EFFECT OF DEHYDRATION TEMPERATURE ON QUALITY OF VIRGIN COCONUT OIL

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ABSTRACT

Virgin coconut oil (VCO) is a product obtained from fresh, mature kernel of the coconut by mechanical or natural means, with or without the use of heat and without undergoing chemical refining, bleaching or deodorizing. Dry processing of VCO is mainly practiced in Sri Lanka. But there is no documented standard temperature for VCO production. Therefore, this study was conducted to determine the effect of dehydration temperature on quality of VCO. Matured fresh coconuts were dehusked and split manually. The seed coat was peeled off, kernels were washed and cut into medium size particles. Those particles were dehydrated at 60°C, 70°C and 100°C separately and drying time, moisture, fat content and free fatty acid content was tested for desiccated coconut (DC). Then DC expelled using the cold press expeller. The extracted VCO was filtered and tested for oil yield, oil recovery, moisture, FFA, color, relative density, fatty acid profile and total phenolic content. The experimental design was complete randomized design (CRD) while the data were analyzed using one way ANOVA with mean comparison through Duncan's multiple range tests at 5% significant level. Drying time, moisture and FFA of DC obtained from different drying temperatures were significantly different ($p<0.05$). Dehydration temperature had no impact on fat content of DC. There were no significant differences ($p>0.05$) among FFA, relative density and oil yield in VCO obtained from all three temperatures. The fatty acid profile had no variation among three different temperatures and lauric acid content ranged from 52.93% to 53.83% in all temperatures. The moisture, color, oil recovery, total phenolic content of VCO samples obtained from different drying temperatures were significantly different ($p<0.05$) and overall results indicated that these parameters were changed with the studied dehydration temperatures. Color of oil and oil recovery were exhibit better results in 60°C and 70 °C dehydration temperatures.

Key words: Dehydration Temperature, Physicochemical Properties, virgin coconut oil