

ABSTRAK

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INHIBISI *Streptococcus mutans* DARI *HARD CANDY* EKSTRAK DAUN JAMBU BIJI DAN *CAJUPUT ESSENTIAL OIL*

Skripsi, Fakultas Sains dan Teknologi (2021).

(xi + 84 halaman; 24 gambar; 11 tabel; 17 lampiran)

Daun jambu biji dikenal sebagai tanaman herbal dengan beragam senyawa aktif yang telah dimanfaatkan sebagai pengobatan dalam berbagai penyakit, seperti karies gigi yang menjadi salah satu penyakit infeksi oleh golongan *streptococci*. Tujuan dari penelitian ini yaitu untuk memanfaatkan ekstrak daun jambu biji dan *cajuput essential oil* dalam pembuatan *hard candy* yang mampu menghambat pertumbuhan bakteri penyebab karies gigi, yaitu *Streptococcus mutans*. Metode ekstraksi yang digunakan adalah maserasi menggunakan pelarut etanol dengan waktu maserasi 24, 48, dan 72 jam, dengan analisis total fenolik, total flavonoid, serta diameter hambat untuk ditentukan nilai MIC dan MBC. Produk *hard candy* diaplikasikan melalui ekstrak daun jambu biji dan *cajuput essential oil* dengan konsentrasi berturut-turut 0, 4, 6, 8 MIC dan 0; 0,4; dan 0,8%. Hasil produk *hard candy* dianalisis pada diameter hambat dan uji organoleptik yang terdiri dari uji skoring dan uji hedonik, serta analisis total fenolik dan flavonoid pada *hard candy* terpilih. Hasil yang diperoleh pada ekstrak dengan waktu maserasi 24 jam memiliki total fenolik dan total flavonoid masing-masing sebesar 255,35 mg GAE/g dan 33,34 mg QE/g, serta menghasilkan aktivitas antibakteri sebesar 14,23 mm dengan nilai terbaik, yaitu dengan MIC sebesar 487,75 ppm dan MBC sebesar 1951,01 ppm. Hasil MIC ekstrak terpilih diaplikasikan ke dalam *hard candy* dengan nilai 0, 4, 6, dan 8 MIC. *Hard candy* dengan konsentrasi ekstrak 8 MIC dan 0% *cajuput essential oil* menjadi formulasi terpilih dengan perolehan nilai organoleptik secara keseluruhan tergolong ke tingkat penerimaan “agak suka” dan menghasilkan penghambatan sebesar 8,05 mm terhadap *Streptococcus mutans*, dengan total fenolik sebesar 1,09 mg GAE/g dan total flavonoid sebesar 1,47 mg QE/g.

Kata Kunci : antibakteri, ekstrak daun jambu biji, *hard candy*, *cajuput*, *Streptococcus mutans*

Referensi : 99 (1971-2020)

ABSTRACT

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INHIBITION OF *Streptococcus mutans* WITH GUAVA LEAVES EXTRACT AND CAJUPUT ESSENTIAL OIL HARD CANDY

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(xi + 84 pages; 24 figures; 11 tables; 17 appendices)

Guava leaves are herbal plants and contain various active compounds which are widely used as treatment for various diseases, such as dental caries which is known as an infectious disease caused by the *streptococci* group. The purpose of this study was to utilize both guava leaf extract and cajuput essential oil in the production of hard candy which is able to inhibit the growth of dental caries bacteria, especially *Streptococcus mutans*. The extraction method used was maceration with ethanol as the solvent with the maceration time varied from 24, 48 to 72 hours. The analyzed parameters were total phenolic, total flavonoids, and inhibition zone which further used to analyze the MIC and MBC values. The hard candy was incorporated with both guava leaf extract and cajuput essential oil with concentration of 0, 4, 6, 8 MIC and 0, 0.4, 0.8% respectively. The hard candies were analyzed on its inhibitory zone and organoleptic acceptance including scoring and hedonic tests, with the total phenolic and total flavonoids for the chosen hard candy formulation. The extract with 24 hours maceration time had total phenolic of 255.35 mg GAE/g and total flavonoids of 33.34 mg QE/g. It also resulted in the best value for antibacterial activity with inhibition zone 14.23 mm, MIC 487.75 ppm, and MBC 1951.01 ppm. The chosen MIC value was applied to hard candy with concentration of 0, 4, 6, and 8 MIC. The hard candy with concentration extract of 8 MIC and 0% cajuput essential oil is chosen to be the best formulation due to overall organoleptic fall into category "slightly like", that has antibacterial activity with inhibition to *Streptococcus mutans* up to 8.05 mm, with the total phenolic results of 1.09 mg GAE/g for total phenolic and 1.47 mg QE/g for total flavonoid content.

Keywords : antibacterial, guava leaves extract, hard candy, cajuput, *Streptococcus mutans*

Reference : 99 (1971-2020)