

## INTISARI

Kandidiasis oral merupakan infeksi oportunistik di rongga mulut disebabkan oleh pertumbuhan abnormal *Candida albicans*. Minyak serai terbukti memiliki aktivitas antifungi terhadap *C. albicans*. Penelitian ini bertujuan untuk membuat formula *mouthwash* nanoemulsi minyak serai dan mengetahui aktivitas penghambatannya terhadap *C. albicans* ATCC 10231.

Minyak serai diformulasikan menjadi nanoemulsi dengan menggunakan *Water Titration Method*. Optimasi minyak, *smix* dan air dilakukan dengan metode *Simplex Lattice Design* (SLD) menggunakan perangkat lunak *Design Expert* 7.1.5. Uji kejernihan, distribusi ukuran partikel, viskositas, potensial zeta dan stabilitas *freeze thaw six cycle* dilakukan untuk mengetahui karakter dari formula optimum nanoemulsi minyak serai. Analisis GC-MS dilakukan untuk mengetahui profil kandungan minyak serai sebelum dan setelah diformulasi. Aktivitas antikandida formula optimum nanoemulsi minyak serai dilakukan dengan metode mikrodilusi. Flukonazol 5 mg/mL sebagai kontrol positif.

Minyak serai dapat diformulasikan menjadi nanoemulsi yang jernih dan stabil dengan komposisi 0,75 gram minyak serai, 2,25 gram VCO, 18 gram tween 80, 9 gram PEG 400 dan 70 gram air. Formula optimum nanoemulsi minyak serai yang dihasilkan jernih, berukuran <100nm, viskositas rendah, nilai potensial zeta rendah dan stabil terhadap *freeze thaw cycle*. Nanoemulsi minyak serai memiliki daya hambat *C. albicans* ATCC 10231 dua kali lebih tinggi daripada minyak serai saja secara signifikan.

Keyword: Nanoemulsi, Minyak Serai, *Candida albicans*.

## ABSTRACT

Oral candidiasis is an oppourtunistic infection on oral cavity that largely due to *Candida albicans* abnormal growth. Lemongrass oil has been proven to have antifungal activity against *C. albicans*. The aim of this study is to form lemongrass nanoemulsion *mouthwash* and learn more about its inhibitory effect against *C. albicans*.

Lemongrass oil was formulated to be nanoemulsion by water titration method. Simplex lattice design method was used to optimize oil, smix, and water components using *Design Expert 7.1.5*. The optimum formula characterized by transmittance, particle size, viscosity, zeta potential, and stability test. The profile of lemongrass oil before and after formulated was analized by GC-MS. Anticandida activity of the formula was used microdilution method. Fluconazole 5 mg/mL was used as the postif control.

Lemongrass oil can be formulated to become clear and stable nanoemulsion with composition of 0,75 gr lemongrass oil; 2,25 gr VCO; 18 gr Tween 80; 9 gr PEG 400 and 70 gr water. The optimum formula of lemongrass oil nanoemulsion was clear, has <100nm size, low viscousuty, low zeta potensial, and stable during the freeze thaw cycle test. Nanoemulsion of lemongrass oil has more inhibitory effect against *C. albicans* ATCC 10231 then lemongrass oil without formulation significantly.

Keyword : Nanoemulsion, Lemongrass oil , *Candida albicans*.