

## INTISARI

Karies adalah penyakit infeksi jaringan keras gigi hasil interaksi antara hospes, agen, lingkungan, dan waktu. *Streptococcus mutans* merupakan bakteri utama yang berperan dalam pembentukan karies. Ekstrak etanolik propolis memiliki potensi untuk menghambat pertumbuhan bakteri karena mengandung senyawa flavonoid. Sifat antibakteri propolis diperoleh dengan adanya aksi pada dinding sel atau membran sitoplasma yang menyebabkan kerusakan struktural dan fungsional. Penelitian ini bertujuan untuk mengetahui daya antibakteri sediaan gel ekstrak propolis *Trigona* sp. terhadap pertumbuhan *S. mutans* ATCC 25175.

Penelitian dilakukan dengan menggunakan tiga sediaan gel ekstrak propolis yaitu konsentrasi 5%, 10%, dan 15% serta kelompok kontrol positif yaitu Cervitec<sup>®</sup> Gel dan kontrol negatif basis gel hidroksi etil selulosa (HEC). Uji sifat fisik gel dilakukan untuk mengetahui kestabilan dan kelayakan gel, dilanjutkan dengan uji antibakteri dengan metode difusi agar teknik sumuran. Daya hambat gel ekstrak propolis dihitung berdasarkan diameter zona hambat. Data hasil penelitian dianalisis menggunakan uji ANAVA satu jalur dan *Post Hoc* LSD.

Gel ekstrak propolis *Trigona* sp. menunjukkan hambatan pertumbuhan terhadap *S. mutans* yang dikategorikan kedalam golongan sangat kuat. Diameter zona hambat meningkat dari gel ekstrak propolis 5%, kemudian 10%, dan hasil pengukuran tertinggi diperoleh pada konsentrasi 15%. Kesimpulan penelitian ini adalah gel ekstrak propolis 5%, 10%, dan 15% dapat menghambat pertumbuhan *S. mutans* ATCC 25175, gel ekstrak propolis 15% menunjukkan daya antibakteri yang paling efektif terhadap pertumbuhan *S. mutans* ATCC 25175 dibandingkan konsentrasi gel ekstrak propolis yang lain.

## **ABSTRACT**

*Caries is an infection of dental hard tissue resulting from interactions between host, agent, environment, and time. Streptococcus mutans is the main bacteria that play a role in the formation of caries. Ethanolic propolis extract has the potential to inhibit bacterial growth because it contains flavonoid compounds. The antibacterial properties of propolis in the presence of action on the cell wall or cytoplasmic membrane, the cause of structural and functional damage. This study aims to determine the antibacterial power of gel preparation of propolis extract to S. mutans ATCC 25175.*

*The experiment was conducted by using 3 samples of propolis gel extract, 5%, 10%, and 15% propolis gel extract and positive control group, Cervitec<sup>®</sup> Gel and negative control of hydroxy ethyl cellulose base (HEC). Gel's physical properties test is done to determine the stability and feasibility of gel followed by antibacterial test using well's diffusion method. The propolis extract gel inhibition was calculated based on the measured inhibitory zone diameter in three directions for each well. The results data were analyzed using one-way ANAVA test and Post Hoc LSD.*

*The propolis extract gel showed a growth resistance response to S. mutans that was categorized into very strong groups. Inhibitory zone diameter increased from 5% propolis extract gel, then 10%, and the highest measurement results at 15% concentration. In conclusions, 5%, 10% and 15% propolis extract gel were able to inhibit S. mutans ATCC 25175 growth, 15% propolis extract gel showed the most effective antibacterial power against growth of S. mutans ATCC 25175, compared to the other lower concentrations.*