

Abstrak

Aggregatibacter actinomycetemcomitans merupakan bakteri penyebab periodontitis agresif. Untuk mengatasinya, dilakukan kontrol plak menggunakan bahan kimiawi maupun alam. Propolis sering dimanfaatkan dalam menghentikan pertumbuhan dan penyebaran bakteri, virus, dan jamur. Tujuan penelitian adalah untuk mengetahui efektifitas ekstrak propolis *Trigona* sp sebagai antibakteri terhadap *Aggregatibacter actinomycetemcomitans* secara *in vitro*. Jenis penelitian ini merupakan *true experimental laboratory* dengan design *post test control only*. Sampel penelitian adalah bakteri *Aggregatibacter actinomycetemcomitans* (Aa). Penelitian ini terdiri dari 8 (delapan) kelompok dengan replikasi masing-masing sebanyak 5 (lima). Pengujian antibakteri menggunakan metode dilusi. Analisis data secara statistik menggunakan uji *Kruskal-Wallis* dan *Mann-Whitney*. Berdasarkan hasil penelitian diperoleh rerata jumlah koloni Aa pada kelompok propolis *Trigona* sp konsentrasi 50%, 25%, 12,5%, 6,25%, 3,125%, 1,56% diperoleh rerata sebesar $5,60 \pm 1,52$; $11,60 \pm 4,83$; $15,60 \pm 5,03$; $22,20 \pm 2,86$; $25,40 \pm 6,43$; dan $141,80 \pm 5,40$, kontrol negative DMSO tidak terhitung, sedangkan kontrol positif (*chlorhexidine*) tidak terlihat adanya jumlah koloni Aa. Data hasil uji *Kruskal-Wallis* menunjukkan bahwa terdapat perbedaan rerata jumlah koloni yang signifikan setelah pemberian propolis *Trigona* sp ($p\text{-value}=0,001$; $p\text{-value}<0,05$). Hasil uji *Mann-Whitney* menunjukkan adanya perbedaan rerata jumlah koloni *Aggregatibacter actinomycetemcomitans* antara sebagian besar pasangan kelompok perlakuan ($p < 0,05$). Namun, tidak terdapat perbedaan yang signifikan antara kelompok propolis *Trigona* sp konsentrasi 25% dengan 12,5% ($p = 0,421$), antara 12,5% dengan 3,125% ($p = 0,056$), serta antara 6,25% dengan 3,125% ($p = 0,151$). Kesimpulan penelitian ini adalah propolis *Trigona* sp memiliki potensi daya hambat dan daya bunuh terhadap pertumbuhan *Aggregatibacter actinomycetemcomitans* secara *in vitro* dengan KHM berada pada konsentrasi 3.125% dan KBM di konsentrasi >50%.

Kata kunci: KHM, KBM, *Aggregatibacter actinomycetemcomitans*, Propolis *Trigona* sp

Abstract

Aggregatibacter actinomycetemcomitans is the main bacteria found in aggressive periodontitis. To overcome it, plaque control is carried out using chemical and natural substances. Propolis is often used to stop the growth and spread of bacteria, viruses, and fungi. The purpose of this study was to determine the effectiveness of *Trigona* sp propolis extract as an antibacterial agent against *Aggregatibacter actinomycetemcomitans* in vitro. It is a true experimental laboratory with a post-test control only design. The research sample was *Aggregatibacter actinomycetemcomitans* (Aa) bacteria. This study consisted of 8 (eight) groups with 5 (five) replications each. Dilution method was used to determine the antibacterial effect. Data was then analyzed statistically using Kruskal Wallis and Mann Whitney Test. The average number of Aa colonies in the *Trigona* sp propolis group with concentrations of 50%, 25%, 12.5%, 6.25%, 3.125%, and 1.56% was $5,60 \pm 1,52$; $11,60 \pm 4,83$; $15,60 \pm 5,03$; $22,20 \pm 2,86$; $25,40 \pm 6,43$; dan $141,80 \pm 5,40$, negative control (DMSO) was uncountable, while positive control (chlorhexidine) did not show any Aa colonies. The Kruskal-Wallis test data showed that there was a significant difference in the average number of colonies after administration of *Trigona* sp propolis ($p\text{-value}=0.001$; $p\text{-value}<0.05$). The Mann-Whitney test results stated that there was a difference in the average number of Aa colonies between two different groups ($p<0.05$), except between the *Trigona* sp propolis group with a concentration of 25% with 12.5% ($p=0,421$), 12,5% with 3,125% ($p = 0,056$) and 6.25% with 3,125% ($p=0,151$) there was no significant difference in the number of colonies ($p>0.05$). The conclusion of this study is that *Trigona* sp propolis has the potential to inhibit and kill the growth of *Aggregatibacter actinomycetemcomitans* in vitro with MIC at a concentration of 3.125% and MBC at a concentration of >50%.

Keywords: MIC, MBC, *Aggregatibacter actinomycetemcomitans*, Propolis *Trigona* sp