

INTISARI

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Karies gigi dapat disebabkan oleh bakteri *Streptococcus mutans*. Ekstrak biji kopi robusta memiliki daya hambat terhadap pertumbuhan bakteri *Streptococcus mutans*. Senyawa yang memiliki aktivitas sebagai antibakteri yaitu *chlorogenic acid (CGA)*, *cafein*, *caffeic acid* dan *trigonelline*. Ekstrak biji kopi robusta berpotensi untuk diformulasikan menjadi sediaan obat kumur. Penelitian ini bertujuan untuk membuat formula obat kumur dengan bahan aktif ekstrak kopi robusta sangrai kemudian dilakukan evaluasi sediaan dan uji efektivitas terhadap bakteri *S. mutans*. Sediaan obat kumur dibuat dalam 3 formula dengan konsentrasi gliserin yang berbeda yaitu 5%, 10%, dan 15%. Uji stabilitas sediaan menggunakan perlakuan sebelum dan sesudah kondisi dipaksakan. Uji daya hambat bakteri menggunakan metode difusi agar dengan kontrol positif yaitu obat kumur komersil Chlorhexidine dan kontrol negatif formula obat kumur tanpa kandungan ekstrak. Analisis data menggunakan uji *Kruskal-Wallis* untuk mengetahui adanya perbedaan pada masing-masing perlakuan, dan uji *Mann-Whitney* untuk melihat kelompok perlakuan mana yang berbeda secara signifikan. Hasil evaluasi stabilitas sediaan menunjukkan bahwa ketiga formula obat kumur ekstrak etanol biji kopi robusta sangrai memiliki stabilitas organoleptis, pH, dan viskositas. Hasil uji efektivitas daya hambat menunjukkan bahwa sediaan obat kumur formula 1 menghasilkan zona hambat sebesar 1,6 mm, formula 2 sebesar 2,1 mm, formula 3 sebesar 2,4 mm, kontrol positif sebesar 6,8 mm, dan kontrol negatif tidak menghasilkan zona hambat. Dapat disimpulkan bahwa ketiga formula obat kumur memiliki aktivitas antibakteri dengan kategori lemah (<5 mm). Konsentrasi gliserin dalam formula tidak berpengaruh signifikan terhadap stabilitas sediaan dan efektivitas antibakteri *S.mutans*.

Kata Kunci: kopi robusta (*Coffea canephora*); bakteri *S. mutans*; formulasi obat kumur; antibakteri.

ABSTRACT

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Streptococcus mutans bacteria can cause dental caries. Robusta coffee bean extract has an inhibitory power against the growth of Streptococcus mutans bacteria. The compounds with antibacterial activity are chlorogenic acid (CGA), caffeine, caffeic acid and trigonelline. Robusta coffee bean extract has the potential to be formulated into a mouthwash. This study aims to make a mouthwash formula with the active ingredient of roasted robusta coffee extract and evaluate the preparation and test the effectiveness of S. mutans bacteria. The mouthwash was prepared in 3 formulas with different glycerin concentrations, namely 5%, 10%, and 15%. The stability test of the preparation used the treatment before and after the forced conditions. The bacterial inhibition test used the diffusion method with the positive control, namely the commercial Chlorhexidine mouthwash and negative control mouthwash formula without extract content. Data analysis used the Kruskal-Wallis test to determine the differences in each treatment and the Mann-Whitney test to see which treatment groups differed significantly. The results of the evaluation of the stability of the preparation showed that the three formulas of mouthwash from the ethanol extract of roasted robusta coffee beans had organoleptic stability, pH, and viscosity. The results of the inhibition effectiveness test showed that formula 1 mouthwash produced an inhibition zone of 1.6 mm, formula 2 was 2.1 mm, formula 3 was 2.4 mm, positive control was 6.8 mm, and negative control did not result in inhibition zone. Thus it can be concluded that the three mouthwash formulas have antibacterial activity in the weak category (<5 mm). The glycerin concentration in the formula had no significant effect on the stability of the preparation and the antibacterial effectiveness of S. mutans.

Keywords: robusta coffee (*Coffea canephora*), *S. mutans* bacteria, mouthwash formulations, antibacterial.

