

INTISARI

Aggregatibacter actinomycetemcomitans merupakan salah satu bakteri gram negatif yang menyebabkan periodontitis. Tambahan terapi antibiotik lokal dibutuhkan untuk mengeliminasi bakteri periodontal tersebut. Cangkang rajungan (*Portunus pelagicus*) mengandung kitosan yang mempunyai sifat antibakteri. Tujuan penelitian ini adalah untuk mengetahui apakah gel kitosan ekstrak cangkang rajungan (*Portunus pelagicus*) berefek menghambat pertumbuhan bakteri *Aggregatibacter actinomycetemcomitans*.

Bakteri *Aggregatibacter actinomycetemcomitans* diencerkan hingga mencapai kekeruhan 10^8 CFU/mL standar McFarland. Dua buah cawan petri yang telah dioleskan suspensi bakteri tersebut dibuat sumuran sebanyak 5 buah dan diberi perlakuan gel kitosan ekstrak cangkang rajungan (*Portunus pelagicus*) konsentrasi 1%, 1,5%, dan 2% pada cawan petri pertama, kontrol positif (gel tetrasiklin 0,7%) dan kontrol negatif (gel CMC-Na 2%) pada cawan petri kedua. Masing-masing kelompok terdiri dari 5 sampel (sumuran). Efek bahan uji diamati dengan mengukur diameter zona hambat setelah diinkubasi selama 48 jam. Data hasil penelitian selanjutnya dilakukan analisis menggunakan uji ANAVA satu jalur dan uji LSD.

Hasil penelitian menunjukkan perbedaan yang signifikan ($p < 0,05$) pada zona hambat antar kelompok, yang paling tinggi adalah kelompok kontrol positif, dilanjutkan kelompok gel kitosan ekstrak cangkang rajungan (*Portunus pelagicus*) 2%, dan kelompok gel kitosan ekstrak cangkang rajungan (*Portunus pelagicus*) 1,5%. Kelompok gel kitosan ekstrak cangkang rajungan (*Portunus pelagicus*) 1% dan kontrol negatif tidak menunjukkan adanya zona hambat. Kesimpulan dari penelitian ini adalah gel kitosan ekstrak cangkang rajungan (*Portunus pelagicus*) memiliki efek menghambat pertumbuhan bakteri *Aggregatibacter actinomycetemcomitans* pada konsentrasi 1,5% dan 2%.

Kata kunci: cangkang rajungan, gel kitosan, *Aggregatibacter actinomycetemcomitans*, zona hambat

ABSTRACT

Aggregatibacter actinomycetemcomitans is one of the gram-negative bacteria that cause periodontitis. Additional local antibiotic therapy is needed to eliminate this periodontal bacteria. The flower crab shell (*Portunus pelagicus*) contains chitosan which has antibacterial properties. The aim of this study was to determine whether chitosan gel of flower crab shell (*Portunus pelagicus*) had the effect of inhibiting the growth of *Aggregatibacter actinomycetemcomitans*.

Aggregatibacter actinomycetemcomitans were diluted to reach 10^8 CFU/mL McFarland's standard. The two petri dishes that had been swabbed with the bacterial suspension were made 5 wells and filled with 1%, 1,5%, and 2% concentrations of chitosan gel of flower crab shell (*Portunus pelagicus*) in the first petri dish, positive control (0,7% tetracycline gel) and negative control (2% CMC-Na gel) in the second petri dishes. All procedures were done in five replications. The antibacterial effect was observed by measured their zone of inhibition after being incubated for 48 hours. The results were statistically analyzed using the one-way ANOVA test and the LSD test.

The results showed a significant difference ($p < 0.05$) in the zone of inhibition between groups, the highest was the positive control group, then the 2% chitosan gel of flower crab shell (*Portunus pelagicus*), and the 1,5% chitosan gel of flower crab shell (*Portunus pelagicus*). The 1% chitosan gel of flower crab shell (*Portunus pelagicus*) and negative control did not show any inhibition zone. The conclusion of this study was that the chitosan gel of flower crab shell (*Portunus pelagicus*) has an effect inhibits the growth of *Aggregatibacter actinomycetemcomitans* at a concentration of 1,5% and 2%.

Keywords: flower crab shell, chitosan gel, *Aggregatibacter actinomycetemcomitans*, zone of inhibition