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Fast dissolving amorphous drug composites using phyto actives: An overview

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Drugs that are administered orally go through a dissolution process and then permeation across the gastric membrane before they can appear in the blood stream. Some factors that affect the amount of drug available for its effect (the bioavailability of the drug) other than solubility and permeability are dissolution rate of the drug, first-pass effect, pre-systemic metabolism of the drug in any other organ and susceptibility to efflux mechanisms. Solubility of the drug in the gastric media is a major problem with most drugs. This leads to erratic bioavailability and possible toxicity when eventually absorbed through the gastric mucosa. Thus, solubility of new drug molecules is the biggest challenge for formulation scientists. In spite of these issues, the oral route of drug administration has been the most sought after route due to its ease of administration, high patient compliance, cost-effectiveness, least need for maintenance of sterile conditions and flexibility in design of the dosage form. The first attempt by pharmaceutical companies in making generic drugs is to formulate the drug as an oral dosage form. The pharmaceutical industry is experimenting with various techniques for improving the solubility of the drug post oral administration. The techniques used for improving the solubility characteristics of a drug can be very broadly classified as either physical or chemical processes. Solid dispersions, a dispersion of one or more active ingredients in an inert carrier or matrix in the solid state prepared by co-melting or solvent extraction or by the solvent-melt method. Solid dispersion technology is a technique which has comparatively fewer problems. It does have some disadvantages associated with it such as the possibility of recrystallization upon storage or during the various pharmaceutical processes. Moisture might increase the mobility of the drug, thereby increasing the chances of recrystallization. Some other drawbacks include not being able to scale up the process satisfactorily and requiring extra processing steps before the product can be put through any other process. Some of the problems associated with the properties of the solid dispersions and the need for more processing can be easily overcome by using an adsorbent and forming a ternary solid dispersion, a Drug Composite. The concept of 'bioavailability enhancers' is derived from the traditional age old system of Ayurveda (science of life). These enhancers not only improve the solubility of drug but also significantly have effect on our biological systems. These effects are generally beneficial either in providing efficacy or safety of the drug. Aloe Vera gel or Piperine has shown improved bioavailability of various drugs. Low aqueous solubility is a major problem faced during formulation development of new drug molecules. A drug having problems associated with low aqueous solubility, poor bioavailability and slow onset of action will be selected as model drug. Hence, purpose of this Presentation is to provide fast dissolving composites of Model Drug using natural bioavailability enhancers.

Biography

Chander Pal Verma is currently Professor & Head, Department of Pharmacognosy & Phytochemistry and the Dean Student Welfare in the Laureate Institute of Pharmacy, Kathog, Jawalamukhi, Himachal Pradesh, India. Professor Verma has worked under Ministry of Health, Kingdom of Saudi Arabia as Professor of Pharmacy in Bisha College of Pharmacy. Prior to this he graduated from Delhi University with a first class honours degree in Pharmaceutical Sciences (1982) and was then awarded a Post Graduation in Pharmacognosy & Phytochemistry from Delhi University (1984). In 2018, Professor Verma was awarded with Eminent Teachers Award by Society of Pharmaceutical Education and Research at Crescent University Chennai, India. He has been Chairman and Member of LOC for reputed International / National Conferences like, SPER 7th Annual International Conference & Exhibition 2018, 69th IPC. He has chaired many scientific sessions at conferences of IPC, SPER etc. He has been Mentor Speaker for Himachal Pradesh State Pharmacy Council in Continuing Education Programmes. Under his visionary leadership as a President, Drug Information Centre, Himachal Pradesh, he has served the rural society of Himachal Pradesh. He has worked as Moderator for Himachal Pradesh Technical University. He serves as an examiner for UG and PG courses at various Universities. Prof. Verma is recognized Inspector for various apex bodies like Pharmacy Council of India, New delhi.

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