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A BRIEF OVERVIEW ON TABLET WITH SPECIAL REFERENCE OF DISPERSIBLE TABLET

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ABSTRACT

Different routes of drug administration are available like oral route, parental route, rectal route nasal route etc. But oral route are mostly preferred route for drug administration. Because of various advantages including ease of administration, versatility, avoidance of pain and most important thing good patient compliance. This is very important part of any dosage form. Tablets are the most widely prescribed dosage form. Now, tablets are most suitable and popular dosage form. This is most convenient form of drug because of its stability and patient acceptability. For the better appearance like colour, texture, mouth feel and taste mask. These all are depend on coatings like sugar coating, film coating. These are important parts of tablet manufacturing or formulation. Tablets are classified into two types: Moulded tablets and compression tablets. This work aims to comprehensive study of tablet dosage form like their formulation, types, coating, merit and demerit of tablet dosage form.

Keywords: Coating, Granulation, Compression, Ingredient, Appearance

INTRODUCTION

A Tablet defined as a "Pharmaceutical oral dosage form or single solid unit dosage form. It is the drug which contain Active Pharmaceutical Ingredient (API) and suitable Excipients". Active pharmaceutical ingredients have a therapeutic property and Excipients have no therapeutic property. It is inert in formulation. [1][2] Tablets are formulate or manufactured by moulding or compression. Excipients are the important part of tablet. Excipients like binders or granulating agents, lubricants, diluents, glidants and disintegrants. Coating of tablet is also important for tablet. Various types of coating are available. Which make and provide good appearance to tablet. Sugar coating, film coating etc. A polymer coating is also applied in tablet. It make to tablet smoother and easier to swallow and also control the release rate of active pharmaceutical ingredient.[3][2] Tablets are less expensive to manufacture.[4]On the

basis of drug release characteristics tablet cab be divided into three types: Immediate release, Extended release and Delayed release. Basically, Tablet classified into many types: disintegrating, chewable, effervescent, sublingual and buccal tablets.

Tablet formulated by the two methods. Direct Compression and Granulation method.[5][6] In direct compression method powder material is use for tablet formulation. Granulation method further classified into two types: Dry Granulation and Wet Granulation. In Dry Granulation method no liquid use at the time of formulation but in wet granulation suitable liquid use at the time of formulation.[7][8]

Definition

According to the Indian Pharmacopoeia Pharmaceutical tablet are the solid, flat or biconvex dishes. Tablet is defined as compressed solid unit dosage forms which contain Active Pharmaceutical Ingredient with or without excipient.[9]

CLASSIFICATION OF TABLET

Classified according to route of administration:

1. Tablet administered orally:

a. Compressed tablet
b. Multiple compressed tablet
c. Layered tablet
d. Compression coated tablet
e. Repeat action tablet
f. Delayed action and enteric coated
g. Sugar and chocolate coated tablet
h. Film coated tablet
i. Chewable tablet

2. Tablet administered by oral cavity:

a. Buccal tablet
b. Sublingual tablet
c. Lozenges
d. Dental cones

3. Tablet administered by other route:[10][11][12]

a. Implantation tablet
b. Vaginal tablet

METHOD OF TABLET FORMULATION

There are two methods of tablet formulation:

1. Granulation

   A. Dry Granulation
   B. Wet Granulation

2. Direct Compression

- GRANULATION METHOD

  The process of granulation involves agglomeration of smaller particles into larger ones, in which the original particles can still be recognized. Pharmaceutical granulation involves enhancing the surface area and dissolution of API by rapidly breaking down the agglomerates. Granulation process is a form of particle designing.

  Granulation further classified into two types:

  - **Dry Granulation**
    In this type of formulation method, no requirement of water. In this, prepared the granule by the help of slug. When granules formed. Then compressed the granules and form tablet. [13][14]

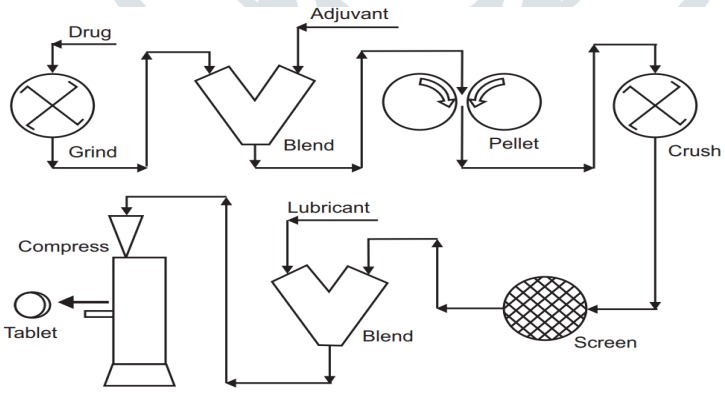

figure: 1 dry granulation [15]

  - **Wet Granulation**
    In this type of process, requirement of water for forming granules and after that by the help of granules formulate the tablet. [13][14]

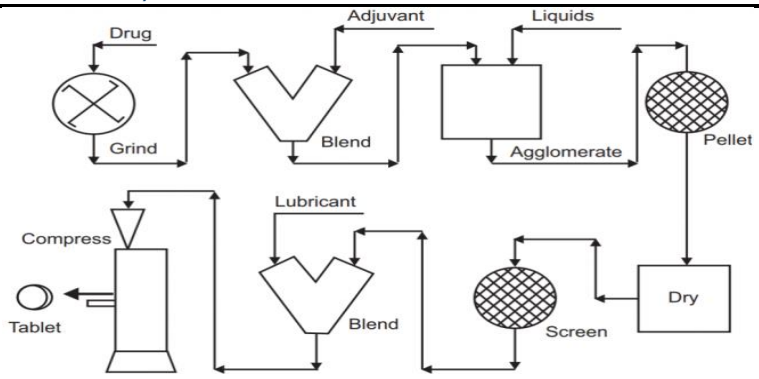

figure:2wetgranulation[16]

