INTISARI

Fusobacterium nucleatum adalah bakteri periodontopatogen utama yang termasuk golongan *orange complex.* Akumulasi plak yang berisi bakteri periodontopatogen perlu dihilangkan dengan *scaling and root planing* (SRP). Efektivitas SRP berkurang saat bakteri telah menginvasi jaringan periodontal sehingga diperlukan agen antibakteri yaitu *Aloe vera*. Penambahan probiotik *Lactobacillus casei* diperlukan untuk menghambat rekolonisasi bakteri. Penelitian ini bertujuan untuk mengetahui perbedaan efektivitas penambahan probiotik *Lactobacillus casei* 5%, 10%, dan 15% pada *Aloe vera* 15% terhadap daya hambat pertumbuhan *Fusobaterium nucleatum*.

Metode penelitian uji daya hambat *Fusobacterium nucleatum* adalah difusi cakram pada *Mueller Hinton Agar*. Terdapat tiga kelompok perlakuan yaitu kelompok perlakuan penambahan probiotik *Lactobacillus casei* 5% pada *Aloe vera* 15%, penambahan probiotik *Lactobacillus casei* 10% pada *Aloe vera* 15%, penambahan probiotik *Lactobacillus casei* 15% pada *Aloe vera* 15%, kontrol positif (klorheksidin glukonat 0,2%), dan *baseline* (*Aloe vera* 15%). Diameter zona hambat diukur menggunakan jangka sorong kemudian data dianalisis menggunakan metode *One-way ANOVA* dan *Post hoc* LSD.

Hasil penelitian menunjukkan perbedaan yang signifikan ($p<0,05$) pada ketiga kelompok perlakuan. Semakin besar konsentrasi *Lactobacillus casei* yang ditambahkan pada *Aloe vera* 15%, semakin besar daya hambat yang dihasilkan. Ketiga kelompok perlakuan memiliki daya hambat lebih besar dibandingkan dengan *baseline* namun tidak lebih besar dibandingkan dengan kontrol positif. Kesimpulan penelitian ini adalah penambahan probiotik *Lactobacillus casei* konsentrasi 15% pada *Aloe vera* 15% paling efektif dibandingkan konsentrasi 10% dan 5% terhadap daya hambat pertumbuhan *Fusobacterium nucleatum.*

Kata kunci: *Fusobacterium nucleatum*, *Lactobacillus casei*, *Aloe vera*, antibakteri, daya hambat

ABSTRACT

Fusobacterium nucleatum is a major periodontopathogenic bacteria that belongs to the orange complex group. The accumulation of plaque containing these bacteria needs to be removed through scaling and root planing (SRP). The effectiveness of SRP can decrease when bacteria have invaded the periodontal tissue, necessitating the use of an antibacterial agent such as *Aloe vera*. The addition of probiotic *Lactobacillus casei* is needed to inhibit bacterial recolonization. This study aims to determine the difference in the effectiveness of adding probiotic *Lactobacillus casei* 5%, 10%, and 15% to *Aloe vera* 15% on the growth inhibition of *Fusobacterium nucleatum*.

The research method for the *Fusobacterium nucleatum* inhibition test was disc diffusion on Mueller Hinton Agar. There are three treatment groups: 5%, 10%, and 15% *Lactobacillus casei* added to 15% *Aloe vera*, a positive control (0.2% chlorhexidine gluconate), and a baseline (15% *Aloe vera*). The diameter of the inhibition zone was measured using a sliding caliper, then the data were analyzed using the One-way ANOVA and Post hoc LSD methods.

The results showed a significant differences ($p < 0.05$) in the three treatment groups on the diameter of the inhibition zone. The greater the concentration of *Lactobacillus casei* added to 15% *Aloe vera*, the greater the inhibition zone. The three treatment groups had greater inhibition zone compared to the baseline but not greater than the positive control. The conclusion of this study is that the addition of 15% *Lactobacillus casei* to 15% *Aloe vera* is most effective compared to 10% and 5% concentrations in inhibiting the growth of *Fusobacterium nucleatum*.

Keywords: *Fusobacterium nucleatum*, *Lactobacillus casei*, *Aloe vera*, antibacterial, inhibition zone