

Abstract No: MR-05

Comparative study of novel virgin coconut oil-based mayonnaise with commercial mayonnaise for physico-chemical and sensory parameters

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Mayonnaise is a world-famous dressing that involves higher oil concentrations in the production process. Virgin coconut oil (VCO) as an emerging oil in the food industry is an ideal ingredient to be used in the production of mayonnaise. In this research, VCO was used as a functional ingredient in mayonnaise preparation and a comparative study was conducted between VCO mayonnaise and commercial mayonnaise. Samples of mayonnaise were prepared using trial and error method according to different oil: egg yolk ratios, and the best samples were selected. Chill thaw stable samples out of the best samples were selected by centrifugation, and the best sample was selected through a sensory evaluation using 30 untrained panelists. A five-point hedonic scale was used to access the parameters. The physico-chemical parameters including color, density, acid value, saponification value, iodine value of the best VCO sample and commercial mayonnaise were determined using standard methods and the two samples were compared for their sensory parameters (color, texture, flavor, taste, spreadability, overall acceptability). Results demonstrated significantly a lower acid value, iodine value and higher saponification values for VCO mayonnaise and physical parameters: color and density of the VCO mayonnaise were significantly different ($p < 0.05$) than the commercial mayonnaise samples. The sensory evaluation resulted a higher mean score of 4.97 for the overall acceptability of VCO mayonnaise while commercial mayonnaise scored 2.75. Studied sensory parameters including color, appearance, taste, flavor and texture of VCO mayonnaise scored higher mean values than commercial mayonnaise though spreadability parameter of commercial mayonnaise scored a higher value of 5.00 and VCO mayonnaise scored a lower value of 4.25. Therefore, the results of the study indicate that, mayonnaise with VCO is considered better, on its quality and organoleptic parameters compared to commercial mayonnaise and some organoleptic modifications are required to achieve better sensory quality.

Keywords: Chill-thaw stability, Mayonnaise, Physico-chemical parameters, Sensory evaluation, Virgin coconut oil