- DIRECT COMPRESSION METHOD

In this method, powder materials are blend with suitable excipient. After the blending material directly compressed and form tablet. [17]

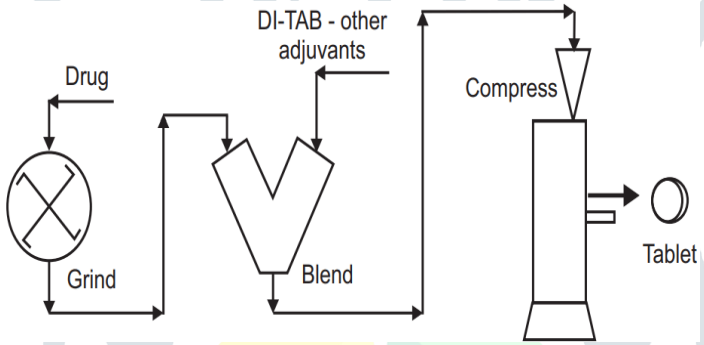

figure: 3 direct compression [18]

IDEAL PROPERTIES OF TABLET

- It should be an elegant product..
- It must be capable to release the therapeutics agent in the body in a predictable and reproducible manner.
- It should have smooth surface.
- It should be good mechanical and physical strength.
- It should be good hygroscopicity. [19]

ADVANTAGES OF TABLET

- Tablets are solid single unit dosage form. Therefore, It is easy to consume for patient without any measurement.
- Tablet packaging and strip are easy and cheapest.
- Tablets are low in price.
- It is lighther and compact.
- It has good chemical and microbial stability.
- Chemical nature of tablet ingredient should be maintained.
- Handling of tablet are easy.
- By the help of sugar coating and film coating unpleasant taste or odor can be masked. [20]

DISADVANTAGES OF TABLET

- Swallowing of tablet are difficult for children and old person.
- In case of vomiting and diarrhea tablet are not suitable because it can not absorb properly in that case.
- For unconscious person tablet is not suitable.
- Some drugs has unpleasant taste and odor and can't masked by the coating due to this not to easy for consume.[21]

EXCIPIENTS

Different-Different excipients are use in tablet preparation for different purpose.

Some excipients are:

1. **Diluents**: It is use for increase the bulk of tablet.
   Example: Starch, Lactose, Mannitol etc.

2. **Binder and Adhesives**: It is use in the form of dry or wet. It work as a binding agent in Formulation.
   Example: Starch, Acacia, Carboxy Methyl Cellulose etc.

3. **Disintegrants**: It is use for disintegration or breaking of tablet in GIT.
   Example: Clays, Cellulose, Starch etc.

4. **Lubricants**: It helps in to prevent sticking of tablet in dies and punches at the time of Formulation..
   Example: Talc, Stearic acid etc.

5. **Glidant**: It reduce the friction and help infree flow of powder and granules.
   Example: Starch, Talc etc.

6. **Coloring Agent**: It provide good appearance to tablet.
   Example: Brilliant Blue.

7. **Sweeting Agent**: It helps in mask the unpleasant or bitter taste of tablet.
   Example: Aspartame, Lactose etc.

8. **Flavouring Agent**: It is add for impart the flavour of tablet. [22]

DISPERSIBLE TABLET

Dispersible tablet consist special formulation, it contain super disintegration agents and due to this agent tablet quickly disintegrate in water and make the suspension.[23] Dispersible tablet does not contain any type of coating. For dispersible tablet required to disperse in water before the administration. Dispersible tablet are very convenient for children and old age patient. It is regarded the safe, convenient and economical method of drug delivery. It has

highest patient compliance. It shows rapid effect because of their fast disintegration rate and good bioavailability. It also helps to maintain the stability of drug. It is easy to use for pediatric and elderly patients. [24] [25]

SALIENT FEATURES OF DISPERSIBLE TABLET

- The chances of suffocation at the time when patient consume the drug is avoided and improve safety of drug.
- It is fast drug therapy intervention.
- After the consuming of drug it should leave no residue in mouth.
- This drug should be dissolve in mouth rapidly.
- It should be compatible with excipients.
- It should be stable in environmental condition. [26]

ADVANTAGES OF DISPERSIBLE TABLET

- Highly patient compliance and ease of drug administration to sufferers who are not able to consume tablet like, pediatric, geriatric and mentally ill patients.
- Fast dissolution of drug shows rapid action because their absorption also will be fast.
- Their bioavailability will be good due to this amount of dose will be decreased.
- It is easy to transportation or handling.
- It has good physical and chemical stability. [27][28]

DISADVANTAGES OF DISPERSIBLE TABLET

- It is rapid disintegrating tablet. Therefore, this type of tablet are highly hygroscopic in nature.
- It required to special packaging.
- It has insufficient mechanical strength. Therefore it needed to careful handling.
- It gives unpleasant taste in mouth if they formulate improper manner.[29]

MECHANISM OF DISPERSIBLE TABLET

- Through capillary action
- By the help of swelling
- Due to heat of wetting
- Due to release of gases
- By the help of enzymatic action
- Due to disintegrating particle
- Due to deformation[30]

CONCLUSION

As a solid dosage form, tablet ate most convenient and suitable form of drug. It is ease to administration. It is single solid unit dosage form. Therefore, for the patient no difficulty to measurement of the dose of drug. In other way, Tablet handing is very easy for patient.

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