

INTISARI

Periodontitis merupakan penyakit inflamasi menyerang periodontium yang diawali akumulasi plak dengan salah satu bakteri utama yang sering ditemukan adalah *Porphyromonas gingivalis*. Terapi *Scaling Root Planing* kurang efektif dalam melawan bakteri yang sudah invasi ke jaringan sehingga membutuhkan terapi adjuvan. Salah satu terapi adjuvan adalah gel *Aloe vera* sebagai agen antibakteri dan mampu penetrasi ke jaringan. Gel *Aloe vera* membutuhkan probiotik *Lactobacillus casei* untuk menghambat rekolonisasi bakteri. Penelitian ini memiliki tujuan untuk mengetahui pengaruh penambahan probiotik *Lactobacillus casei* pada gel *Aloe vera* berbagai konsentrasi terhadap daya hambat pertumbuhan bakteri *Porphyromonas gingivalis*.

Metode uji daya hambat pertumbuhan *Porphyromonas gingivalis* adalah metode difusi cakram pada *Trypticase Soya Agar*. Kelompok perlakuan ada tiga, yaitu gel *Aloe vera* 5%, 10%, dan 15% diperkaya *Lactobacillus casei* serta ada empat kelompok kontrol, yaitu kontrol probiotik (salin + *Lactobacillus casei*), kontrol MIC (gel *Aloe vera* 25%), kontrol negatif (salin) dan kontrol positif (klorheksidin glukonat 0,2%). Hasil uji berupa diameter zona bening diukur menggunakan *sliding caliper* dan data dianalisis menggunakan *One-way ANOVA* dan *post hoc LSD*.

Hasil penelitian menunjukkan adanya perbedaan signifikan pada ketiga kelompok perlakuan. Diameter daya hambat bakteri dari ketiga kelompok perlakuan semakin meningkat seiring peningkatan konsentrasi gel *Aloe vera* yang diperkaya *Lactobacillus casei* meskipun diameter daya hambat dari ketiga kelompok perlakuan masih 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 bakteri *Porphyromonas gingivalis*.

Kata kunci: periodontopatogen, *porphyromonas gingivalis*, antibakteri, probiotik, *lactobacillus casei*, gel aloe vera

ABSTRACT

Periodontitis is an inflammatory disease that attacks periodontium which is initiated by plaque accumulation with one of the main bacteria is *Porphyromonas gingivalis*. *Scaling Root Planing* is less effective in fighting bacteria that have invaded the tissues so adjuvant therapy is needed. *Aloe vera* gel is one of adjuvant therapy that have role as an antibacterial agent and capable of penetrating in tissue. *Lactobacillus casei* probiotic is needed by *Aloe vera* gel to inhibit bacterial recolonization. The objective of this study was to determine the effect of adding *Lactobacillus casei* probiotic at various concentrations of *Aloe vera* gel in inhibiting the growth of *Porphyromonas gingivalis* bacteria.

The research method for the growth inhibition of *Porphyromonas gingivalis* bacteria was a disc diffusion method using *Trypticase Soya Agar media*. There were three treatment groups: 5%, 10%, and 15% *Aloe vera* gel enriched by *Lactobacillus casei* probiotics as the treatment groups and four control groups: probiotic control (saline + *Lactobacillus casei*), MIC control (25% *Aloe vera* gel), negative control (saline), and positive control (0.2% chlorhexidine gluconate). Diameter of clear zones formed on the media were measured using a sliding caliper and analysis data was performed by using *One-way ANOVA* and post hoc *LSD*.

The results showed a significant difference in three treatment groups. The bacterial inhibitory diameter of the treatment groups increased as the concentration of *Aloe vera* gel enriched by *Lactobacillus casei* probiotics increased, although the inhibitory diameter of three treatment groups were still smaller compared to the MIC control and positive control. The conclusion of this study was that the addition of *Lactobacillus casei* probiotics at various concentrations of *Aloe vera* gel influences in increasing the growth inhibition of *Porphyromonas gingivalis* bacteria.

Keywords: periodontopathogen, *porphyromonas gingivalis*, antibacterial, probiotics, *lactobacillus casei*, *aloe vera* gel