

**THE ANALYSIS OF FATTY ACID COMPOSITION
FOR THE QUALITY CONTROL OF THE VIRGIN COCONUT OIL
(VCO)**

NURUL AMIRAH BINTI BAHARU

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ABSTRACT

THE ANALYSIS OF FATTY ACID COMPOSITION FOR THE QUALITY CONTROL OF THE VIRGIN COCONUT OIL (VCO)

The driving force of an adulteration is to cut cost and to increase profit. Detecting adulteration in fats and oils especially in the high value oils such as virgin coconut oil (VCO) is indeed needed. Virgin coconut oil belongs to a group of vegetable oils that are abundant in lauric acid having antiviral, antibacterial, anticaries, antiplaque and antiprozoal. The attempt to find the most effective, simple, and straightforward analysis without compromising the sensitivity and specificity is essential. The main objective of this study is to analyse the fatty acid composition in commercial brands of virgin coconut oil. In the first phase, the commercial VCO samples were characterized and analysed physico-chemically. The results showed that in general all VCO samples conformed to the Asian Pacific Coconut Community and Malaysian Standard. GC-MS analysis shows that there are nine components of fatty acid in VCO which are caproic acid, caprylic acid, capric acid, lauric acid, myristic acid, palmitic acid, stearic acid, oleic acid, and linoleic acid. Lauric acid was the predominant fatty acid which ranged from 33% to 44%. Comparison between different brands of VCO showed that VCO D produced the highest lauric acid composition and lowest oleic acid composition compared to the three brands of VCO, meanwhile VCO C produced the lowest lauric acid and highest of oleic acid composition. Changes of free fatty acid (FFA) value were detected during storage for two successive months in refrigerator (4°C) and at room temperature (25°C). The results indicated that at room temperature shows significant increases, meanwhile at freezer temperature showed negligible increases. Furthermore, the free fatty acid (FFA) composition showed the least alteration and the primary quality is kept when stored at low temperature particularly at 4°C. The identity and quality characteristics of VCO sold in Malaysian market were quite comparable to APCC standard range and Malaysian standard.