ABSTRACT

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UTILIZATION OF FLAXSEED (*Linum usitatissimum* L.) IN FLAXSEED FUNCTIONAL DRINK

(xiii + 129 pages: 7 tables, 14 figures, and 6 appendices)

Flaxseed is a seed originated from flax plant (*Linum usitatissimum* L.). It is one of the richest plant sources of omega-3 fatty acid especially α-linolenic acid and it is also rich in dietary fiber which are beneficial to human health. The objective of this research is to develop flaxseed drink that is stable and acceptable to the consumer in order to improve the intake of omega-3 fatty acids and dietary fiber. Three different concentration of flaxseed powder (2, 4 and 6%) and four different concentration of CMC (0.1, 0.2, 0.3, and 0.4%) were used as the treatment. The total solid, pH, viscosity, stability, color and sensory are used as the parameter to assess the quality of the products resulted. The viscosity, stability, and lightness of the samples were affected by the interaction between the treatment. The increase of flaxseed powder and CMC concentration resulted in the increase of viscosity and stability but decrease of lightness. The total solid were only affected by the concentration of flaxseed powder which the increase of the flaxseed powder resulted in the increase of total solid. The pH value was not affected by any treatment. Based on the sensory evaluation, the increase concentration of flaxseed powder and CMC resulted in darker brown color with higher color acceptance, more viscous product with lower viscosity acceptance, and lower aroma acceptance. The grittiness of the samples was only affected by the different flaxseed powder concentration. The increase of the powder resulted in the increase of the sample grittiness and thus lower acceptance. The taste and overall acceptances of the samples were only affected by the different CMC concentration. The increase of CMC resulted in the decrease of the taste and overall acceptance. The samples with 6% flaxseed powder with 0.3% CMC was chosen as the best formulation based on consumer acceptance and stability. The nutrient composition (dry basis) of the best formulation were 16.68% total solid, 22.60% protein, 13.91% fat, 4.52% ash, 33.69% dietary fiber, and 8.27% Omega-3 content.

Keywords: flaxseed, functional drink, *Linum usitatissimum* L.

References: 37 (1990-2013)