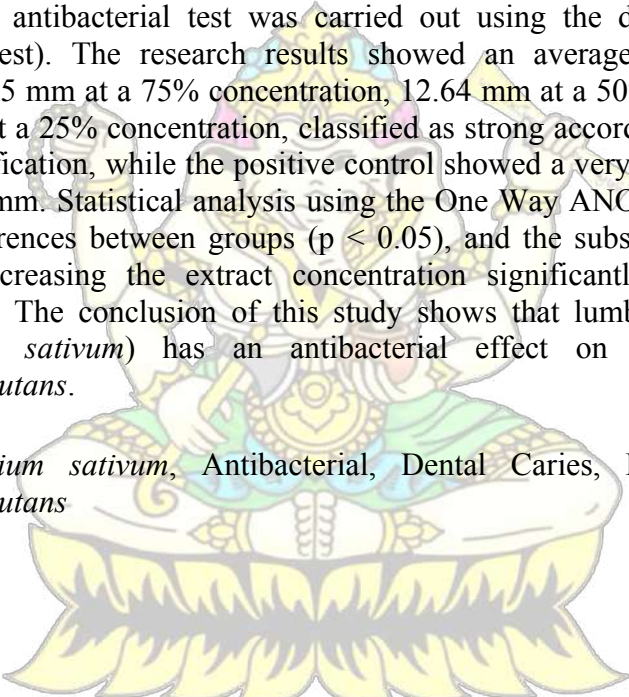


ABSTRACT

Dental caries is the most common oral health problem worldwide with a very high prevalence, including in Indonesia, and one of the main bacteria causing it is *Streptococcus mutans* through biofilm formation. This study aimed to determine the antibacterial effectiveness of garlic extract from the lumbu kuning variety (*Allium sativum*) against the growth of *Streptococcus mutans*. The study used a true laboratory experimental design with a post-test control group design. The sample consisted of *Streptococcus mutans* ATCC 35668 from bacterial stock cultures stored in the Microbiology Laboratory at Airlangga University. The treatment was divided into five groups, namely the lumbu kuning garlic extract treatment groups at concentrations of 25%, 50%, and 75%, as well as a negative control (sterile distilled water) and a positive control (0.2% chlorhexidine gluconate). The antibacterial test was carried out using the diffusion method (Kirby-Bauer Test). The research results showed an average inhibition zone diameter of 14.35 mm at a 75% concentration, 12.64 mm at a 50% concentration, and 10.65 mm at a 25% concentration, classified as strong according to the Davis and Stout classification, while the positive control showed a very strong inhibitory effect of 20.41 mm. Statistical analysis using the One Way ANOVA test showed significant differences between groups ($p < 0.05$), and the subsequent LSD test indicated that increasing the extract concentration significantly enhanced the inhibitory effect. The conclusion of this study shows that lumbu kuning garlic extract (*Allium sativum*) has an antibacterial effect on the growth of *Streptococcus mutans*.

Keywords: *Allium sativum*, Antibacterial, Dental Caries, Lumbu Kuning, *Streptococcus mutans*

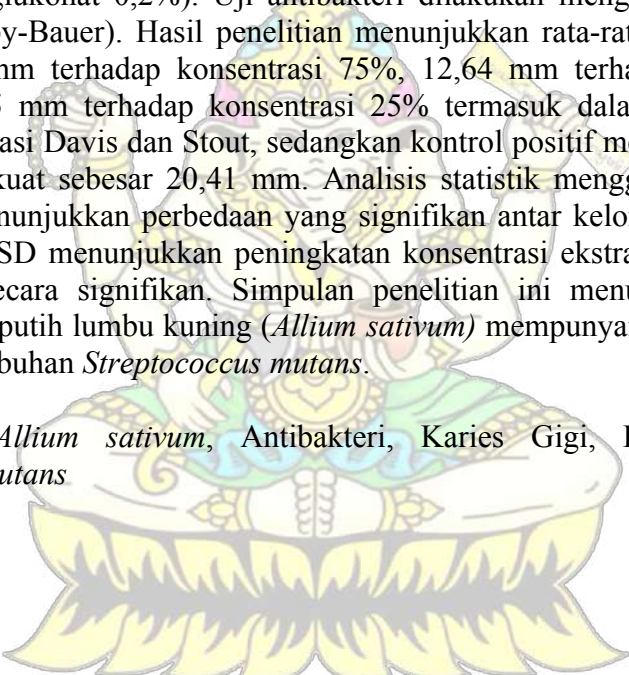


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ABSTRAK

Karies gigi merupakan masalah kesehatan mulut paling umum di dunia dengan prevalensi yang sangat tinggi, termasuk di Indonesia, dan salah satu bakteri utama penyebabnya adalah *Streptococcus mutans* melalui pembentukan biofilm. Penelitian ini bertujuan untuk mengetahui efektivitas antibakteri ekstrak bawang putih varietas lumbu kuning (*Allium sativum*) terhadap pertumbuhan *Streptococcus mutans*. Penelitian ini menggunakan desain true eksperimental laboratorium dengan *post-test control group design*. Sampel berupa *Streptococcus mutans* ATCC 35668 dari *stock culture* bakteri yang disimpan di Laboratorium Mikrobiologi Universitas Airlangga. Perlakuan dibagi ke dalam lima kelompok, yaitu kelompok perlakuan ekstrak bawang putih lumbu kuning dengan konsentrasi 25%, 50%, dan 75%, serta kontrol negatif (aquades steril), kontrol positif (chlorhexidine glukonat 0,2%). Uji antibakteri dilakukan menggunakan metode difusi (Tes Kirby-Bauer). Hasil penelitian menunjukkan rata-rata diameter zona hambat 14,35 mm terhadap konsentrasi 75%, 12,64 mm terhadap konsentrasi 50%, dan 10,65 mm terhadap konsentrasi 25% termasuk dalam kategori kuat menurut klasifikasi Davis dan Stout, sedangkan kontrol positif menunjukkan daya hambat sangat kuat sebesar 20,41 mm. Analisis statistik menggunakan uji One Way Anova menunjukkan perbedaan yang signifikan antar kelompok ($p < 0,05$) dan uji lanjut LSD menunjukkan peningkatan konsentrasi ekstrak meningkatkan daya hambat secara signifikan. Simpulan penelitian ini menunjukkan bahwa ekstrak bawang putih lumbu kuning (*Allium sativum*) mempunyai efek antibakteri terhadap pertumbuhan *Streptococcus mutans*.

Kata kunci: *Allium sativum*, Antibakteri, Karies Gigi, Lumbu Kuning, *Streptococcus mutans*



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