

TRANSFERSOME GEL FORMULATION AND EVALUATION OF COENZYME Q-10

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ABSTRACT

Skin is the outermost organ of the body that often exposed to various agents that can cause tissue damage through the production of free radicals (Reactive oxygen species/ROS). Therefore, antioxidants, one of which is Coenzyme Q-10, is crucial to make the free radical compounds become non-reactive. This study aimed to determine the optimal transfersome of coenzyme Q-10 in a transdermal gel preparation. The materials for transfersome formulation consists of Coenzyme Q-10, Tween 80, Soya lecithin, buffer phosphate. On the other hand, gel formulation was carried out using CMC-Na, Propylenglycol, Methyl paraben, Propyl paraben, Trietanolamine and aquadest. The antioxidant activity test was carried out using the 2,2-diphenyl-1-picryl-hydrazyl-hydrate (DPPH) reagent method. Observations include organoleptic test, pH, entrapment, particle size and shape, viscosity, adhesion spreadability, and antioxidant using the DPPH test.

Furthermore, the method of data analysis was One-Way ANOVA (α 0.05) to determine the differences between groups of transfersome formula. The result of experiments suggested that the optimal formulation of transfersom coenzyme Q-10 is formula II (ratio of soybean and tween 80:20), with organoleptic characteristics of yellow suspension with a distinctive soy aroma, pH 7, particle size 168.4 ± 1.3 , polydispersion index 0.3156 ± 0.029 and an absorption efficiency of 99.62%. One-Way ANOVA demonstrated significance values (p-value) < 0.05 in the variables of particle size, PDI, and absorption efficiency for the five formulas.

Furthermore, the optimal transfersome formula was then made into coenzyme Q-10 gel, and the organoleptic characteristics were white color, odorless, pH 5.9, viscosity 72,676 dPa.s-50,955 dPa.s, and the dispersibility within the diameter range. The value of antioxidant activity (IC 50) obtained in transferom gel and coenzyme Q-10 gel were 219.24 and 234,26 ppm, respectively, with the linear equation R of 0.9744 and 0.9847. Thus, it is argued that transferom gel has weak antioxidant activity and coenzyme gel Q-10 has weak antioxidant properties. In the next research, it is requested to do transferom formulation using Tween 60 and test the zeta potential.

Keywords: Antioxidant, Transfersome, Coenzyme Q-10.