CRSIC
National Seminar

“Excipients- The Key Drivers in Formulation Success”

6th October 2018,
at
SCES’s Indira college of Pharmacy, Pune

Abstracts of Invited Talks & Student Awards
Title: Biodegradable polymers for advanced therapeutic applications

Abstract: In the past two decades, considerable progress has been made in the development of biodegradable polymeric materials in the healthcare industry due to their versatility, biocompatibility and biodegradable properties. The talk gives a holistic view on areas such as chemistry and synthesis of such polymer, factors affecting their biodegradation, their methods of production, different paths of manufacturing biodegradable polymer based formulations and devices, critical considerations during handling and the traditional and advanced applications as medical devices, regenerative medicines and pharmaceutical dosage forms.
Manisha Chaudhari

Senior Technology Specialist, Actives & Formulation, Merck

Title: Versatility of PVA; the application of Polyvinyl alcohol as pharmaceutical excipient

Abstract

Polyvinyl alcohol (PVA) is a synthetic, bio-compatible, and toxicologically safe polymer that is well suited for a variety of pharmaceutical applications, including solid, liquid, and semi-solid formulations. Typically, PVAs are classified according to their molecular weight and/or viscosity and degree of hydrolysis, which can be used for a broad range of applications, depending on the physicochemical properties of the individual PVAs. Merck offers PVAs with a wide-range of grades and a high-quality, to provide formulators innovative solutions with such as Parteck®SRP80 and Parteck®MXP, which were designed specifically for solid oral sustained-release formulations and hot melt extrusion applications respectively. This presentation will show you an overview of PVA application in pharmaceutical formulation, and innovative solutions from Merck based on PVA.
Title: Pharmaceutical excipients overview and application of Carbopol polymers beyond control release

Abstract  Pharmaceutical Excipients are very important constituents of any dosage form and play a pivotal role in the delivery and sustenance of the drug at the receptor for appropriate pharmacological effect. Over the years a lot of emphasis is being laid on the safety, quality, processing and regulatory aspects of excipients. The talk will provide overview of the various regulations in the field of Pharmaceutical Excipients. Carbopol polymers are in use in various dosage forms around the world. While their use in topical and sustained release formulations is well known, the talk will provide more insights into the newer yet potentially beneficia applications of Carbopol polymers.
Title: Lipid Excipients; formulators tool to tackle unmet formulation challenges.

Abstract: Lipid based drug delivery systems (LBDDS) are one of the emerging technologies designed to address challenges like solubility and bioavailability of poorly water soluble drugs. These systems can be tailored to meet a wide range of product requirement dictated by the disease indication, route of administration, cost consideration, product stability, toxicity, and efficacy and are also a commercially viable strategy to formulate pharmaceuticals for topical, oral, pulmonary or parenteral delivery. The development of these systems require proper understanding of the physicochemical nature of active pharmaceutical ingredient as well as lipid excipients and the impact of gastrointestinal digestion on the performance of formulations developed using the same. In that regard, this talk summarizes the key parameters to look at when formulating with lipid based excipients in order to anticipate a possible impact on drug stability, digestion process and variation of excipient functionality.
Title : Physical chemistry of surfactants: skin mildness

Abstract : Personal care formulation are composed of various chemicals. Some of the chemicals damage skin structure causing skin irritation. The small molecules used in personal care formulations have many beneficial functions, but can exhibit irritation potential. Surfactants being amphiphilic in nature, interact with biological substrates such as lipids and proteins of stratum corneum (SC) in skin. This can be explained by various mechanisms i.e. Surfactant-Skin penetration, Micelle-Skin penetration and its interaction with skin lipids and proteins. This is accessed by various techniques such as skin impedance mildness testing. The surfactant and micelle size as well as hydrodynamic size of skin pore changes the mildness. By designing surfactant with respect to its molecular size, micelle size as well as by tuning hydrodynamic pore size, skin irritation of personal care formulations can be changed. Various additives as well as polymeric molecules help in reducing irritation potential. Polymeric surfactants are designed by researchers which function like small molecule surfactants with benefit of reduction in skin irritation potential. Also a separate category of mild surfactants called amino acid based surfactants is used in personal care formulations.
Arun Kedia
Managing Director, VAV Lipids Pvt. Ltd.

Title: Phospholipids: Exploring new bio friendly materials and carriers for drug delivery system

Abstract: In search of innovation in the field of pharmaceuticals, it is increasingly realized that a lot can be achieved by changing the course of the delivery of drugs by way of suitable formulation strategies. This understanding gave rise to the field of novel drug delivery systems (NDDS). Here, functional excipients have a major role to play as they are responsible for bringing desired improvements in drug pharmacokinetics as well as pharmacodynamics which relates to their efficacy and safety. In recent years, a great deal of emphasis is given to identify and develop a wide range of materials for different medical applications. Interestingly, the majority of the success that it attained, relates to lipidic systems vis a vis other classes which are deemed unsafe especially those which can turn hostile. Nanoparticles of synthetic materials can block and form emboli and proteins can turn immunogenic. Amongst these lipids, it is Phospholipids, the core building block of Liposome Technology, which proved to be real panacea. The uniqueness of these bio-mimicking and bio-friendly materials lie in their fundamental chemical skeleton. With hydrophilic head group and two hydrophobic fatty acids on a strong glycerol backbone, these polar molecules (in appropriate combinations and conditioning) can provide an array of super-structures (host assembly) which can serve as a vehicle to transport the molecule across the various biological barriers. The patent winning products in the market are the proof of the concept for eg. : Doxil®, DaunoXome®, Mepact®, Marqibo® etc. Phospholipids offer a wide range of options in its chemical and physico-chemical properties so as to provide tailor made opportunity to suit the desired drug release profile. The added advantage is their functionality to play active part in meeting the objectives, besides the carrying capacity. For example they are proven well in neuro and cardio-protection, per se. The major focal applications include neurological, cardiovascular, pulmonary, dermatological and Cosmeceuticals. The talk, here in, would encompass the background opportunities, challenges and future possibilities formulation research. It aims to educate and encourage the formulators with high aspirations in exploratory as well as translational research.
First Prize Poster Presentation Awards

L to R: Shrikant Dhage, Dr. V. B. Patravale, Rohit Pawar, Dr. John Disouza, Dr. Madhur Kulkarni

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<td>Surface modified nanocarriers for treatment of cerebral</td>
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Second Prize Poster Presentation Award

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