

INTISARI

Peningkatan pertumbuhan bakteri Gram negatif menjadi salah satu penyebab utama terjadinya periodontitis. Salah satu bakteri Gram negatif penyebab periodontitis adalah *A. actinomycetemcomitans*. Asam oleanolat merupakan golongan triterpenoid pentasiklik yang berpotensi menghambat pertumbuhan bakteri *A. actinomycetemcomitans*. Tujuan penelitian ini adalah untuk mengetahui daya hambat asam oleanolat hasil fraksinasi ekstrak kismis (*Vitis vinifera*) konsentrasi 85% terhadap pertumbuhan bakteri *Aggregatibacter actinomycetemcomitans* penyebab periodontitis secara *in vitro*.

Kismis difraksinasi untuk mendapatkan asam oleanolat dan diencerkan dengan *Polyethylen glycol* 400 (PEG 400) hingga didapatkan konsentrasi 85%. *Aggregatibacter actinomycetemcomitans* dibuat suspensi sesuai standar *Mc Farland* 0,5 dari biakan murni yang tersedia di Laboratorium *Oral Biology* Universitas Indonesia. Bakteri dibiakkan di media MHA dalam 9 cawan petri dan dilakukan uji sensitivitas bakteri menggunakan metode sumuran dengan tiga perlakuan yaitu asam oleanolat 85%, *chlorhexidine* 0,12% sebagai kontrol positif, PEG 400 sebagai kontrol negatif. Bakteri diinkubasi pada 37°C selama 24 jam dan pengukuran kesensitivitasan bakteri diketahui dengan adanya zona hambat yang terbentuk disekitar lubang sumuran menggunakan jangka sorong dengan ketelitian 0,05 mm.

Hasil penelitian menunjukkan bahwa asam oleanolat 85% memiliki diameter zona hambat yang lebih besar bila dibandingkan dengan *chlorhexidine* 0,12% dan PEG 400. Hasil uji *one-way* ANOVA menunjukkan hasil $p < 0,05$ yang berarti terdapat perbedaan rerata diameter zona hambat yang bermakna pada ketiga kelompok perlakuan. Hasil uji *Post-Hoc* *Sceffe* diketahui bahwa kemampuan asam oleanolat 85% dalam menghambat pertumbuhan *A. actinomycetemcomitans* lebih baik dari *chlorhexidine* 0,12%. Kesimpulan dari penelitian ini adalah asam oleanolat 85% dapat menghambat pertumbuhan bakteri *A. actinomycetemcomitans*.

Kata kunci : asam oleanolat, *Aggregatibacter actinomycetemcomitans*, kismis, daya hambat

ABSTRACT

The increase in the growth of Gram-negative bacteria is one of the main causes of periodontitis. One of the Gram-negative bacteria that cause periodontitis is *A. actinomycetemcomitans*. Oleanolic acid is a type of pentacyclic triterpenoid which has the ability to inhibit the growth of *A. actinomycetemcomitans*. The aim of this research was to investigate the ability of 85% concentrated oleanolic acid derived from fractionation of raisins extract (*Vitis vinifera*) to inhibit the growth of *Aggregatibacter actinomycetemcomitans*, which causes periodontitis, in vitro.

Raisins were fractionated to obtain oleanolic acid and then diluted with *Polyethylen glycol* 400 (PEG 400) until the concentration of 85% was reached. *Aggregatibacter actinomycetemcomitans* were made in suspension of 0.5 McFarland standard from a pure culture in the Oral Biology Laboratory in Universitas Indonesia. The bacteria were cultured in MHA medium in 9 petri dish and examined to bacterial sensitivity test with well diffusion method, using 85% concentrated oleanolic acid, 0,12% chlorhexidine as the positive control, and PEG 400 as the negative control. The bacteria were incubated at 37°C for 24 hours. The bacterial sensitivity was measured by the existence of inhibition zone around the well using a caliper with 0.05 mm accuracy.

The result of this research showed that 85% concentrated oleanolic acid has bigger of inhibition zone diameters than 0,12% chlorhexidine and PEG 400. The result of one-way ANOVA showed $p < 0.05$, that means there are difference in the mean of inhibition zone diameters in the three treatment groups. From the Post-Hoc Scheffe, it was shown that the ability of 85% concentrated oleanolic acid fractionated from raisins extract (*Vitis vinifera*) has a better ability in inhibiting the growth of *A. actinomycetemcomitans* than 0,12% chlorhexidine. The conclusion of this research was oleanolic acid with 85% concentration can inhibit the growth of *Aggregatibacter actinomycetemcomitans*.

Key words: oleanolic acid, *Aggregatibacter actinomycetemcomitans*, raisins, *ability to inhibit*