Abstrak

FORMULASI *MOUTHWASH* BERBAHAN DASAR *VIRGIN COCONUT OIL* SEBAGAI ANTIBAKTERI *Streptococcus mutan* PENYEBAB PLAK GIGI

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Latar Belakang : Karies gigi merupakan kerusakan enamel, dentin dan sementum gigi akibat proses pelarutan mineral permukaan gigi yang diawali dengan munculnya plak. Mikroorganisme penyebab plak gigi salah satunya yaitu *Streptococcus mutan*. *Virgin coconut oil* mengandung asam lemak rantai sedang yang memiliki aktivitas antibakteri sehingga berpotensi dikembangkan menjadi alternatif pencegahan karies gigi. Penelitian ini bertujuan untuk memformulasikan *mouthwash* antibakteri berbahan dasar *virgin coconut oil* dengan emulgator Na CMC serta uji aktivitas antibakteri terhadap *Streptococcus mutans*.

Metodologi : Sediaan mouthwash dibuat 3 formula dengan konsentrasi Na CMC yang berbeda (0,1%; 0,4%; dan 0,7%), selanjutnya sediaan diuji sifat fisik (organoleptis, pH, dan viskositas), uji stabilitas fisik metode *freeze-thaw*, dan uji aktivitas antibakteri dengan metode difusi cakram. Uji organoleptis dianalisis secara deskriptif. Uji viskositas, pH, dan antibakteri dianalisis secara statistik menggunakan *Oneway* ANOVA.

Hasil Penelitian : Penggunaan emulgator Na CMC mempengaruhi viskositas sediaan, semakin tinggi konsentrasi Na CMC semakin meningkat viskositasnya. Sediaan yang dihasilkan memiliki pH (4,67-6,47) dan viskositas (1390,33-1779 cPs) yang stabil selama penyimpanan dalam suhu ruang. Ketiga formula yang dihasilkan memiliki aktivitas antibakteri terhadap *Streptococcus mutan* dengan kategori daya hambat sedang yaitu dalam rentang 6,1-6,9 mm.

Kesimpulan : Konsentrasi Na CMC 0,7% menghasilkan viskositas yang paling tinggi yaitu (1638-1779) cPs. Ketiga formula *mouthwash* yang dihasilkan memiliki aktivitas antibakteri terhadap *Streptococcus mutan* dengan diameter zona hambat masing-masing sebesar 6,10 mm; 63 mm; dan 6,73 mm, sehingga termasuk ketegori daya hambat sedang.

Kata Kunci : *Mouthwash*, *Virgin Coconut Oil*, Na CMC, *Streptococcus mutan*.

Abstract

FORMULATION OF MOUTHWASH CONTAINING VIRGIN COCONUT OIL AS ANTIBACTERIAL FOR *Streptococcus mutan* CAUSED DENTAL PLAQUE

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Background : Dental caries is damage to enamel, dentin, and cementum of teeth due to the process of disolving tooth surface minerals that begins with the appearance of plaque. One of the microorganisms that cause dental plaque is *Streptococcus mutan*. Virgin coconut oil contains medium chain fatty acids which have antibakterial activity so that they have the potential to be developed as an alternative to preventing dental caries. This study aims to formulating antibacterial mouthwash containing virgin coconut oil with CMC Na emulgator and testing antibacterial activity against *Streptococcus mutans*.

Methods : Mouthwash preparations were made in 3 formulas with different Na CMC concentrations of (0,1%; 0,4%; and 0,7%), then the preparations were tested for physical properties (organoleptic, pH, and viscosity), physical stability test using freeze-thaw metodh, and antibacterial activity test using disc diffusion metodh. Organoleptic test was analyzed descriptively. Viscosity, pH, and antibacterial test were statistically analyzed using Oneway ANOVA.

Results : The use of Na CMC emulgator affects the viscosity of the mouthwash preparation, an increase in the concentration of Na CMC increases the viscosity. The resulting preparation has stable pH (4,67-6,47) and viscosity (1390,33-1779 cPs) during storage at room temperature. The tree formulas have antibacterial activity against *Streptococcus mutan* with moderate inhibition category is in range of 6,1-6,9 mm.

Conclusions : Formula with Na CMC concentration of 0,7% had the highest viscosity (1638-1779) cPs. The three mouthwash formulas have antibacterial activity against *Streptococcus mutan* with inhibition diameters of 6,10 mm; 6,30 mm; and 6,73 mm, that it is categorized as moderate inhibition.

Keywords : Mouthwash, virgin cocconut oil, Na CMC, *Streptococcus mutan*.