



## Tablet as a Dosage Form: A Review

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### ABSTRACT:

The best medicine in the treatment of any disease is the one that immediately meets the need of the drug in the blood (or site of action) and remains constant throughout the treatment period. This can be done by applying traditional prescriptions at certain doses and at a certain frequency. Drugs can be made into different types of drugs by different methods. The oral route of administration is a popular, convenient, and widely accepted method of drug delivery. With the advent of pre-compression, ultra-high speed presses and induced dead feeding, the formulation of oral food materials and tablets has undergone rapid change and development over the past few years. Recently, new ideas and federal laws regarding bioavailability and bioequivalence and validation are affecting tablet formulation, design, and manufacture.

**KEYWORDS:** Tablet, wet granulation, dry granulation, FDT, fast dissolving, mouth dissolving.

### INTRODUCTION:

Medicines can be taken orally. Most oral medications are swallowed, although a few are designed to dissolve in the mouth. Compared with other methods, the verbal management method is the most popular and has been successfully applied to modern management. It is considered to be the most natural, easiest, most convenient and safest way to administer drugs, with greater flexibility in design, easier production and lower cost. [1] The drug is administered orally in various dosage forms. The most popular are tablets, capsules, suspensions and various solutions. Dosage information from the drugs discussed represents the preferred product. They are versatile, flexible in quantity, durable, less complex in design and packaging, and easy to manufacture, store, transport and use. Many materials have good protection against light, heat, moisture, oxygen and pressure during transport. Among them, oral tablets are widely used.

### 1. TABLETS:

A tablet can be defined as a medical form prepared by compression or molding, containing one or more drugs, with or without excipients.

### ADVANTAGES OF TABLET:

Some of the advantages of tablets are as follows.

1. The prescriptions with the highest dosage and the least variability in the analysis of all oral dosage forms in the unit
2. The lowest price of all spoken texts.
3. It is the lightest and most compact of all oral nutrition materials.
4. They are the easiest and cheapest to pack and transport.

### CLASSIFICATION OF TABLETS

Based on the route of administration or the function, the tablets are classified as follows.

- 1) Tablets ingested orally.
  - a) Compressed tablet
  - b) Multiple compressed tablet

- i) Layered Tablet
- ii) Compression coated Tablet
- c) Repeat action Tablet
- d) Delayed action and enteric coated Tablet
- e) Sugar and chocolate coated tablet
- f) Film coated tablet
- g) Chewable Tablet
- 2) Tablets used in the oral cavity.
  - a) Buccal Tablet
  - b) Sublingual Tablet
  - c) Troches and Lozenges
  - d) Dental cones
- 3) Tablets administered by other routes.
  - a) Implantation Tablet
  - b) Vaginal Tablets
- 4) Tablets used to prepare solution.
  - a) Effervescent Tablet
  - b) Dispensing Tablet
  - c) Hypodermic Tablet
  - d) Tablets Triturates

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## **TABLET MANUFACTURING METHODS:**

### **1] Wet Granulation**

Wet granulation is the process of adding liquid to powder in a container with any mixer that forms lumps or granules. These granules are compressed into tablets after drying.

### **2] Dry Granulation**

No liquid is used in this process. This process includes the formation of clusters. These blocks are then tested or ground to form granules. The resulting granules are then compressed into tablets.

### **3) Direct compression**

The term direct compression is used to describe the process in which the tablet is compressed directly from the powder mixture of the active ingredient and suitable excipients, which will flow evenly in the die cavity and form a solid compressed tablet.

#### **Advantages of direct compression method**

1. This process is more economical. Fewer production processes require less labor time, resulting in lower labor costs and less process usage.
- 2) The working step does not require humidity, heat and high pressure.
- 3) Optimized for tablet disintegration where all primary drug particles are released from the tablet and ready to dissolve.
- 4) Disintegrants like starch are better in direct compression than wet granulation process.

