

PHARMACEUTICS-I (BP103T)

UNIT: 2

CLASS: 5

TOPIC: Powders**Introduction**

- Pharmaceutical powders are solid dosage forms of medicament in which one or more drugs are dispensed in finely divided state with or without excipients.
- They are available in crystalline or amorphous form.

Advantages

- It is used both internally and externally.
- It is more stable than liquid dosage form.
- It is convenient for the physician to prescribe a specific amount of powder.
- Onset of action is faster as compared to tablet, capsules because it is easily dissolved in body fluids.
- Easy to carry.
- Easy to administration to the patient orally by dissolving in suitable liquids.

Disadvantages

- Drugs that have bitter taste, nausea and unpleasant taste cannot be administered in powder form.
- Deliquescent and hygroscopic drugs cannot be dispensed in powder form they are packed in double wrapping.
- Drugs which get affected by atmospheric condition are not suitable for dispense.
- Quantity less than 100 mg cannot be weighed conveniently.

Method of preparation

1. Reduction of particle size of all ingredients to the same range to prevent stratification (separation of the large and small particles)

2. Sieving

3. Weighing each ingredient

4. Mixing

5. Packaging

• During powdering, weighing and mixing, there is loss of powder which cannot be avoided. Therefore, while calculating the quantity of ingredients calculate for one extra powder than required.

Size reduction

• Is the process of reducing large solid units or substance into smaller unit mass, coarse particles or fine particles. It is also termed comminution, grinding or pulverization.

• Smaller particle size and increased surface area, leads to: Uniform distribution of the drug substance in a powder mixture or solid dosage form to ensure dose to dose content uniformity.

Size reduction on large scale

a. Compression: positive pressure, e.g., nut crusher, ball mill

b. Impact: material is stationary and hit by an object, e.g., hammer mill

c. Shear: cutting force, e.g., scissors, colloid mill

d. Attrition: breaking the edges of the solid either by impact or particle collisions (fluid energy mill and roller mill).

2. Sieving

3. Weighing each ingredient

4. Mixing of powders

• The powders may be mixed by any one of the following methods:

✓ Spatulation

✓ Trituration

✓ Geometric dilution

✓ Sifting

✓ Tumbling

Spatulation

• In this method, the mixing of powders is done by the movement of a spatula throughout the powders on a sheet of a paper or on a porcelain tile. The method is very useful in mixing: a) Small amount of powder b) Solid substances that liquify or form eutectic mixtures, when in close and prolonged contact with one another since very little compression or compact results. This method is not suitable for large quantities of powders or for powders containing one or more potent substances because homogenous blending may not occur.

Trituration

It is used both to reduce particle size and mix powders. If particle size reduction is desired along with mixing of powders, a porcelain mortar with a rough inner surface is preferred to a glass mortar with a smooth working surface. A glass mortar may be preferred for chemicals that may strain a porcelain surface and for simple mixture of substances without special need for comminution. A glass mortar cleans more readily after use.

2 MARKS QUESTIONS

1. Define powders.
2. Give the advantages and dis-advantages of powders.

5 MARKS QUESTIONS

1. Write about method of preparation of powders.
2. Give a note on different methods of mixing of powders.