

ABSTRACT

**ANTI-AGING EFFECTIVITY OF CoQ₁₀-LOADED
SOLID LIPID NANOPARTICLE (SLN) SYSTEM**

Coenzyme Q₁₀ (CoQ₁₀) is a lipid-soluble and chemically unstable compound. Solid Lipid Nanoparticles (SLN) is an alternative drug carrier system that can be used to improve stability of CoQ₁₀. CoQ₁₀ has been reported to have anti-aging effect on skin. The aim of this study is to evaluate the skin anti-aging effect of CoQ₁₀-loaded SLN (SLN CoQ₁₀). SLN was formulated by a high shear homogenization method. The formulation of SLN dispersion consisted of 20% lipid (Cetyl Palmitate), 20% surfactant (Tween 80 and Span 80), 10% cosurfactant (Poloxamer 188), and acetic buffer. SLN CoQ₁₀ was characterized for pH, particle size, polydispersity index, and thermal analysis. In vivo skin hydration, wrinkle, spot, pore and collagen intensity studies were performed on 19 female volunteers aged 30–40 years. In the in vivo study, treatment with 1% CoQ₁₀-loaded SLN for 8 weeks significantly reduced the percentage of wrinkle, spot, and pore size; and significantly increased the collagen intensity.

Keyword(s): Solid lipid nanoparticles, coenzyme Q₁₀, in vivo study, anti-aging.