

Abstrak

FORMULASI DAN UJI AKTIVITAS ANTIBAKTERI SEDIAAN GEL *HAND SANITIZER* MINYAK ATSIRI KAYU MANIS (*Cinnamomum burmanni* Ness ex *BI. cortex*) TERHADAP *Staphylococcus aureus*

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Latar Belakang: Penyakit diare merupakan penyakit endemis potensial Kejadian Luar Biasa (KLB) yang sering disertai dengan kematian di Indonesia. Bakteri *Staphylococcus aureus* memiliki habitat alami pada permukaan kulit serta menghasilkan enterotoksin yang merupakan penyebab utama keracunan makanan yang disertai diare. *Hand sanitizer* dalam bentuk sediaan gel dapat digunakan sebagai alternatif sabun dan air untuk mencuci tangan. Tujuan dari penelitian ini yaitu untuk mengetahui pengaruh variasi konsentrasi minyak atsiri kayu manis terhadap sifat fisik dan stabilitas fisik sediaan gel *hand sanitizer* dan mengetahui aktivitas antibakteri sediaan gel *hand sanitizer* minyak atsiri kayu manis terhadap *Staphylococcus aureus*.

Metodologi: Sediaan gel *hand sanitizer* dibuat dengan variasi konsentrasi minyak atsiri kayu manis yaitu 0,1%, 0,2% dan 0,5%. Hasil uji organoleptis, homogenitas, dan uji stabilitas fisik berupa uji *freeze-thaw* dilakukan secara deskriptif. Data uji pH, viskositas, daya lekat, dan daya sebar dianalisis dengan menggunakan uji *one way ANOVA* dengan taraf kepercayaan 95% dan dilanjutkan dengan uji *Least Significant Differences* (LSD). Hasil uji aktivitas antibakteri menggunakan metode difusi sumuran pada hari ke 1 dalam bentuk diameter zona hambat dianalisis dibandingkan terhadap kontrol negatif dan kontrol positif.

Hasil Penelitian: Hasil penelitian menunjukkan bahwa peningkatan variasi konsentrasi minyak atsiri kayu manis dapat meningkatkan nilai viskositas dan daya lekat, namun dapat menurunkan nilai daya sebar gel *hand sanitizer* minyak atsiri kayu manis. Semua formula sediaan gel *hand sanitizer* minyak atsiri kayu manis memenuhi kriteria yang baik pada parameter organoleptis, homogenitas, pH, daya sebar, daya lekat dan uji stabilitas *freeze-thaw* tetapi tidak stabil pada parameter viskositas. Formula sediaan gel *hand sanitizer* minyak atsiri kayu manis pada konsentrasi 0,1%, 0,2%, dan 0,5% memiliki aktivitas antibakteri terhadap *S. aureus*. Semakin tinggi konsentrasi minyak atsiri kayu manis, semakin kuat dalam menghambat pertumbuhan *S. aureus*.

Kesimpulan: Gel *hand sanitizer* yang mengandung minyak atsiri kayu manis pada konsentrasi 0,5% memiliki aktivitas antibakteri terhadap *S. aureus*

Kata kunci: *Cinnamomum burmanni* (Ness ex *BI. Cortex*), Karbopol 940, Gel *Hand Sanitizer*, Antibakteri, *S. aureus*

Abstract

FORMULATION AND TESTING OF ANTIBACTERIAL ACTIVITY OF HAND SANITIZER GEL OF CINNAMON ESSENTIAL OIL (*Cinnamomum burmanni* Ness ex *BI. cortex*) AGAINST *Staphylococcus aureus*

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Background: Diarrhea is a potential endemic disease which is often accompanied by death in Indonesia. *Staphylococcus aureus* bacteria have a natural habitat on the skin surface and produce enterotoxins which are the main cause of food poisoning accompanied by diarrhea. Hand sanitizer in the form of gel preparations are can be used as an alternative soap and water for hand washing. The purpose of this study was to determine the effect of concentrations variation of cinnamon essential oil on the physical properties and physical stability of hand sanitizer gel and to determine the antibacterial activity of cinnamon essential oil hand sanitizer gel against *Staphylococcus aureus*.

Research Methodology: Hand sanitizer gel are made with concentrations variation of cinnamon essential oil are 0,1%, 0,2%, and 0,5%. The results of organoleptic, homogeneity, and physical stability test (freeze-thaw) was carried out descriptively. The test data for pH, viscosity, adhesion, and dispersibility were analyzed using the one way ANOVA test with a 95% confidence level and followed by the Least Significant Differences (LSD) test. The results of antibacterial activity test using the well diffusion method on day 1, the inhibition zone was analyzed compared to negative control and positive control.

Result: The results showed that increasing of concentrations variation of cinnamon essential oil could increase the value of viscosity and adhesion, but could decrease the dispersion value of the cinnamon essential oil hand sanitizer gel. All of the hand sanitizer gel formulations of cinnamon essential oil have good criteria on organoleptic paramaters, homogeneity, pH, dispersion, adhesion and freeze-thaw stability tests but were not stable on viscosity parameters. Cinnamon essential oil hand sanitizer gel formulations at concentration of 0.1%, 0.2%, and 0.5% had antibacterial against *S. aureus*. The higher the concentration of cinnamon essential oil, the stronger it was to inhibit the growth of *S. aureus*.

Conclusion: The cinnamon essential oil hand sanitizer gel at concentration of 0,5% had antibacterial activity against *S. aureus*.

Key words: *Cinnamomum burmanni* (Ness ex *BI. Cortex*), Carbopol 940, Hand sanitizer gel, Antibacterial, *S. aureus*