ABSTRACT

EFFECT OF DIFFERENT PREPATARION METHOD FOR NANOSTRUCTURED LIPID CARRIER (NLC) ON HOT HOMOGENIZATION AND COLD HOMOGENIZATION TO CHARACTERISTIC OF NLC-CoQ_{10}

Coenzyme Q_{10} (CoQ_{10}) or ubiquinone has antioxidant effect. CoQ_{10} is unstable compound and easily degraded by light. Nanostructured Lipid Carriers (NLC) is the one commonly used delivery system to protect unstable compound. NLC has been introduced as the second generation of lipid nanoparticle. The first generation of lipid nanoparticle is Solid Lipid Nanoparticle (SLN). The main difference between SLN and NLC was performed by nanostructuring the lipid matrix, in order to decrease the particle size and increase the entrapment efficiency. NLC also has some advantages such as give more modulation of drug release, increase drug loading and prevent its leakage. The factors that affecting the characteristics of NLC are the composition of materials and method of preparation. The aim of this study was to identify the characteristic of CoQ_{10} loaded NLC with different preparation method. There are many preparation method can be done in making NLC. In this study NLC were prepared with hot homogenization and cold homogenization by using high shear homogenization method at 24000 rpm for 2 minutes and 15000 rpm for 1 minutes, and performed for 4 cycles. The product were characterized for particle size and entrapment efficiency (%EE). The result showed cold homogenization method has smaller particle size (123 nm) than hot homogenization method (254,6 nm). But, different preparation method has not effect on the entrapment efficiency (%EE).

Keyword (s) : $CoQ_{10,}$ Nanostructured lipid carriers, different preparation method, particle size, entrapment efficiency