

ABSTRACT

FREEZE-THAW STABILITY TEST ON NANOSTRUCTURED LIPID CARRIERS (NLC) COENZYME Q10 PREPARATIONS ON PARTICLE SIZE

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Skin aging is a natural process in humans caused by increased free radicals in the body. The signs are wrinkles, the skin becoming thin and dry, and the skin becoming itchy more often. Skin aging can occur at a young age caused by exposure to sunlight, air pollution, or food. This will trigger an increase in free radicals in the body at a young age. To avoid this, anti-aging products that contain antioxidants are needed. In this research, Nanostructured Lipid Carrier (NLC) will be made with the active ingredient Coenzyme Q10. NLC preparations require solid and liquid lipids. The use of cetyl palmitate as a solid lipid is expected to produce good physical properties of NLC preparations. Cetyl palmitate will be taken in 3 different concentrations for each formula. The preparation will undergo a particle size stability test. All formulas produced good particle sizes, but the particle size results after freeze-thaw stability of formulas II and III with cetyl palmitate concentrations of 11% and 12% resulted in a decrease in particle size, where the results from FII replication (1) were 140.11% when compared with replication (2) 139.53% and FIII replication (1) 155.90% when compared with replication (2) 149.25 % and However, the particle size test results for Nanostructured Lipid Carrier (NLC) coenzyme Q10 cream have varying value ranges, however all of these formulas still meet the particle size specifications, namely in the size range 10-1000 nm (26). So it can be concluded that the greater the concentration of solid lipid cetyl palmitate, the greater the particle size value.

Key words: freeze-thaw method, cetyl palmitate concentration, nanostructured lipid carrier (NLC) Coenzyme Q10, particle size. anti-aging