CANDLENUT OIL ENCAPSULATION WITH HYDROXYPROPYL METHYLCELLULOSE FOR BODY LOTION APPLICATION

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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

ENCAPSULATION OF CANDLENUT OIL WITH HYDROXYPROPYL METHYLCELLULOSE FOR BODY LOTION APPLICATION

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Candlenut oil obtained by cold press extraction method was encapsulated in order to preserve the unsaturated fatty acids content from thermal oxidation. The encapsulation of candlenut oil was performed using HPMC and maltodextrin as the encapsulating agent due to their filming ability. The solution of wall materials was added with the candlenut oil and emulsified, followed by spray drying process. Three different ratios of oil to wall materials (2:3, 1:1, and 3:2) were evaluated. Based on the peroxide values, encapsulation efficiency, wettability, and moisture content of the microcapsules, the sample with a ratio of 1:1 had better preservation ability towards candlenut oil and therefore used as the main ingredient for body lotion development. Three different concentrations of encapsulated candlenut oil (10%, 6%, and 2%) within the lotion base were observed and analyzed in term of antioxidant activity and overall physical likeness. The result suggested that the wall materials might hinder the reaction between candlenut oil and DPPH radical compounds. Furthermore, there was no significant difference in overall physical likeness between the three samples. Based on the Omega content analysis, the encapsulation process was able to preserve the quality of candlenut oil from degradation during the production of the body lotion.

Keywords: candlenut oil, encapsulation, HPMC, maltodextrin, body lotion.

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