606/E2

Effect of α-tocopherol on the stability of coconut oil processed by different techniques

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The study was conducted to evaluate the stability 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) and during storage for a period three months. The oil samples were subject to heat processing by heating to different temperatures (100 and 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 and stored at 30°C for three months. 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 resulted in the lowest FFA level at room temperature (0.035) at the initial stage while pairing coconut oil showed the highest value of FFA (1.28), at room temperature at the initial stage, which is beyond recommended standard values for edible grade oils. Then different concentrations of α-tocopherol were added to the oil samples maintained at room temperature (30°C) and after which the FFA levels were measured. Addition of tocopherol to all samples maintained lower level of FFA in both heat treated and control samples. The 200 ppm of α-tocopherol concentration was the best level which maintains the lower values for all treated coconut oils. This refers to the values comparative with samples treated and not treated with α-tocopherol. An increase in conjugated diene formation in different types of coconut oil was also observed during storage.

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