

ABSTRAK

Penelitian ini bertujuan untuk mengetahui potensi aktivitas antimikroba minyak *essential* daun cengkeh sebagai larutan *teat dipping* serta menentukan konsentrasi terbaik berdasarkan uji zona hambat dan uji MIC terhadap khamir *Candida albicans* dan *Saccharomyces cerevisiae* sebagai penyebab mastitis mikotik. Uji zona hambat dilakukan menggunakan metode difusi cakram (*paper disc*), sedangkan uji MIC menggunakan metode mikrodilusi (*broth microdilution*). Rancangan percobaan zona hambat menggunakan Rancangan Acak Lengkap (RAL) dengan enam perlakuan dan tiga ulangan, terdiri atas kontrol positif (povidone iodine 10%), kontrol negatif (Tween 80 v/v 5%), serta minyak *essential* daun cengkeh dengan konsentrasi 2,5%, 5%, 7,5%, dan 10%. Uji MIC menggunakan Uji Mann-Whitney berdasarkan konsentrasi terbaik minyak *essential* dan povidone iodine 10%, masing-masing tiga ulangan. Hasil penelitian menunjukkan bahwa minyak *essential* daun cengkeh memiliki aktivitas antimikroba terhadap kedua khamir penyebab mastitis. Analisis variansi menunjukkan perlakuan memberikan pengaruh sangat nyata ($p < 0,01$). Zona hambat *Candida albicans* pada konsentrasi 0–10% berturut-turut adalah 0 mm, 5,55 mm, 8,23 mm, 10,23 mm, dan 12,85 mm, sedangkan povidone iodine 10% sebesar 28,85 mm. Zona hambat *Saccharomyces cerevisiae* pada povidone iodine 10% sebesar 22,73 mm, dan pada minyak *essential* 10–0% berturut-turut sebesar 20,46 mm, 17,23 mm, 14,27 mm, 7,23 mm, dan 0 mm. MIC terhadap kedua khamir masing-masing sebesar 0,156 mg/ml, dan povidone iodine 10% sebesar 1,25 mg/ml. Uji Mann-Whitney menunjukkan perbedaan yang signifikan ($p < 0,05$) antara perlakuan minyak cengkeh 10% dan povidone iodine 10% pada kedua khamir, sehingga minyak *essential* daun cengkeh dapat menggantikan povidone iodine 10% sebagai larutan *teat dipping* alami.

Kata Kunci: Eugenol, *teat dipping*, zona hambat, MIC, mastitis mikotik.

ABSTRACT

This study aimed to evaluate the antimicrobial potential of clove leaf essential oil as a *teat dipping* solution and to determine the optimal concentration through inhibition zone and MIC tests against *Candida albicans* and *Saccharomyces cerevisiae*, which are fungal pathogens causing mycotic mastitis. The disc diffusion method was used for the inhibition zone test with a Completely Randomized Design (CRD) consisting of six treatments and three replications, namely positive control (10% povidone iodine), negative control (5% Tween 80 v/v), and clove leaf essential oil at concentrations of 2.5%, 5%, 7.5%, and 10%. The MIC test was conducted using the broth microdilution method with the best concentration. The results showed that clove leaf essential oil exhibited significant antimicrobial activity ($p < 0.01$). The inhibition zones for *Candida albicans* at concentrations of 0–10% were 0 mm, 5.55 mm, 8.23 mm, 10.23 mm, and 12.85 mm, while 10% povidone iodine reached 28.85 mm. The inhibition zones for *Saccharomyces cerevisiae* at 10% povidone iodine were 22.73 mm, and for clove oil from 10–0% were 20.46 mm, 17.23 mm, 14.27 mm, 7.23 mm, and 0 mm, respectively. The MIC of clove leaf essential oil against both yeasts was 0.156 mg/ml, lower than 10% povidone iodine (1.25 mg/ml). The Mann-Whitney test showed a significant difference ($p < 0.05$) between 10% clove oil and 10% povidone iodine treatments, indicating that clove leaf essential oil has the potential to replace povidone iodine as a natural *teat dipping* solution.

Keywords: Clove leaf *essential oil*, Inhibition zone, MIC, Mycotic mastitis, *Teat dipping*.

