J Pharma Care Health Sys 2018, Volume 5
DOI: 10.4172/2376-0419-C1-027

Formulation and evaluation of Tamoxifen citrate-loaded silk fibroin nanoparticulate drug delivery system

Gangadharappa H V
Jagadguru Sri Shivarathreeshwara University, India

Silk Fibroin (SF) is derived from Bombyx mori and is a protein proven to be of magnificent biocompatibility and *in vivo* biodegradability. It is important to formulate and design the nanoparticles which are non-toxic and safe for the future clinical application. The aim of the present work was to develop Tamoxifen Citrate (TC) loaded Silk Fibroin (SF) based nanoparticles by aqueous solution method. The prepared nanoparticles were evaluated for its zeta potential, surface morphology, drug content, encapsulation efficiency and *in vitro* drug release. The prepared nanoparticles were characterized by FTIR and X-ray diffraction. The diameters of the obtained nanoparticles were in the range of 210-250 nm, drug entrapment of 56 to 79%, loading content was found to be within 22 to 43%, respectively and zeta potential of -11.6 to -15.4 mV. The XRD spectrum suggests that the characterized diffraction peaks of β-sheets of SF with both lower and broader peak within 20-23° confirming that TC was encapsulated in nanoparticles in amorphous form. *In vitro* drug release from the prepared nanoparticles was found to be 41±1.2 to 55±1.5%. Finally, from the results it was concluded that silk fibroin-based nanoparticle drug delivery system could serve as a promising carrier system for better delivery of the drugs.

hvgangadharappa@jssuni.edu.in

Notes: