

The Antimicrobial Activity of Virgin Coconut Oil on *Staphylococcus aureus*

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Abstract

Virgin Coconut Oil (VCO) is an edible vegetable oil which has versatile properties. One of them is anti-microbial property because it contains a substance called lauric acid in high concentration compared to other types of oil. The aim of this study was to compare the extraction of VCO from fresh coconut milk and UHT coconut milk by fermentation method and refrigeration method and to study the antimicrobial activity on *Staphylococcus aureus*. The physical and chemical characteristics of VCO which were appearance, aroma and pH were tested as well as the preference test were also performed to determine the suitable method which gave the highest quality of VCO, which 24-hour fermentation method was chosen to test the antimicrobial activity of VCO on *S. aureus* that cause the skin acne. Additionally, the antimicrobial property of VCO was compared to mineral oil (MNO) by using different solvents which were none of solvent (purified oil), 50% ethanol and 50% glycerol. In purified or crude oil test, the percentage of oil was varied (0%, 25%, 50%, 75% and 100%) to determine the best level of antimicrobial effect. For using solvent test, VCO and MNO were diluted from 25%, 50% and 75%, to 12.5%, 25% and 37.5% respectively to determine the suitable solvents for VCO preparation. Results showed that it was unable to extract VCO from UHT coconut milk and VCO extracted from 24-hour fermentation method provided the most effective method for VCO preparation. The plain VCO was free from microbial contamination. The appearance and aroma of this VCO were the most preferable from preference test. Furthermore, VCO showed greater anti-microbial property than MNO, and the solvents used could help VCO to promote its anti-microbial efficiency.

Key words: Virgin Coconut Oil · Mineral Oil · Lauric acid · Ethanol · Glycerol · Fermentation method · Refrigeration method · Antimicrobial property · *Staphylococcus aureus*