TITLE: Effect of Extraction Methods on the Physicochemical Properties, Fatty Acid Profile and Storage Stability of Virgin Coconut Oil

Name: Chinedu Obiageli Ajogun
Affiliation: Member of The Nigerian Institute of Food Science and Technology
Country: Nigeria
Email ID: obyilo@gmail.com

ABSTRACT

The objective of this work was to evaluate the physicochemical characteristics and storage stability of virgin coconut oil (VCO) extracted using cold press and hot press processes. Data were collected and analyzed using complete randomization design (CRD). The work was done at the Department of Food Science and Technology, Rivers State University, Port Harcourt. Virgin coconut oil (VCO) was extracted from mature nuts of Cocos nucifera, using the cold and the hot process. Hot process gave significantly ($P<0.05$) higher oil recovery of 58%, while cold process gave 52% oil recovery. Free fatty acid (FFA) content was 0.054% and 0.051% for cold press and hot press, respectively. Peroxide Value (PV) of the two oil samples were 1.173 mEq/ kg and 1.288 mEq/kg for CPCO and HPCO, respectively. The physicochemical properties of VCO from both processes were not significantly ($P>0.05$) different. Iodine value was 5.72 g/100 g and 6.09 g/100 g for cold pressed and hot pressed VCO, respectively. Lauric acid was the predominant fatty acid in the coconut oil samples, recording 49.30% in hot pressed coconut oil and 48.76% in cold pressed coconut oil. The melting point was found to increase while the smoke point decreased significantly ($P<0.05$) for both cold pressed and hot pressed VCO after three months of storage at room temperature (28±20C). Percentage free fatty acid and peroxide values increased significantly from 0.054% to 0.742% and 1.173 mEq/kg to 2.274mEq/kg, respectively, after 3 months of storage at room temperature (28±20C). The overall result showed that coconut is a good source of vegetable oil, with good keeping quality. More also, there isn't much difference in the physicochemical quality of both hot press and cold press method of extraction.

Keywords: Virgin Coconut Oil extraction physicochemical storage stability fatty acid.

BIOGRAPHY

Chinedu Ajogun, is a researcher and a member of The Nigerian Institute of Food Science and Technology (NIFST). She is also a certified Lead Auditor ISO 22000:2018 Food Safety Management System. She obtained her B.Sc. in Food Science and Technology from University of Maiduguri Nigeria, M.Sc. in Food Microbiology University of Port-Harcourt Nigeria and PhD in Food Science and Technology Rivers State University Nigeria. She has published several papers which has been cited in various research sites. Her current research

is on the comparative analysis on physicochemical and Fatty acid profile on virgin coconut oil extracted through cold press and hot press with 3 brands of vegetable oil purchased in Port-Harcourt. She is interested on food safety, sustainability and affordability.