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Formulation and evaluation of Galantamine loaded PLGA nanoparticles for Alzheimer's disease

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PLGA nanoparticles have a novel controlled targeted drug delivery which offer several potential benefits. PLGA nanoparticles had shown an excellent capacity for the association of GH, an anti-alzheimeric drug. It possesses the requisite properties necessary for formulation of PLGA nanoparticles drug delivery system, like rapid onset of action. PLGA is a versatile polymer with good biodegradability and biocompatibility properties. In the present study PLGA nanoparticles containing GH were prepared by modified nanoprecipitation method. The increase in the proportion of the polymer caused an increase in particle size of the nanoparticles. An increase in drug content and entrapment efficiency were also observed. From the SEM analysis of nanodispersion indicated that the particles are discrete, smooth and spherical. The release studies indicated that the release of GH from formulation F2 is consistent and the maximum of 92.56% of drug is released at the end of 24th hour. The dosing frequency can be reduced to once a day when compared to conventional form. The *in vitro* cell line studies indicates that Galantamine loaded PLGA nanoparticles exhibited increased in IC 50 concentration when compared with pure Galantamine. The percentage cell viability of nanoformulation was increased considerably. This indicates increase penetration of Galantamine in the brain cells. Thus it can be concluded GPNF2 can serve as a potential drug delivery to the treatment for Alzheimer's disease. However detailed preclinical and pharmacokinetic studies are required to confirm the activity.

Biography

Guturi Kishor Babu has completed his Bachelor's degree in Pharmacy in Oct 2008 from Rajiv Gandhi University of Health Sciences, Karnataka. He worked as an Assistant Professor for 3 years and worked as an Associate Professor for 3.5 years in Dr. H L Thimmegowda College of Pharmacy. He deals with industrial pharmaceutics and was pursuing his research studies on current scenario on industrial pharmaceutics in the college laboratory and had published papers in reputed international journals. He was a member in various Indian pharmaceutical bodies like IPA and APTI.

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