

## Perbandingan Efektivitas Larutan Madu Randu dengan Klorheksidin 0,2% Terhadap Daya Hambat Pertumbuhan Bakteri *Porphyromonas gingivalis* (in vitro)

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### ABSTRAK

**Pendahuluan:** *Porphyromonas gingivalis* merupakan bakteri Gram negatif obligat anaerob yang banyak ditemukan dalam akumulasi plak gigi dan dapat menyebabkan perubahan patologis jaringan periodontal dengan mengaktifkan respon imun dan inflamatori *host* yang secara langsung mempengaruhi sel-sel periodonsium. Madu randu merupakan madu monoflora yang dapat berperan sebagai agen antibakteri karena memiliki pH yang rendah, kandungan senyawa aktif seperti komponen fenolat dan saponin serta hidrogen peroksida (H<sub>2</sub>O<sub>2</sub>). **Tujuan:** Untuk membandingkan efektivitas pemberian larutan madu randu konsentrasi 15%, 30%, 60%, 90% dan klorheksidin 0,2% terhadap daya hambat pertumbuhan bakteri *Porphyromonas gingivalis*. **Metode:** Penelitian ini merupakan penelitian eksperimental laboratoris (*in vitro*) dengan *post test only group design*. Penelitian ini menggunakan variabel independen berupa larutan madu randu konsentrasi 15%, 30%, 60%, 90%, dan klorheksidin 0,2%, serta variabel dependen berupa lebar zona daya hambat bakteri *Porphyromonas gingivalis* yang diukur dengan metode difusi sumuran. **Hasil:** Larutan madu randu dengan konsentrasi 90% dan klorheksidin 0,2% efektif dalam menghambat pertumbuhan bakteri *Porphyromonas gingivalis* dengan rerata lebar zona hambat 1,55 mm dan 9,71 mm, sedangkan larutan madu randu konsentrasi 15%, 30%, dan 60% tidak efektif karena tidak memiliki rerata lebar zona hambat. Klorheksidin 0,2% menunjukkan efektivitas yang paling besar dalam menghambat pertumbuhan bakteri *Porphyromonas gingivalis* dibandingkan variabel independen lainnya. **Kesimpulan:** Larutan madu randu konsentrasi 90% efektif menghambat pertumbuhan bakteri *Porphyromonas gingivalis*, namun masih lebih rendah dibandingkan dengan klorheksidin 0,2%.

**Kata kunci:** Madu randu, *Porphyromonas gingivalis*, lebar zona daya hambat

## Comparison of Effectiveness of *Ceiba pentandra* Honey Solution with 0,2% Chlorhexidine on the Growth Inhibition of *Porphyromonas gingivalis* Bacteria (*in vitro*)

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### ABSTRACT

**Introduction:** *Porphyromonas gingivalis* is a Gram-negative, anaerobe obligate bacteria which is commonly found in dental plaque accumulation and it causes pathological changes in the periodontal tissue by activating host immune and inflammatory responses that directly affect periodontal cells. *Ceiba pentandra* honey is a monoflora honey as an antibacterial agent because it has lower pH level, contains the active compound such as phenolic, saponin and hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>). **Purpose:** To determine difference effectivity between *Ceiba pentandra* honey solution and 0,2% chlorhexidine on the growth inhibition of *Porphyromonas gingivalis* bacteria. **Methods:** This research was an laboratory experimental study (*in vitro*) with a post test only group design. This independent variables were the 15%, 30%, 60%, 90% concentrations of *Ceiba pentandra* honey solution and 0,2% chlorhexidine. The dependent variable was the *Porphyromonas gingivalis* inhibitory zone width measured by the wells diffusion method. **Results:** The 90% concentration of *Ceiba pentandra* honey solution and 0,2% chlorhexidine were effective in inhibiting the growth of *Porphyromonas gingivalis* bacteria with the inhibitory zone width mean 1,55 mm and 9,71 mm, while the 15%, 30% and 60% concentrations of *Ceiba pentandra* honey solution were ineffective. 0,2% chlorhexidine showed the greatest effectiveness in inhibiting the growth of *Porphyromonas gingivalis* bacteria compared to other independent variables. **Conclusion:** The 90% concentration of *Ceiba pentandra* honey effectively inhibits the growth of *Porphyromonas gingivalis* bacteria but it still lower than 0,2% chlorhexidine.

**Keywords:** *Ceiba pentandra* honey solution, *Porphyromonas gingivalis*, growth inhibition