OMICS Group Conferences
Accelerating Scientific Discovery

3rd International Conference and Exhibition on
Pharmaceutics & Novel Drug Delivery Systems
April 08-10, 2013 Hilton Chicago/Northbrook, USA

Design and evaluation of pluronic F127 micellar colloidal systems for ocular delivery of Ciprofloxacin

Mohsen A Bayoumi
King Saud University, Saudi Arabia

The aim of the study was to design pluronic micellar colloidal systems to enhance ocular bioavailability of ciprofloxacin (CPX). The solubility of CPX is Ph.D.ependent. Commercial ophthalmic CPX solutions (pH 4.5) cause local irritation and tearing leading to fluid spills or drains into the nasolachrymal duct and accordingly low ocular bioavailability. Micellar dispersion that suites eye environment could be a suitable strategy to enhance CPX ocular bioavailability. The solubility of CPX significantly increased in micellar systems. The effect of eye environmental on the formulated micellar system was investigated. The values of critical micelles concentration (cmc) of copolymer pluronic F127 were determined by fluorometric method and the effect of the dispersion media (composition and pH) and temperature on cmc values were investigated. Value of cmc increased in simulated tears fluid while, decreased with the increase of temperature from 25°C (room temperature) to 34 °C (surface of eye temperature). Release of ciprofloxacin from pluronic F127 micelles was about 72% within 8hrs. The micellar systems at pH 4.5 and 6 were selected for *in-vivo* study. Ocular bioavailability of CPX after application of colloidal formulations on rabbit's eye was compared with a commercial eye drops (Ciprocin®). CPX was assayed in aqueous humor using a validated HPLC method. Pharmacokinetic parameters of CPX were determined using aqueous humor data. Significant improve in ocular bioavailability was noticed due to low lacrimation at pH 6.0, enhanced residence time of the drug and higher chance for corneal penetration of CPX encapsulated in micellar carrier.

Biography

Professor Bayoumi received his Ph.D. from the University of Connecticut, USA. He is now a professor of pharmaceutics at King Saud University, Saudi Arabia. He published many articles in reputed journals concerning microparticles, nanoparticles, liposomal formulations, drug targeting, and *in-vivo* evaluation of dosage forms. He was involved in different research projects funded by the college of pharmacy research center and King Abdul Aziz City of Science and Technology. He is serving as an advisory board member of local and international Journals.

bayoumimohsen@gmail.com