



VISWAMBHARA EDUCATIONAL SOCIETY
VAAGDEVI COLLEGE OF PHARMACY

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Ramnagar Dist. Hanumakonda- 506001, (T.S)

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1	Mrs. T. Rajani	Cubosomes	National	2021-2022	BSP Publisher
2	Dr. Y. Shravan Kumar	Pelletization Techniques	National	2021-2022	BSP Publisher
3	Dr. Y. Shravan Kumar	Solid Dispersion	National	2021-2022	BSP Publisher
4	Dr. Y. Shravan Kumar	Chewing Gums as Drug Delivery	National	2021-2022	BSP Publisher
5	Dr. Pavani Sriram	Dental Inserts	National	2021-2022	BSP Publisher
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Advances in Drug Delivery

Volume -V

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Cubosomes

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Introduction

Drug Delivery

Drug delivery refers to approaches, formulations, technologies, and systems for transporting a pharmaceutical compound in the body. It may involve scientific site-targeting within the body, or it might involve facilitating systemic pharmacokinetics concerned with both quantity and duration of drug presence. Drug delivery is often approached via a drug's chemical formulation, but it may also involve medical devices or drug-device combination products. Drug delivery is a concept heavily integrated with dosage form and route of administration.

Drug delivery technologies modify drug release profile, absorption, distribution and elimination for the benefit of improving product efficacy and safety, as well as patient convenience and compliance.

Novel Drug Delivery

Nanoparticles are of current interest because of an emerging understanding of their possible effects on human health and environmental sustainability, and owing to the increasing output of man-made nanoparticles into the environment. Nanoparticles are used in many different applications and created by many different processes. Their measurement and characterization pose interesting analytical challenges.

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Pelletization Techniques

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Introduction

In the past few eras, pharmaceutical invention and research on drug delivery has reformed astonishingly and even greater changes are anticipated in the forthcoming future to supplement desirable therapeutic intents with minimizing side effects. The key purpose of the drug therapy is to accomplish a curative and healing effect. For the motive, to improve and make advances in the delivery of pharmaceutical compound(s) and therapy, the area is being extensively researched and a marked growth have seen till date and development is still on going.

Drugs are being consumed to enrich health and expand life. To acquire the assumed therapeutic response and to be absorbed as well as transported to the site of action at the right time, an appropriate amount of the active drug is needed. The rate of input drug quantity can be regulated based on various drug delivery systems and routes of administration to maintain the effective level of essential concentration for as long as necessary.

Drug delivery is an approach of transporting a medicinal compound of required dose into the body to safely accomplish the desired therapeutic effect in animals/ humans. Drug delivery systems are the technologies that facilitate the ingestion of engineered therapeutic agent(s) into the



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Solid Dispersion

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Introduction

The oral of drug administration is the most common and preferred method of delivery due to convenience and easy of digestion. Form a patient's perspective, swallowing a dosage form is a comfortable and a familiar means of taking medication.

Although the oral route of administration is preferred, for many drugs it can be a problematic and inefficient mode of delivery for a number of reasons. Limited drug absorption resulting in poor bioavailability is paramount amongst the potential problems that can be encountered when delivering an active agent via oral route. Drug absorption from the gastrointestinal (GI) tract can be limited by a variety of factors with the most significant contributors being poor solubility and/or intestinal fluids before it can then permeate the membranes of the GI tract to reach systemic circulation. Therefore, a drug with poor membrane permeability will typically exhibit permeation rate limited absorption. Hence, two areas of pharmaceutical research that focus on improving the oral bioavailability of active agents include (1) enhancing solubility and dissolution rate of poorly water soluble and (2) enhancing permeability of poor permeable drugs. This article focus on the former, in particular, the use of solid dispersion technologies to improve the dissolution

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A handwritten signature in green ink, appearing to be 'Yamsani Madhusudhan Rao'.

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Chewing Gum as Drug Delivery

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Introduction

Medicated chewing gum is a solid, single-dosage preparation that has been to be chewed and not swallowed; chewing gum contains one or more active ingredients that are released by chewing. A medicated chewing gum is intended to be chewed for certain period of time, required to deliver the dose, after which the remaining mass is discarded.


During the chewing process the drug contained in the product is released from the mass into saliva and could be absorbed through the oral mucosa or swallowed reaching stomach for gastro-intestinal absorption.

Chewing gum can be used as a convenient modified release drug delivery system.

Medicated chewing gums are currently available for pain relief, smoking cessation, travel illness, freshening of breath, obesity. (Savaliya prathik *et al.*, 2011)

There are two absorption pathways which are possible to introduce the active ingredient into the systemic circulation giving rise to a systemic effect. Drug absorbed directly via the buccal membrane avoids metabolism in the GIT and the first-pass effect of the liver, it might




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Dental Inserts

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Dental Inserts

Insert means the dosage form to place or introduce into the body. The insert mainly used for dental cavity are called as dental insert.

The mouth is a naturally dirty field, besides its high content of microflora, its high moisture content (96%) and appropriate temperature (37 °C) increases the incidence of bacteria. (Dolan, Matulka, & Burdock, 2010). Development of bacteria is a concern for dentist as it is associated with failure of dental procedures especially dental implants. Anaerobic gram positive cocci, and anaerobic gram negative rods are amongst the most common strains involved in dental surgery infections. The use of prophylactic antibiotics to combat these strains becomes a general practice in dental implants and procedures. High dose of systemic antibiotics are used to achieve adequate concentrations in the blood to prevent the growth and dissemination of bacteria at the site of implant surgery. The adverse effects associated with the use of systemic antibiotics makes it unappealing, hence the local application of an antibiotic medicated implant will be advantageous. Main advantages of dental inserts are localized action, reduced frequency of administration, reduced side effects and sustained action. Some of the disadvantages of dental inserts are it requires technical person for the administration and drug loss through saliva.



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Sublingual Drug Delivery

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Introduction

Oral administration is the most widely used route because of ease of ingestion, pain avoidance, and most importantly patient compliance. Solid oral delivery systems do not require sterile conditions and are therefore less expensive to manufacture. One important drawback of solid dosage forms is the difficulty in swallowing (dysphasia) or chewing in some patient's particularly pediatric and geriatric patients. The problem of swallowing is common phenomenon in geriatric patient due to fear of choking, hand tremors, dysphasia and in children's due to under developed muscular and nervous systems.

The unique environment of the oral cavity offers its potential as a site for drug delivery, because rich blood supply and direct access to systemic circulation, the oral mucosal route is suitable for drugs which are susceptible to acid hydrolysis in the stomach or which are extensively metabolized in the liver. The continuous secretion of saliva results in rapid removal of released drug and this may desire that the oral cavity be restricted to the delivery of drugs, which have a short systemic circulation. The mucin film, which exists on the surface of the oral mucosa may provide an opportunity to retain a drug delivery system in contact with the mucosa for prolonged periods, if it is designed to be

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72nd Indian Pharmaceutical Congress, Nagpur

Certificate

It is our pleasure to certify that,

RAJANI THOUTREDDY presented a Poster in Scientific Session entitled **“PREPARATION, CHARACTERIZATION, IN VIVO AND EX VIVO PERMEATION STUDIES OF NOVEL SELF ASSEMBLED LOSARTAN POTASSIUM LOADED CUBOSOMES USING 32 FACTORIAL DESIGN”** in the 72nd Indian Pharmaceutical Congress held at Department of Pharmaceutical Sciences, Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur during January 20-22, 2023.

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