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## **FAST DISSOLVING TABLET:**

For rapid disintegration or disintegration of the tablet, water must enter the tablet matrix very quickly to cause rapid and rapid disintegration of the tablet. Many techniques are used to use these principles to quickly create tablets. Some of the methods are described below.

### **1. Technique for Preparing Mouth Dissolving Tablets**

- 1) Freeze Drying
- 2) Moulding
- 3) Sublimation
- 4) Spray Drying
- 5) Direct compression

### **1. Freeze Drying (Zydis Method)**

Drying or freeze-drying can be used to prepare oral tablets that are very porous and quickly break or dissolve on contact with saliva. The process involves using drugs in a water-soluble matrix and then formed into foil-prefabricated bubbles because zydis units are not strong enough to resist being pushed by the head baked on regular bubbles and then freeze-dried. by sublimation. remove moisture. Scherer received a patent for zydis technology based on a patent granted to Gregory et al., which uses the freeze-drying process to prepare oral tablets.[15] Seager discusses the design, process technology, and bioavailability of the fast-acting tablet made with zydis technology. [16] The main disadvantage with lyophilized fast-dissolving tablets is fragility, which leads to problems with normal packaging and stability problems during storage. However, to improve the security issue, Blank et al. used a mixture of mannitol and natural gum as excipient in freeze-dried tablets and concluded that the tablets were stable in the blisters even when stored under pressure. stable.

### **2. Moulding**

Molded tablets are prepared using water-soluble ingredients so that the tablets dissolve or disintegrate quickly and completely. The powder is soaked with the aid of a hydroalcoholic solvent and then molded into tablets at a lower pressure than conventional dosage forms. The solvent is removed from the air to dry. Tablets have a porous structure and dissolve easily. Adding sucrose, gum arabic or PVP K-30, 22 will increase the strength of the tablet. Molded tablets have minimal taste masking. To cover up the unsightly chemicals, Van Scoik created a granular form from cottonseed oil, lecithin, polyethylene glycol, sodium bicarbonate, and chemicals and mixed it into a lactose-based abrasive to make mouth-soaking tablets that mask the taste.

### **3. Sublimation:**

The main principle of rapid preparation of tablets by sublimation technology is to add unchanged salt to the tablets, mix the products to obtain a homogeneous composition, and then evaporate the unchanged salt. Removal of the unconverted salt will create porosity in the tablet, making it easier to break up the tablet when it enters the saliva. To prepare porous tablets with good strength, camphor, naphthalene, urea, ammonium bicarbonate etc. available. Koizumi et al.[19] used mannitol as a diluent and camphor as a neutralizing agent to prepare porous compressed tablets. Vacuum the tablets for 30 minutes at 800°C to remove the camphor that forms pores in the tablets. Makino et al. [20] used water as the pore former to prepare porous tablets with excellent mechanical and explosive properties.

### **4. Spray Drying:**

Spray drying can be used to make tablets immediately. The technology is based on a carrier granular matrix prepared by spray drying and mixing water containing carrier matrix and other ingredients to form a very fine powder. It is then mixed with the active ingredient and made into a tablet. Quick-dissolving tablets prepared using a spray dryer disintegrate within 20 seconds.

### **5. Disintegrant addition (Direct compression):**

The dispersant additive process is one of the most commonly used methods in the manufacture of oral tablets due to its ease of use and cost. Disintegrant Addition Technology The principle of disintegrating oral disintegrating tablets is to add an approved concentration of superdispersant to achieve rapid disintegration and good taste. Microcrystalline cellulose and low modified hydroxypropyl cellulose are mixed in a ratio of 8:2 to 9:1, with the shortest breaking time. Fast-dissolving tablets with anesthesia were created by mixing different superdispersants. Preparation of efavirenz (anti-HIV drug) fast-dissolving tablets containing microcrystalline cellulose and sodium starch glycolate as super disintegrants

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## **SUMMARY AND CONCLUSION:**

Rapid tablets can be considered as a new method of drug delivery that can be easily produced and used without water, has fewer side effects, will provide immediate release and improve bioavailability, thereby increasing patient compliance and comfort.

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