conferenceseries.com SciTechnol

Subharaj Saha et al., J Pharm Drug Deliv Res 2017, 6:4 (Suppl)
DOI: 10.4172/2325-9604-C1-021

International Conference and Exhibition on

NANOMEDICINE AND DRUG DELIVERY

May 29-31, 2017 Osaka, Japan

Formulation and evaluation of Ramipril loaded chitosan nanoparticles for better anti hypertension therapy

Subharaj Saha, D Nagasamy Venkatesh and Annesha Deb
JSS College of Pharmacy, India

Ramipril is an ACE inhibitor used extensively as a therapeutic agent in the treatment of hypertension, illustrating poor aqueous solubility leading to low oral bioavailability. This study is focused on optimizing the vital physicochemical property by entrapping the drug into the chitosan nanoparticles. This demonstrates formulation and evaluation of ramipril loaded nanoparticles and comparing its efficiency with pure form of ramipril. The ramipril loaded nanoparticles were framed by ionic gelation of chitosan with tripolyphosphate anions. Nanoparticles of different core: Coat ratio were formulated and evaluated for particle size, zeta potential, drug content, drug loading, entrapment efficiency, *in vitro* drug release, kinetic studies and *in vivo* oral bioavailability studies. The prepared nanoparticles were white, free flowing and spherical in shape. The infrared spectra and differential scanning calorimetry, thermographs showed stable character of ramipril and chitosan mixture and revealed the absence of drug-polymer interactions. The chitosan nanoparticles batch F1 have a particle diameter of 291.4 nm and a zeta potential of 8.38 mV, highest drug content of 4.81 mg, drug loading of 48.1%, entrapment efficiency of 18.96%. The *in vitro* release behavior from all the drug loaded batches were found to follow first order and provided sustained release over period of 24 hours. These results indicates that bioavailability is enhanced significantly by employing nanoparticle formulations of ramipril using chitosan offer a new approach to improve the oral bioavailability of poorly soluble drugs.

Biography

Subharaj Saha is currently pursuing MPharm in the Department of Pharmaceutics at JSS College of Pharmacy, India. Presently he is carrying out project in the area of lymphatic targeting of Atazanavir loaded with nano lipid carriers for the effective management of HIV-AIDS.

subharaj12345@gmail.com

Notes: