ABSTRAK

FORMULASI DAN UJI AKTIVITAS ANTIFUNGI SEDIAAN NANOEMULSI EKSTRAK ETANOL DAUN NAGASARI (*Mesua ferrea L.)* TERHADAP *Candida albicans*

Eka Noviana Artarini, Tuti Sri Suhesti, Eka Prasasti Nur Rachmani

Latar Belakang: Ekstrak daun nagasari (*Mesua ferrea L*.) memiliki aktivitas terhadap jamur C. albicans yang merupakan patogen dalam tubuh karena mengandung senyawa fenolik, saponin, tanin, flavonoid, dan terpenoid. Namun, senyawa tersebut memiliki absorbsi yang buruk dalam tubuh. Nanoemulsi cukup efektif dalam meningkatkan absorbsi obat ke dalam sirkulasi sistemik. Tujuan pada penelitian ini adalah untuk mengetahui pengaruh variasi konsentrasi ko-surfaktan PEG 400 terhadap sifat fisik dan stabilitas fisik nanoemulsi ekstrak etanol daun nagasari (*Mesua ferrea L*.) terhadap *Candida albicans*.

Metodologi: Pembuatan nanoemulsi menggunakan sonikator. Nanoemulsi dibuat menjadi 3 formula dengan variasi konsentrasi PEG 400 1%, 3%, 5%. Kemudian dilakukan pengujian sifat fisik dan stabilitas fisik meliputi organoleptis, pH, kelarutan, tipe emulsi, persen transmitan, ukuran partikel, zeta potensial, dan freeze thaw. Formula terpilih diuji aktivitas antifungi terhadap jamur Candida albicans dengan metode difusi cakram.

Hasil: Hasil penelitian menunjukkan bahwa penurunan konsentrasi PEG 400 menyebabkan peningkatan nilai pH, peningkatan ukuran partikel dan penurunan nilai zeta potensial negatif. Formula 1 nanoemulsi ekstrak etanol daun nagasari menghasilkan aktivitas antifungi yang lebih besar dengan rata-rata diameter zona hambat sebesar 19,65 mm dibandingkan dengan ekstrak etanol daun nagasari yang menghasilkan rata-rata diameter zona hambat sebesar 16,45 mm.

Kesimpulan: Variasi konsentrasi ko-surfaktan PEG 400 mempengaruhi nilai pH, ukuran partikel, dan zeta potensial. Formula I nanoemulsi ekstrak etanol daun nagasari (*Mesua ferrea L.*) menghasilkan diameter zona hambat sebesar 19,65 mm terhadap *Candida albicans*.

Kata Kunci: Nanoemulsi, Daun Nagasari, PEG 400, Candida albicans

ABSTRACT

FORMULATION AND ASSESSMENT ANTIFUNCIAL ACTIVITY OF ETHANOL EXTRACT OF NAGASARI (*Mesua ferrea L.*) NANOEMULSION AGAINST *Candida albicans*

Eka Noviana Artarini, Tuti Sri Suhesti, Eka Prasasti Nur Rachmani

Background: Nagasari (*Mesua ferrea L.*) leaf extract has activity against the fungus C. albicans which is a pathogen in the body because it contains phenolic compounds, saponins, tannins, flavonoids, and terpenoids. However, these compounds have poor absorption in the body. Nanoemulsions are quite effective in increasing drug absorption into the systemic circulation. The purpose of this study was to determine the effect of variations in the concentration of co-surfactant PEG 400 on the physical properties and physical stability of nanoemulsion ethanol extract of Nagasari (*Mesua ferrea L.*) leaf extract against *Candida albicans.*

Methodology: manufacture of nanoemulsions using a sonicator. The nanoemulsion was made into 3 formulas with varying concentrations of PEG 400 1%, 3%, 5%. Then, the physical properties and physical stability were tested including organoleptic, pH, solubility, emulsion type, percent transmittance, particle size, zeta potential, and freeze thaw. The selected formula was tested for antifungal activity against the fungus Candida albicans by disc diffusion method.

Results: The results showed that decreasing the concentration of PEG 400 caused an increase in the pH value, an increase in particle size and a decrease in the negative zeta potential value. Formula 1 nanoemulsion of ethanol extract of nagasari leaf produced greater antibacterial activity with an average diameter of the inhibition zone of 19.65 mm compared to the ethanolic extract of nagasari leaf which produced an average diameter of the inhibition zone of 16.45 mm.

Conclusion: Variations in the concentration of co-surfactant PEG 400 affect the pH value, particle size, and zeta potential. Formula I nanoemulsion of ethanol extract of Nagasari (*Mesua ferrea L.*) leaves resulted in an inhibition zone diameter of 19.65 mm against *Candida albicans*.

Keywords: Nanoemulsion, Nagasari , PEG 400, *Candida albicans*