial activity by well diffusion method. The data obtained were analyzed by ANOVA and LSD.

Results: The results showed that increasing levels of PEG 400 increased the zeta potential and decreased pH. Formula I was tested for antibacterial because the zeta potential was close to the required range, with a bacterial inhibition of 18.35 mm

Conclusion : Variations in the concentration of co-surfactant PEG 400 did not affect the physical properties increased the zeta potential and decreased pH. Formula I has criteria for antibacterial inhibition of *Pseudomonas aeruginosa* including strong

Keywords: Nanoemulsion, Nagasari Leaf, PEG 400, *Pseudomonas aeruginosa*