

## INTISARI

Periodontitis merupakan masalah kesehatan gigi dan mulut yang disebabkan oleh bakteri pada plak gigi. Salah satu bakteri penyebab periodontitis adalah *Fusobacterium nucleatum*. Bakteri ini menjadi jembatan mikroba antara koloni awal dan koloni akhir serta memungkinkan bakteri patogen lain untuk menginfeksi dan berproliferasi. Kulit apel hijau memiliki sifat antibakteri karena adanya kandungan fitokimia turunan polifenol, yaitu kuersetin, katekin, phloridzin, serta asam klorogenat. Tujuan penelitian ini adalah untuk mengetahui efektivitas ekstrak kulit apel hijau (*Pyrus malus L.*) 25% terhadap daya hambat pertumbuhan bakteri *Fusobacterium nucleatum* secara *in vitro*.

Penelitian ini menggunakan kulit apel hijau (*Pyrus malus L.*) yang diekstraksi dengan metode maserasi. Uji sensitivitas antibakteri dilakukan dengan metode difusi sumuran. Suspensi bakteri *F. nucleatum* dimasukkan dalam cawan petri dan ditambahkan media MHA cair, kemudian dibiarkan memadat dan dibuat sumuran. Lubang sumuran diberi ekstrak kulit apel hijau 25%, klorheksidin glukonat 0,2%, dan akuades steril, terdiri sebanyak 50µl. Lalu diinkubasi pada suhu 37° selama 24 jam dalam incubator dan dilakukan pengukuran diameter zona hambat yang terbentuk.

Rerata diameter zona hambat ekstrak kulit apel hijau 25% sebesar 11,37 mm, klorheksidin glukonat 0,2% sebesar 23,38 mm, dan akuades steril sebesar 0,00 mm. Hasil uji *One-Way ANOVA* menunjukkan ekstrak kulit apel hijau 25% berpengaruh signifikan terhadap daya hambat pertumbuhan *F. nucleatum*. Hasil uji *Post-Hoc Games-Howell* menunjukkan terdapat perbedaan yang signifikan antar kelompok uji. Kesimpulan penelitian ini, yaitu ekstrak kulit apel hijau (*Pyrus malus L.*) 25% memiliki efektivitas daya hambat terhadap pertumbuhan bakteri *Fusobacterium nucleatum*, tetapi lebih rendah dibanding klorheksidin glukonat 0,2%.

Kata kunci : *Fusobacterium nucleatum*, kulit apel hijau, antibakteri, zona hambat, periodontitis

## ABSTRACT

Periodontitis is oral health problem caused by dental plaque bacteria. One of the bacteria is *Fusobacterium nucleatum*. These bacteria became microbial bridge between the early and late colonies also allow other pathogenic bacteria to infect and to proliferate. Green apple peel has antibacterial activity with its phytochemical content of polyphenol derivatives, namely quercetin, catechins, phloridzin, and chlorogenic acid. This study aimed to find out the effectiveness of 25% green apple peel extract (*Pyrus malus L.*) in the inhibition of growth of *Fusobacterium nucleatum* bacteria *in vitro*.

This research used green apple (*Pyrus malus L.*) peel that extracted by maceration method. Antibacterial sensitivity test used is the well diffusion method. The *F. nucleatum* suspension was put in petri dish, added with liquid MHA media, then allowed to solidify and made wells. Each wells filled with 25% green apple peel extract, 0.2% chlorhexidine gluconate, and sterile distilled water, as much as 50 $\mu$ l. Then incubated at 37 $^{\circ}$  for 24 hours in incubator and the diameter of inhibition zone was measured.

The mean diameter inhibition zone of 25% green apple peel extract was 11.37 mm, 0.2% chlorhexidine gluconate was 23.38 mm, and sterile distilled water was 0.00 mm. *One-Way ANOVA* test results showed that 25% green apple peel extract had significant effect on the inhibition of *F. nucleatum* growth. The results of the *Post-Hoc Games-Howell* test showed that there were significant differences between the test groups. In conclusion, 25% green apple peel extract (*Pyrus malus L.*) has an effective inhibitory effect on the growth of *Fusobacterium nucleatum* bacteria but was lower than 0.2% chlorhexidine gluconate.

Kata kunci : *Fusobacterium nucleatum*, green apple peel, antibacterial, inhibition zone, periodontitis