Efek antibakteri virgin coconut oil sediaan pasta gigi terhadap viabilitas biofilm streptococcus mutans pasien early childhood caries = Antibacterial effect of virgin coconut oil toothpaste against streptococcus mutans biofilm viability from early childhood caries patient

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Abstrak

Latar belakang: Early Childhood Caries (ECC) terjadi apabila terdapat satu atau lebih gigi karies, gigi yang hilang akibat karies atau gigi yang telah ditambal pada anak usia dibawah 71 bulan. Salah satu faktor risiko dari ECC adalah mikroorganisme, yaitu Streptococcus mutans yang merupakan bakteri patogen utama dari karies. Salah satu tindakan pencegahan ECC yang efektif adalah menyikat gigi dengan pasta gigi berfluoride, namun penggunaan fluoride dengan dosis tinggi dapat menyebabkan fluorosis. Berdasarkan hal tersebut, telah dilakukan penelitian untuk menemukan pasta gigi berbahan natural. Telah terbukti bahwa Virgin Coconut Oil (VCO) adalah bahan natural yang memiliki efek antimikroba. Metode Penelitian: Penelitian ini menguji VCO pasta gigi 8% dan 80% terhadap viabilitas biofilm S. mutans dari pasien ECC. Nilai viabilitas biofilm didapatkan dengan melihat perbedaan nilai optical density (OD) biofilm S. mutans sebelum dan sesudah diberi bahan uji VCO pasta gigi. Hasil: Analisis data menggunakan uji independen t-Test menunjukkan nilai viabilitas biofilm S. mutans VCO pasta gigi 8% terhadap kontrol negatif berbeda tidak signifikan, namun VCO pasta gigi 80% terhadap kontrol negatif berbeda signifikan. Kesimpulan: Pada penelitian ini, terdapat kenaikan nilai OD biofilm S. mutans setelah pemberian VCO pasta gigi 8%. Sebaliknya, terdapat penurunan nilai OD biofilm S. mutans setelah pemberian VCO pasta gigi 80%. Berdsarkan hal tersebut dapat disimpulkan bahwa VCO pasta gigi konsentrasi 80% memiliki efek antibakteri terhadap viabilitas biofilm S. mutans secara in vitro.

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Background: Early Childhood Caries (ECC) is defined as one or more decayed, missing (due to caries), or filled tooth surfaces in children aged 71 months or younger. Microorganism is one of ECCs risk factor with Streptococcus mutans being the main pathogen of caries. ECC can be prevented effectively using fluoridated toothpaste, but too much fluoride exposure can cause dental fluorosis in children. Studies had been done to create toothpaste with natural active ingredient. One of natural products that has been proven to have antimicrobial activity is Virgin Coconut Oil (VCO). Methods: In this study, VCO toothpaste 8 and 80% concentration was tested against S. mutans biofilm viability. Biofilm viability was measured using the difference between optical density (OD) score before and after VCO toothpastes exposure. Results: The data was analyzed using independent t-Test. S. mutans biofilm viability in VCO toothpaste 8% concentration unsignificantly different from negative control. Meanwhile, VCO toothpaste 80% concentration was significantly different from negative control. Conclusion: In this study, S. mutans biofilm that was exposed with VCO toothpaste 8% concentration showed an increase in the OD score. On the contrary, there was a decrease in the OD score of S. mutans biofilm after being exposed with VCO toothpaste 80% concentration. From the results above, it can be concluded that VCO toothpaste 80% concentration exhibits antibacterial effect against S. mutans biofilm viability in vitro