Development of a Novel Mayonnaise Using Virgin Coconut Oil as a Functional Ingredient and Analysis of Its Physico-Chemical Parameters

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Abstract
Mayonnaise is a sauce or a dressing, mostly used in salad and sandwich preparations which is favored by people worldwide. The production process of mayonnaise involves higher concentrations of oils and commercially used oils like soybean oil are linked with negative health effects. Virgin coconut oil (VCO) is a well-known healthy edible oil worldwide with no reported tangible value addition in the food industry. Therefore, the study focused on development of a novel mayonnaise using VCO and analysis of its physico-chemical parameters. Different mayonnaise samples were prepared using trial and error method and the best samples were determined for their chill-thaw stability. Stable samples were organoleptically evaluated using a panel of judges and the selected best sample was compared with two control samples for sensory parameters. The physico-chemical parameters of the best sample were determined using the standard methods. Shelf life analysis was conducted to determine the changes of the mayonnaise quality parameters (pH value, color, density, acid value, peroxide value, total plate count) under two conditions (presence and absence of additives) over three temperature ranges; (30 °C$\pm$1, 4°C$\pm$1, 35°C). Results of the sensory evaluation indicated that the VCO mayonnaise was better than the control samples except for spreadability and the physico-chemical parameters were in accepted ranges. The shelf life analysis demonstrated that the evaluated parameters of samples under two conditions; in 30 °C$\pm$1 and 4°C$\pm$1 showed no significant difference (>0.05) and the samples could be stored up to a one-month period. Shelf life parameters of samples under incubated temperature conditions changed significantly (<0.05) and shelf life of the samples with and without additives extends up to three and two-weeks period, respectively. Therefore, the research study concludes that; a novel and chill- thaw stable mayonnaise with desirable quality parameters could be developed as a value-added product using virgin coconut oil and modifications are required to achieve higher stability and longer shelf life under different storage conditions.

Keywords*:* Chill-thaw stability, Mayonnaise, Phase separation, Virgin coconut oil
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