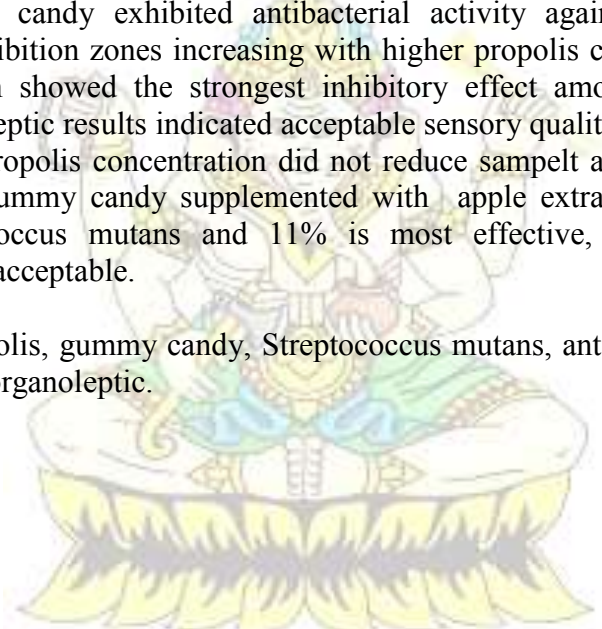


ABSTRACT

Streptococcus mutans is a Gram-positive bacterium that plays a major role in dental plaque formation and the development of dental caries. This study aimed to evaluate the antibacterial activity and organoleptic acceptability of sucrose-free propolis gummy candy supplemented with apple extract against *Streptococcus mutans* in vitro. This research employed a true experimental laboratory design with a post-test only control group approach. Six groups were tested: propolis gummy candy at concentrations of 5%, 7%, 9%, and 11%, a positive control (0.2% chlorhexidine gluconate), and a negative control (base gummy candy without propolis), with four repetitions per group. Antibacterial activity was assessed using the agar diffusion (Kirby–Bauer) method by measuring inhibition zone diameters. An organoleptic (hedonic, 1–5 scale) test was also conducted in child sampelts to evaluate color, aroma, taste, and overall acceptance. The results showed that propolis gummy candy exhibited antibacterial activity against *Streptococcus mutans*, with inhibition zones increasing with higher propolis concentrations; the 11% formulation showed the strongest inhibitory effect among the treatment groups. Organoleptic results indicated acceptable sensory quality (neutral to like), and increasing propolis concentration did not reduce sampelt acceptance. Which mean propolis gummy candy supplemented with apple extract is antibacterial against *Streptococcus mutans* and 11% is most effective, while remaining organoleptically acceptable.

Keywords: propolis, gummy candy, *Streptococcus mutans*, antibacterial activity, inhibition zone, organoleptic.



UNMAS DENPASAR

ABSTRAK

Streptococcus mutans merupakan bakteri Gram positif yang berperan penting dalam pembentukan plak gigi dan terjadinya karies gigi. Penelitian ini bertujuan untuk mengetahui daya hambat antibakteri serta penerimaan organoleptik permen gummy bebas sukrosa berbasis propolis dengan penambahan ekstrak apel terhadap *Streptococcus mutans* secara in vitro. Penelitian ini merupakan penelitian eksperimental murni dengan rancangan post-test only control group design. Kelompok uji terdiri atas permen gummy propolis dengan konsentrasi 5%, 7%, 9%, dan 11%, kontrol positif chlorhexidine gluconate 0,2%, serta kontrol negatif berupa permen dasar tanpa propolis. Masing-masing kelompok dilakukan empat kali pengulangan. Uji aktivitas antibakteri dilakukan menggunakan metode difusi agar (Kirby–Bauer) dengan mengukur diameter zona hambat. Selain itu, dilakukan uji organoleptik (hedonik skala 1–5) pada sampel anak-anak untuk menilai warna, aroma, rasa, dan penerimaan keseluruhan. Hasil penelitian menunjukkan bahwa permen gummy propolis membentuk zona hambat pada seluruh kelompok perlakuan, dan diameter zona hambat meningkat seiring peningkatan konsentrasi propolis, dengan konsentrasi 11% sebagai yang paling efektif di antara kelompok perlakuan. Hasil uji organoleptik menunjukkan nilai rata-rata warna, aroma, dan rasa berada pada kategori netral hingga suka, serta variasi konsentrasi propolis tidak menurunkan tingkat penerimaan sampel. permen gummy propolis dengan penambahan ekstrak apel efektif menghambat pertumbuhan *Streptococcus mutans* dan konsentrasi propolis 11% paling efektif serta tetap dapat diterima secara organoleptik.

Kata kunci: propolis, permen gummy, *Streptococcus mutans*, aktivitas antibakteri, zona hambat.

