

ABSTRACT

THE EFFECT OF MYRISTIC ACID COMPOSITION ON THE PHYSICAL CHARACTERISTIC OF COENZYME Q10 NANOSTRUCTURED LIPID CARRIER

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Coenzyme Q10 is a fat-soluble vitamin and antioxidant that is useful in increasing energy production in mitochondrial cells. The deficiency of coenzyme Q10 is very lipophilic and has a log P value of 3.63 with a molecular weight of 863.36 g/mol. The lack of coenzyme Q10 requires an appropriate delivery system, namely the Nanostructured Lipid Carrier (NLC). The purpose of this study was to determine the effect of differences in the composition of myristic acid on the physical characteristics of coenzyme Q10 NLC preparations. This research method was carried out experimentally in a laboratory using an ultra-turrax high-shear stirrer. This research was made in 3 NLC formulas, namely F1, F2, and F3. Evaluation of physical characteristics was carried out after 24 hours of preparation. Observations were made including organoleptic (shape, color, odor), homogeneity, pH, and spreadability. The results of this study showed organoleptic and homogeneity tests with F1, F2, and F3 in the form of semi-solids which were pale yellow in color and odorless and homogeneous. In the pH test, the results obtained are F1 which is 5.69, F2 is 5.67 and F3 is 5.39, then the statistical test is significantly different result ($p < 0.05$). In the spreadability test, the average result of F1 is 6.5 cm, F2 is 6.1 cm, and F3 is 6 cm, then the statistical test is not significantly different result ($p > 0.05$). This study concludes that differences in the composition of myristic acid can affect the physical characteristics of the pH.

Keyword : Nanostructured Lipid Carrier, coenzyme Q10, myristic acid