

# Efektivitas Gel Ekstrak Etanol Kelopak Bunga Rosela (*Hibiscus Sabdariffa* Linn) Dalam Menghambat Pertumbuhan Bakteri *Treponema Denticola*(In Vitro) = Efficacy of Gel Ethanol Extract of Roselle Calyx (*Hibiscus sabdariffa* Linn.) in Inhibiting the Growth of Bacteria *Treponema denticola* (In Vitro)

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## Abstrak

**Pendahuluan:** Salah satu bakteri penyebab periodontitis adalah *Treponema denticola*. Untuk perawatan penyakit periodontal diperlukan aplikasi terapi topikal antibakteri tambahan untuk mempercepat penyembuhan dibanding hanya dengan terapi tunggal seperti kuretase. Ekstrak tanaman rosela (*Hibiscus sabdariffa* Linn.) memiliki khasiat antibakteri yang dapat melawan bakteri Gram negatif seperti *Treponema denticola*. Dalam upaya pengembangan bentuk sediaan, ekstrak etanol kelopak bunga rosela dibuat dalam bentuk sediaan gel.

**Tujuan:** Mengetahui efektivitas gel ekstrak etanol kelopak bunga rosela (*Hibiscus sabdariffa* Linn.) sebagai antibakteri terhadap *Treponema denticola*.

**Metode:** Uji zona hambat dilakukan dengan meletakkan cakram kertas yang dipaparkan gel ekstrak etanol kelopak bunga rosela 10%, 15%, 25%, kontrol positif, dan kontrol negatif di atas medium mueller-hinton agar yang telah diinokulasi bakteri *Treponema denticola* lalu diinkubasi dalam waktu 6 jam dengan suhu 37°C pada kondisi anaerob. Uji total plate count dilakukan dengan menghitung jumlah koloni *Treponema denticola* yang masih hidup setelah dipaparkan dengan gel ekstrak etanol kelopak bunga rosela 10%, 15%, 25% serta kontrol positif dan kontrol negatif.

**Hasil:** Gel ekstrak etanol kelopak bunga rosela konsentrasi 15% dan 25% menunjukkan efek zona hambat terhadap bakteri *Treponema denticola*. Pada uji total plate count, gel ekstrak etanol kelopak bunga rosela (*Hibiscus sabdariffa* Linn.) dengan konsentrasi 10%, 15%, dan 25% menunjukkan pengurangan jumlah koloni bakteri *Treponema denticola*.

**Kesimpulan:** Gel ekstrak etanol kelopak bunga rosela (*Hibiscus sabdariffa* Linn.) konsentrasi 25% terbukti paling efektif dalam menghambat pertumbuhan bakteri *Treponema denticola* ATCC 33520.

.....Introduction: One of the bacteria that causes periodontitis is *Treponema denticola*. For the treatment of periodontal disease, an additional antibacterial therapy by topical application to accelerate healing is needed rather than a single therapy such as curettage. The ethanol extract of the rosella plant (*Hibiscus sabdariffa* Linn.) has an antibacterial agent that can against Gram-negative bacteria such as *Treponema denticola*. In an effort to develop the dosage form, ethanol extract of roselle calyx was made in gel form.

**Objective:** To investigate the efficacy of gel ethanol extract of roselle calyx (*Hibiscus sabdariffa* Linn.) as an antibacterial against *Treponema denticola*.

Methods: Inhibition zone test was carried out by placing paper discs exposed with 10%, 15%, 25% rosella calyx extract gel ethanol, positive control, and negative control on the mueller-hinton agar medium which had been inoculated with *T. denticola* bacteria and then incubated within 6 hours with a temperature of 37<sup>o</sup>C in anaerobic conditions. Total plate count test is done by counting the number of *T. denticola* colonies that are still alive after being exposed with 10%, 15%, 25% rosella calyx extract gel as well as positive and negative controls.

Result: The gel ethanol extract of roselle calyx (*Hibiscus sabdariffa* Linn.) concentration of 15% and 25% showed the effect of inhibitory zones on the bacterium *Treponema denticola*. In the total plate count test, gel ethanol extract of roselle calyx (*Hibiscus sabdariffa* Linn.) with a concentration of 10%, 15%, and 25% showed reduction in the number of *Treponema denticola* colonies.

Conclusion: The gel ethanol extract of roselle calyx (*Hibiscus sabdariffa* Linn.) concentration of 25% was proven to be the most effective in inhibiting the growth of the bacterium *Treponema denticola* ATCC 33520.