

## INTISARI

Periodontitis adalah penyakit inflamatori destruktif kronis akibat penumpukan plak pada jaringan pendukung gigi yang dapat menyebabkan rusaknya tulang alveolar hingga avulsi gigi. *Porphyromonas gingivalis* merupakan bakteri paling dominan pada kasus periodontitis kronis. Faktor virulensi bakteri ini mampu menderegulasi respon imun bawaan dan menyerang jaringan periodontal secara lokal. Gama Melon Parfum (*Cucumis melo* L. cv. 'GMP') merupakan kultivar unggul yang mengandung senyawa fitokimia tinggi berupa fenol, flavonoid, saponin, terpenoid, dan kukurbitasin B yang diketahui memiliki potensi antibakteri, namun belum ada penelitian yang dilakukan terhadap bakteri periodontopatogen. Penelitian ini bertujuan untuk mengetahui daya hambat ekstrak melon GMP terhadap bakteri *P. gingivalis*.

Melon GMP diekstraksi dengan metode maserasi. Pengujian potensi antibakteri dilakukan menggunakan spektrofotometri dengan membandingkan turbiditas pertumbuhan bakteri. Sebanyak 5 ml suspensi bakteri dengan kekeruhan McFarland 0,5 ( $1,5 \times 10^8$ ) dimasukkan ke tabung reaksi yang berisi 5 ml ekstrak melon GMP konsentrasi 50%, 25%, 12,5%, 6,25%, 3,125%, larutan klorheksidin glukonat 0,2% (kontrol positif), serta akuades steril (kontrol negatif). Pengukuran turbiditas dilakukan setelah tabung uji diinkubasi pada *anaerobic jar* dengan suhu 37°C selama 1x24 jam. Pengujian dilakukan sebanyak 4 kali pengulangan. Hasil penelitian dianalisis menggunakan uji *one-way* ANOVA dan *Post-Hoc* LSD.

Rata-rata turbiditas dari terkecil hingga terbesar berturut-turut adalah klorheksidin, ekstrak melon GMP konsentrasi 50%, 25%, 12,5%, 6,25%, 3,125%, dan akuades. Analisis hasil penelitian menunjukkan bahwa bahan uji berpengaruh terhadap turbiditas dengan perbedaan signifikan ( $p < 0,05$ ) antarkelompok dan menunjukkan adanya hubungan *dose-dependent*. Kesimpulan penelitian ini adalah larutan ekstrak melon GMP memiliki daya hambat terhadap bakteri *P. gingivalis* dan daya hambat paling besar terdapat pada konsentrasi 50%.

Kata kunci: Gama Melon Parfum, antibakteri, *Porphyromonas gingivalis*, spektrofotometri, turbiditas

## ABSTRACT

Periodontitis is a plaque-induced chronic destructive inflammatory disease in the teeth supporting tissues which can cause damage to alveolar bone and tooth avulsion. *Porphyromonas gingivalis* is the most dominant bacterium in chronic periodontitis cases. The virulence factors of this bacteria are able to deregulate the innate immune response and destroy periodontal tissue locally. Gama Melon Perfume (*Cucumis melo* L. cv. 'GMP') is a superior cultivar containing high phytochemical compounds in the form of phenols, flavonoids, saponins, terpenoids, and cucurbitacin B that are known to have antibacterial potential, but no studies have been conducted on periodontopathogenic bacteria. This study aims to determine the inhibitory effect of GMP melon extract against *P. gingivalis*.

GMP melons are extracted by maceration method. Antibacterial potential testing was performed using spectrophotometry and comparing the turbidity of bacterial growth. A total of 5 ml of bacterial suspension with McFarland turbidity 0,5 ( $1,5 \times 10^8$ ) was inserted into test tubes containing 5 ml of GMP melon extract concentrations of 50%, 25%, 12,5%, 6,25%, 3,125%, chlorhexidine gluconate 0,2% solution (positive control), and sterile aquadest (negative control). The turbidity was measured after the test tube had been incubated in an anaerobic jar with 37°C temperature for 1x24 hours. The test was carried out 4 times. The results of the study were analyzed with one-way ANOVA and Post-Hoc LSD tests.

The average turbidity from smallest to largest respectively was chlorhexidine, GMP melon extract concentrations of 50%, 25%, 12,5%, 6,25%, 3,125%, and aquadest. The results analysis showed that the tested material had an effect on turbidity with a significant statistically difference ( $p < 0,05$ ) between groups and showed a dose-dependent relationship. The conclusion of this study is that GMP melon extract solution has an inhibitory effect against *P. gingivalis* and the greatest inhibitory effect is found at the 50% concentration.

**Keywords:** Gama Melon Parfum, antibacterial, *Porphyromonas gingivalis*, spectrophotometry, turbidity