

STABILITY AND FORMULA IMPROVEMENT OF OMEGA EMULSION
SYRUP FROM CANDLENUT OIL

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.



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ABSTRACT

STABILITY AND FORMULA IMPROVEMENT OF OMEGA EMULSION SYRUP FROM CANDLENUT OIL

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Stunting is a significant public health concern in Indonesia, with malnutrition, including a lack of omega-3 fatty acids, being a contributing factor. Candlenut oil, with its high omega-3 content, presents a promising alternative source to fish oil. This research aimed to develop a stable candlenut oil emulsion syrup with improved stability in terms of omega content, color, and microbial count, while assessing its physicochemical properties to determine the optimum modification. Candlenut oil was extracted using a low-temperature mechanical process. Formulation challenges were addressed by eliminating whey protein isolate and relying on Tween 80 as the emulsifier. Stability tests, including pH, color, viscosity, creaming index, and microbial analysis, were conducted under accelerated (40°C/60% RH) and long-term (30°C/75% RH) conditions for 28 days. Variations in sterilization, antioxidants, and light exposure did not significantly impact pH, color, viscosity, and microbial growth for all samples at temperature 30°C and 40°C. Thus, the recommended modification is C4 including sterilized oil only, BHT antioxidant, container exposed to light, based on the highest total omega content of 12066.5 mg/100g.

Keywords: Candlenut Oil, Formulation, Stability Test, Microbial Count, Omega Content

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DEDICATION

I dedicate this works for the future of the country I loved: Indonesia

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