



Determination of Stability of Different Grades of Coconut Oil at Different Temperatures

**A thesis Submitted for the degree of Master of Science in
Analytical Chemistry**

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March 2011

Abstract

The study was conducted to evaluate stability of soybean oil (SO) and different grades of coconut oil namely, dry processed virgin coconut oil (DVCO), wet processed virgin coconut oil (WVCO), white coconut oil (WCO) and pairing coconut oil (PCO). The chemical changes that take place during storage of oils were evaluated for three months. The oil samples were subjected to heat processing by heating to different temperatures (100°C, 150°C) and temperatures were maintained for a period of one hour. The control sample was kept at room temperature (30°C). Another set of heat processed oil samples were treated with 0 ppm, 100 ppm, 200 ppm and 300 ppm of α -tocopherol. The formation of free fatty acid (FFA) and conjugated diene (CD) were measured to evaluate the changes taking place during storage. The FFA levels of samples were increased during the storage. Wet processed virgin coconut oil showed the lowest value of FFA. Pairing coconut oil showed the highest value of FFA, which is beyond recommended standard values for edible grade oils. Soybean oil and white coconut oil were shown similar levels of FFA during storage. Then different concentration of α -tocopherol were added to oil samples and measured the FFA levels. Tocopherol added samples maintained lower level of FFA. The 200 ppm of tocopherol concentration was the best level which maintains the lower values for all types of coconut oils at all temperatures. The most effective concentration of α -tocopherol for soybean oil was 100 ppm. Conjugated diene formation of different types of coconut oil increased while storage. However it showed lower levels when compared with soybean oil which showed higher values of CD formation.