

## INTISARI

Bunga cengkeh merupakan bagian dari tanaman cengkeh yang sering dimanfaatkan sebagai tanaman obat. Bunga cengkeh mengandung senyawa asam turunan triterpenoid pentasiklik yaitu asam oleanolat. Asam oleanolat diperoleh dengan fraksinasi metode kromatografi lapis tipis. Tujuan penelitian ini adalah mengetahui pengaruh asam oleanolat hasil fraksinasi bunga cengkeh terhadap pertumbuhan bakteri *S. aureus* (kajian *in vitro*).

Metode uji antibakteri pada penelitian ini adalah metode difusi modifikasi Kirby-Bauer dengan tiga replikasi. Kelompok perlakuan yang digunakan yaitu asam oleanolat konsentrasi 10%, 20%, 40%. *Penicillin G disc* 10 IU sebagai kontrol positif dan *Polyethylene Glycol* (PEG) 400 sebagai kontrol negatif. Pengaruh asam oleanolat dilihat dari diameter zona hambat yang terbentuk. Zona hambat merupakan daerah bening dan transparan di sekitar disk Kirby-Bauer yang tidak ditumbuhi oleh bakteri *S. aureus*. Diameter zona hambat diukur dengan jangka sorong dengan ketelitian 0,05 mm.

Hasil penelitian menunjukkan rerata diameter zona hambat yang terbentuk masing-masing perlakuan asam oleanolat 10%, 20%, 40%, *Penicillin G disc* 10 IU, dan PEG 400 secara berurutan sebesar:  $8,33 \pm 0,65$  mm,  $10,03 \pm 0,74$  mm,  $11,46 \pm 1,05$  mm,  $18,66 \pm 0,58$  mm, dan  $0,00 \pm 0,00$  mm. Hasil uji *one way ANOVA* menunjukkan terdapat perbedaan rerata diameter zona hambat yang signifikan antar kelompok perlakuan dalam menghambat pertumbuhan bakteri *S. aureus* ( $p < 0,05$ ). Hasil *Least Significant Difference* menunjukkan perbedaan signifikan antara asam oleanolat konsentrasi 10%, 20%, dan 40% dengan *Penicillin G disc* 10 IU ( $p < 0,05$ ). Kesimpulan penelitian ini adalah asam oleanolat hasil fraksinasi bunga cengkeh (*Syzygium aromaticum*) konsentrasi 10%, 20%, dan 40% menghambat pertumbuhan bakteri *S. aureus*.

**Kata kunci :** Bunga cengkeh, Fraksinasi, Asam oleanolat, Antibakteri, *S. aureus*

The clove flower is part of clove plant that are frequently used as a medicinal plant. The clove flower contain triterpenoid pentacyclic derivative compound, that is oleanolic acid. Oleanolic acid can be obtained by using thin layer chromatography fractionation method. The purpose of this research was to investigate the effect of oleanolic acid which is the fractionation results from the clove flower against the bacterial *S. aureus* growth (in vitro study).

The method of antibacterial test applied in this research was Kirby-Bauer modification diffusion method with three replication. Treatment groups that are used were oleanolic acid with concentration 10%, 20%, 40%. Penicillin G 10 IU disc as a positive control, and Polyethylene Glycol (PEG) 400 as a negative control. The effect of oleanolic acid can be observed from diameter of inhibition zone. Inhibition zone is defined as a clear and transparent area around Kirby-Bauer disc that is not covered by the *S. aureus*. The diameter of inhibition zone was measured with sliding calipers 0.05 mm accuracy.

The results of this research showed that average diameter of inhibition zone that were formed from each treatment group oleanolic acid concentration 10%, 20%, 40%, Penicillin G discs 10 IU, and PEG 400 sequentially is  $8.33 \pm 0.65$  mm,  $10.03 \pm 0.74$  mm,  $11.46 \pm 1.05$  mm,  $18.66 \pm 0.58$  mm, and  $0.00 \pm 0.00$  mm. One way ANOVA test result showed that there are some significant difference at average diameter of inhibition zone among treatment groups against *S. aureus* growth ( $p < 0.05$ ). The result of Least Significant Difference showed the significant difference among oleanolic acid concentration 10%, 20%, and 40% compared to Penicillin G disc 10 IU ( $p < 0.05$ ). The conclusion of this study is that the growth of *S. aureus* was inhibited by the presence of oleanolic acid at concentration 10%, 20%, and 40%.

**Key words :** Clove flower, Fractionation, Oleanolic acid, Antibacterial, *S. aureus*