Editorial

Nanoparticulate Drug Delivery Systems

Nanomedicine is basically the application of nanotechnologies in a healthcare setting to improve the behaviour of drug substances. Today, nanomedicines are used worldwide to improve the treatments and lives of patients suffering from a range of disorders. The nanomedicines currently available are overcoming some of the difficulties experienced by normal medical approaches. Nanomedicines, therefore, can play an important role in ensuring that drug stays in the body for long periods and is targeted specifically to the areas that need treatment. Another important area of nanotechnology/nanomedicine is diagnostics. By studying and identifying individual molecules, it is possible to diagnose disease in time to improve the prognosis for the patient. The potential scope of nanomedicine is broad, and is expected to be eventually involve all aspects of medicine. Over the coming years, the benefits of nanomedicines and new diagnostic tools will be felt by an increasing number of patients with considerable impact on global health.

Purva Thatai and Bharti Sapra in “In vitro and ex vivo antifungal potential of formulations containing terbinafine hydrochloride against Candida albicans” showed the in vitro antifungal activity of the developed formulations determined by cup and plate method using Candida albicans. The in vivo investigations involved histological and culture recovery studies after treating the infected animals with different formulations. The results of in vitro studies were found to be in consonance with the findings of in vivo results, which further elucidates the potential of both the developed formulations in the management of onychomycosis. Sunil Khatak and Harish Dureja in “Structural composition of solid lipid nanoparticles for invasive and non–invasive drug delivery” discussed that lipid nanoparticles are able to promote the site of effective delivery, improve bioavailability with minimizing absorption variability in GIT. The SLNs have various advantages over traditional dosage forms such as drug protection and decrease the danger of acute and chronic toxicity. The selection of structural components for SLNs has a significant impact on the development of new therapeutic, diagnostic, and/or theranostic approaches. Canchi et al. in “Design and characterization of polymeric nanoparticles of pioglitazone hydrochloride and study the effect of formulation variables using QbD approach” prepared and characterized the polymeric nanoparticles of Pioglitazone using ε-polycaprolactone and studied the effect of various formulation parameters on nanoparticles characteristics. Drug loaded polymeric nanoparticles were produced by nanoprecipitation method, using PCL polymer and pluronic as surfactant. Various process and formulation parameters such as rate and time of stirring, polymer content, surfactant concentration, drug loading were optimized using the factorial design (QbD) approach and reported that polymer-surfactant ratio plays an important role in the design of nanostructure.

I want to express my sincere gratitude and appreciations to all who kindly contributed, patiently waited for the peer-reviewed, and revised the manuscripts for this special issue to sustain the high quality of this journal. I sincerely acknowledge the editorial board’s productive and appropriate reviews and all the support to publish this special issue. I owe special thanks to Mr. Sarosh Alam for untiring hard work to make the publication of this special issue possible. I hope that all of you will enjoy reading this mini thematic issue.

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