

INTISARI

Porphyromonas gingivalis merupakan bakteri gram negatif anaerob yang menjadi penyebab utama penyakit periodontal. Perawatan penyakit periodontal terdiri atas terapi utama secara mekanik, seperti *scaling* dan *root planing*, serta terapi adjuvan secara kimiawi menggunakan larutan irigasi. Biji adas (*Foeniculum vulgare*) mengandung senyawa anetol, flavonoid, tanin, dan saponin yang bersifat antibakteri. Penelitian ini bertujuan untuk mengetahui pengaruh ekstrak etanolik biji adas (*Foeniculum vulgare*) dalam menghambat pertumbuhan bakteri periodontopatogen *Porphyromonas gingivalis*.

Penelitian dilakukan secara *in vitro* dengan metode cakram menggunakan media *Mueller Hinton Agar*. Objek penelitian berupa bakteri *Porphyromonas gingivalis* ATCC 33277 yang telah diencerkan dengan standar McFarland 0,5 ($1,5 \times 10^8$ CFU/ml). Sampel penelitian terdiri atas 5 kelompok, yaitu ekstrak etanolik biji adas 5%, 10%, 20%, serta klorheksidin glukonat 0,2% sebagai kontrol positif dan akuades sebagai kontrol negatif. Setiap kelompok terdiri dari 5 sampel. Pertumbuhan bakteri *Porphyromonas gingivalis* diukur berdasarkan rata-rata nilai zona hambat yang terbentuk di sekitar kertas cakram dengan arah vertikal, horizontal, dan diagonal. Data dianalisis menggunakan uji *One-Way ANOVA* dan *Post-Hoc LSD*.

Hasil penelitian menunjukkan adanya perbedaan diameter zona hambat yang bermakna ($p < 0,05$) antarkelompok uji. Ekstrak biji adas menghasilkan daya hambat yang kuat setara dengan kontrol positif pada semua konsentrasi dengan zona hambat terbesar pada konsentrasi 20% kemudian konsentrasi 10% lalu konsentrasi 5%. Kesimpulan penelitian ini, yaitu larutan ekstrak etanolik biji adas (*Foeniculum vulgare*) berpengaruh kuat menghambat pertumbuhan bakteri periodontopatogen *Porphyromonas gingivalis* pada konsentrasi 5%, 10%, dan 20%.

Kata Kunci: *Porphyromonas gingivalis*, Penyakit Periodontal, Biji Adas, Antibakteri, Zona Hambat

ABSTRACT

Porphyromonas gingivalis is a gram-negative anaerobic bacterium that is recognized as the main cause of periodontal disease. The treatment for periodontal disease consists of primary mechanical therapy, such as scaling and root planning, as well as adjunctive chemical therapy using irrigation solutions. Fennel seeds (*Foeniculum vulgare*) are known to contain compounds such as anethole, flavonoids, tannins, and saponins that have antibacterial properties. This research was aimed at determining the effect of ethanolic extract from fennel seeds (*Foeniculum vulgare*) in inhibiting the growth of the periodontopathogenic bacterium *Porphyromonas gingivalis*.

The study was conducted in vitro using the disc diffusion method with Mueller Hinton Agar medium. The research object consisted of *Porphyromonas gingivalis* ATCC 33277, which was diluted to a standard McFarland 0.5 (1.5×10^8 CFU/ml). The research samples comprised five groups: ethanolic extract of fennel seeds at 5%, 10%, and 20%, chlorhexidine gluconate at 0.2% as a positive control, and distilled water as a negative control. Each group consisted of 5 samples. The growth of *Porphyromonas gingivalis* was measured based on the average of inhibition zone values formed around the paper discs in vertical, horizontal, and diagonal directions. The data were analyzed using One-Way ANOVA and Post-Hoc LSD tests.

The results of the study showed significant differences in the diameter of inhibition zones ($p < 0,05$) among the test groups. The fennel seed extract produced strong inhibitory activity equivalent to the positive control at all concentrations, with the largest inhibition zone observed at the 20% concentration followed by the 10% and then the 5% concentrations. The conclusion of this study was that the ethanolic extract solution from fennel seeds (*Foeniculum vulgare*) has a strong effect in inhibiting the growth of the periodontopathogenic bacterium *Porphyromonas gingivalis* at concentrations of 5%, 10%, and 20%.

Keywords: *Porphyromonas gingivalis*, Periodontal Disease, Fennel seed, Antibacterial, Inhibition Zone