

ABSTRACT

Effect of Rosemary Essential Oil on Physicochemical Characteristics and Physical Stability (RT 20±1 °C, RH 65%) of Ubiquinone Nanostructured Lipid Carrier System

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Nanostructured Lipid Carrier (NLC) is a common system for delivering active ingredients which are lipophilic and low penetration for example, Ubiquinone. It is known that the penetration of the NLC-Ubiquinone is relatively low, so is used Rosemary Essential Oil (REO) as an enhancer to increase its penetration. The REO used in different concentrations, 0% (F I); 1.0% (F II); and 2.0% (F III). The addition of REO which is liquid oil influenced the characteristics and physical stability of the NLC system due to changes in the lipid composition of the NLC. Therefore, this study aims to see the most optimal formulas seen from characteristics (organoleptic, pH, particle size, PDI, and zeta potential) and physical stability with organoleptic parameters (color, consistency, phase separation), particle size, PDI, and pH value. The results showed that F II (1.0% REO) had a particle size and PI that did not differ from F I (0% REO), a pH value that met specifications, and a high potential zeta value. Physical stability during 30 days storage also showed that there's no organoleptic changes and phase separation on F II. The F II also shows stable particle size and PDI values during storage. It can be concluded that F II (2.0% REO) is the most optimal formula due to its physicochemical characteristics and physical stability at room temperature (RT) 20±1 °C and room humidity (RH) 65%.

Keywords : Nanostructured Lipid Carrier (NLC), Rosemary Essential Oil (REO), characterization, physical stability