Abstract:

The objective of the present investigation was to fabricate glyceryl monostearate SLN by employing a biocompatible microemulsion as a template. Biocompatible excipients such as Tween 20 (as a surfactant) and Transcutol P (a cosourfactant) (at different K(m) ratios) were selected for the fabrication of microemulsions. Pseudo-ternary phase diagrams were plotted to identify the area of the microemulsion existence. Glyceryl monostearate SLN were fabricated by dispersing the microemulsion (maintained at 65 degrees C) into cold water (maintained at 2-3 degrees C). The particle size of the SLN was determined by photon correlation spectroscopy. Tretinoin, a lipophilic anti-acne agent was incorporated into SLN as a model drug. The encapsulation efficiency of tretinoin in the SLN was determined by using Nanosep ultrafilteration device at different lipid loads viz. 1%, 1.5% and 2%. Glyceryl monostearate SLN fabricated from biocompatible microemulsion template exhibited average particle size of 175 nm and polydispersity index of 0.833. Tretinoin could be successfully incorporated into SLN and the encapsulation efficiency ranged from 37-48% at different lipid loads.