

INTISARI

Periodontitis merupakan penyakit peradangan jaringan penyangga gigi yang diawali dengan akumulasi plak seperti *Aggregatibacter actinomycetemcomitans* dapat memicu pembentukan poket periodontal dan membutuhkan perawatan *scaling and root planing* (SRP). Namun, perawatan SRP masih kurang efektif dalam menghilangkan bakteri yang sudah invasi ke dalam jaringan sehingga membutuhkan terapi adjuvan. Salah satu bahan untuk terapi ini adalah pemberian gel *Aloe vera* yang dapat penetrasi ke jaringan periodontal tetapi masih membutuhkan bahan yang digunakan untuk mencegah rekolonisasi yaitu probiotik *Lactobacillus casei*. Tujuan penelitian yaitu mengetahui pengaruh penambahan probiotik *Lactobacillus casei* pada gel *Aloe vera* berbagai konsentrasi terhadap daya hambat *Aggregatibacter actinomycetemcomitans*.

Metode penelitian uji daya hambat *Aggregatibacter actinomycetemcomitans* adalah difusi cakram pada *Mueller Hinton Agar*. Terdapat tiga kelompok perlakuan yaitu kelompok gel *Aloe vera* 5%, 10%, dan 15% diperkaya *Lactobacillus casei*, kelompok kontrol MIC (gel *Aloe vera* 25%), kontrol probiotik (salin ditambah *Lactobacillus casei*), kontrol negatif (pelarut salin), dan kontrol positif (klorheksidin glukonat 0,2%). Pengukuran diameter zona hambat dilakukan dengan *sliding calliper* kemudian data dianalisis dengan *One-way ANOVA* dan *Post hoc Games-Howell*.

Hasil penelitian menunjukkan adanya perbedaan yang signifikan ($p < 0,05$) pada ketiga kelompok perlakuan terhadap diameter zona hambat. Ketiga kelompok perlakuan menunjukkan semakin besar konsentrasi gel *Aloe vera* diperkaya *Lactobacillus casei* semakin besar daya hambat yang dihasilkan. Meskipun, ketiga kelompok perlakuan memiliki daya hambat lebih kecil dibandingkan dengan kontrol MIC dan kontrol positif. Kesimpulan penelitian ini adalah penambahan probiotik *Lactobacillus casei* pada gel *Aloe vera* berbagai konsentrasi berpengaruh meningkatkan daya hambat pertumbuhan *Aggregatibacter actinomycetemcomitans*.

Kata kunci: periodontopatogen, antibakteri, probiotik, *Lactobacillus casei*, gel aloe vera

ABSTRACT

Periodontitis is an inflammatory disease of dental support tissue that begins with accumulation of plaque such as *Aggregatibacter actinomycetemcomitans* can trigger the formation of periodontal pockets and requires scaling and root planing (SRP) treatment. However, SRP treatment is still less effective in eliminating bacteria that have invaded the tissue, requiring adjuvant therapy. One of the ingredients for this therapy is the administration of *Aloe vera* gel, which can penetrate periodontal tissue but still requires the ingredients used to prevent recolonization, namely the probiotic *Lactobacillus casei*. This study aimed to determine the effect of adding *Lactobacillus casei* probiotics at various *Aloe vera* gel concentrations on the inhibitory power of *Aggregatibacter actinomycetemcomitans*.

The research method of the inhibitory power test of *Aggregatibacter actinomycetemcomitans* was disc diffusion in *Mueller Hinton* Agar. There were three treatment groups, namely the 5%, 10%, and 15% *Aloe vera* gel enriched by *Lactobacillus casei* groups, the MIC control group (25% *Aloe vera* gel), the probiotic control (saline plus *Lactobacillus casei*), the negative control (saline solvent), and the positive control (chlorhexidine gluconate 0,2%). The diameter of the inhibitory zone was measured by sliding calliper, then the data was analyzed with One-way ANOVA and Post hoc Games-Howell.

The results showed a significant difference ($p < 0.05$) in the three treatment groups against the diameter of the inhibition zone. All three treatment groups showed that the greater the *Aloe vera* gel concentration enriched by *Lactobacillus casei*, the greater the inhibitory power produced. However, all three treatment groups had less inhibitory power compared to MIC control and positive control. This study concludes that adding *Lactobacillus casei* probiotics at various *Aloe vera* gel concentrations increases the growth inhibition of *Aggregatibacter actinomycetemcomitans*.

Keywords: periodontogen, antibacterial, probiotic, *Lactobacillus casei*, *aloe vera* gel