

## INTISARI

Periodontitis merupakan penyakit inflamasi kronis yang disebabkan oleh infeksi bakteri periapatogen *Porphyromonas gingivalis*. Penggunaan terapi adjuvan berupa antimikroba konvensional dapat menimbulkan resistensi sehingga diperlukan alternatif yang lebih minim resiko resistensi, seperti ekstrak bunga kecombrang (*Etlingera elatior*). Penelitian ini bertujuan untuk mengetahui pengaruh perbedaan konsentrasi ekstrak bunga kecombrang dalam bentuk sediaan gel periodontal terhadap daya hambat pertumbuhan bakteri *Porphyromonas gingivalis*.

Penelitian dilaksanakan secara eksperimental in vivo menggunakan gel ekstrak bunga kecombrang dengan konsentrasi 12,5 mg/ml, 25 mg/ml, dan 50 mg/ml. Kontrol positif yang digunakan adalah gel klorheksidin 0,2% dan kontrol negatif basis gel. Uji daya hambat dilakukan menggunakan metode difusi sumuran dengan media *blood agar* secara anaerob. Zona hambat yang muncul diukur menggunakan perangkat lunak ImageJ dan dianalisis menggunakan uji Shapiro-Wilk, Levene, ANOVA Welch, dan Post Hoc Games Howell.

Hasil penelitian menunjukkan bahwa gel ekstrak bunga kecombrang sediaan gel periodontal menghasilkan zona hambat dalam kategori lemah dan tidak berbeda secara signifikan. Zona hambat terluas didapat pada konsentrasi 12,5 mg/ml sebesar  $0,56 \pm 0,18$  mm. Sementara itu, gel klorheksidin 0,2% menghasilkan zona hambat yang sangat kuat sehingga berbeda signifikan dengan kelompok lain. Dari penelitian ini dapat disimpulkan bahwa konsentrasi gel ekstrak bunga kecombrang tidak berpengaruh secara signifikan terhadap zona hambat pertumbuhan bakteri *Porphyromonas gingivalis*.

**Kata Kunci:** Kecombrang, *Etlingera elatior*, *Porphyromonas gingivalis*, Difusi sumuran

## ***ABSTRACT***

Periodontitis is a chronic inflammatory disease caused by infection of the periodontal pathogen *Porphyromonas gingivalis*. The use of conventional antimicrobial adjuvant therapy may lead to bacterial resistance; therefore, alternatives with lower resistance risk are needed, such as torch ginger (*Etilingera elatior*) extract. This study aimed to determine the effect of different concentrations of torch ginger extract formulated into a periodontal gel on the inhibitory activity against the growth of *Porphyromonas gingivalis*.

This research was conducted as an in vitro experimental study using torch ginger extract gel at concentrations of 12.5 mg/ml, 25 mg/ml, and 50 mg/ml. Chlorhexidine gel 0.2% was used as the positive control, while a gel base without extract served as the negative control. The antibacterial activity test was performed using the well-diffusion method on blood agar under anaerobic conditions. The inhibition zones formed were measured using ImageJ software and analyzed using the Shapiro–Wilk test, Levene’s test, Welch ANOVA, and the Games–Howell Post Hoc test.

The results showed that the periodontal gel containing torch ginger extract produced inhibition zones classified as weak and not significantly different from one another. The largest inhibition zone was obtained at the 12.5 mg/ml concentration, measuring  $0.56 \pm 0.18$  mm. Meanwhile, 0.2% chlorhexidine gel produced a very strong inhibitory effect, significantly different from all other groups. Based on the findings, it can be concluded that the concentration of torch ginger extract gel does not have a significant effect on the inhibition zone against *Porphyromonas gingivalis*.

**Keywords:** Torch ginger, *Etilingera elatior*, *Porphyromonas gingivalis*, Well-diffusion method