

## INTISARI

Bakteri *Streptococcus mutans* (*S. mutans*) merupakan bakteri yang dapat menyebabkan karies gigi. Kulit, buah, dan biji markisa kuning (*Passiflora edulis* Sims) memiliki kandungan fitokimia yang berbeda-beda seperti flavonoid, alkaloid, saponin, dan tanin. Kandungan fitokimia tersebut diketahui memiliki kemampuan antimikroba. Tujuan penelitian ini adalah mengetahui perbandingan daya antibakteri ekstrak kulit, buah, dan biji markisa kuning terhadap pertumbuhan bakteri *S. mutans* ATCC 25175.

Metode yang digunakan dalam penelitian ini adalah difusi sumuran (*well diffusion*) dan makrodilusi. Uji difusi sumuran dilakukan dengan kultur bakteri pada kelompok perlakuan diberi ekstrak kulit, buah, dan biji dengan konsentrasi 40% sementara kontrol positif diberi klorheksidin 0,12% dan kontrol negatif tidak diberi perlakuan. Inkubasi dilakukan pada suhu 37°C selama 24 jam selanjutnya diukur zona hambatnya. Uji makrodilusi dilakukan dengan serial dilusi dari masing masing ekstrak sebanyak sepuluh kali mulai dari konsentrasi 40%. Tabung yang berisi media (tanpa bakteri) digunakan sebagai pembanding atau standar dari tabung lainnya untuk pengukuran uji makrodilusi. Inkubasi dilakukan pada suhu 37°C selama 24 jam. Nilai *Minimum Inhibitory Concentration* (MIC) adalah konsentrasi terendah dari setiap ekstrak yang dapat menghambat pertumbuhan bakteri.

Hasil uji statistik *One Way ANOVA* dari data zona hambat menunjukkan perbedaan signifikan antar kelompok ( $p < 0,05$ ). Hasil uji *post hoc* dengan metode *Dunnnett T3* menunjukkan bahwa seluruh perlakuan signifikan terhadap kontrol negatif. Perbedaan tidak bermakna ditunjukkan ekstrak buah 40% dengan kontrol positif. Hasil uji MIC secara berurutan dari ekstrak kulit, buah, dan biji yaitu 5%, 0,94%, dan 0,31%. Kesimpulan dari penelitian ini adalah ekstrak biji markisa kuning menunjukkan daya antibakteri yang paling besar dibanding kulit dan buahnya terhadap bakteri *S. mutans* ATCC 25175.

Kata kunci : Ekstrak kulit markisa kuning, Ekstrak buah markisa kuning, Ekstrak biji markisa kuning, Antibakteri, *Streptococcus mutans* ATCC 25175.

## ABSTRACT

*Streptococcus mutans* (*S. mutans*) is a cariogenic bacteria that cause dental caries. The rinds, juice, and seeds of yellow passion fruit (*Passiflora edulis* Sims) contain different phytochemicals such as flavonoids, alkaloids, saponins, and tannins. These phytochemicals are known to have antimicrobial abilities. The objective of this study was to compare the antibacterial activity of the rind, juice, and seed extracts of yellow passion fruit on the growth of *S. mutans* ATCC 25175 bacteria.

The method used in this study was well diffusion and macrodilution. A well diffusion test was carried out with bacterial cultures in the treatment group were given rind, juice, and seed extracts with a concentration of 40%, the positive control was given 0.12% chlorhexidine, and the negative control was not treated. Incubation was carried out at 37°C for 24 hours, and then the zone of inhibition was measured. A macrodilution test was carried out by serial dilution of each extract ten times, starting from a concentration of 40%. Tubes containing media (without bacteria) are used to compare or standard from other tubes for macrodilution test measurements. Incubation was carried out at 37°C for 24 hours. The Minimum Inhibitory Concentration (MIC) value was the lowest concentration of each extract that can inhibit bacterial growth.

One-Way ANOVA statistical test results from the inhibition zone data showed a significant difference between groups ( $p < 0.05$ ). The post hoc test results using the Dunnett T3 method showed that all treatments were significant to the negative control. No significant difference was shown by 40% juice extract with positive control. The MIC test results from the rind, juice, and seed extracts were 5%, 0.94%, and 0.31%. This study concluded that the yellow passion fruit seed extract showed the most significant antibacterial activity compared to the rind and juice against *S. mutans* ATCC 25175 bacteria.

**Keywords:** Yellow passion fruit rind extract, Yellow passion fruit juice extract, Yellow passion fruit seed extract, Antibacterial, *Streptococcus mutans* ATCC 25175.