



Netaji Subhas University, Jamshedpur

Shaista Sanuber
Assistant Professor
NSIP, NSU

Powders

- A pharmaceutical powder is a mixture of finely divided drug and or chemicals in drug form.
- These are solid dosage form of medicament which are meant for internal and external use.
- They are available in crystalline or amorphous form.
- The particle, chemical and biological properties of the dosage forms.
- There is a relationship between particle size of powder and dissolution absorption and therapeutic efficacy of drugs.

Advantage of powders:

- These are the oldest dosage form used both internally and externally.
- These are more stable than liquid dosage form.
- It is convenient for the physician to prescribe a specific amount of powdered medicament depending upon the need of the patient.
- They are portable.
- The large quantity of drug can be administered easily by dissolving the powdered in an appropriate liquid.

Disadvantages of Powders:

- Drugs having bitter nauseous and unpleasant taste cannot be dispensed in powdered form.
- Deliquescent and hygroscopic drugs can't be dispensed in powder form.
- Drugs which get affected by atmospheric conditions are not suitable for dispensing in powder forms.
- The dispensing of powder is a time consuming.
- Quantity less than 100mg or so cannot be weight convenient or dispensing balance.

Classification of powders:

1. Bulk power for external use
2. Bulk power for internal use
3. Simple and compound powders
4. Effervescent granules
5. Cachets

1. Bulk power for external use:

- External bulk powders contain non potent substances for external applications.
- These powders are dispensed in glass, plastic wide mouth bottles and also in cardboard with specific method of application.
- **Bulk power for external use are of following types:**
 - A. Dusting powder
 - B. Insufflation
 - C. Snuffs
 - D. Douche powder

A. Dusting powder:

- Dusting powder usually contain substance such as zinc oxide, starch and boric acid or natural mineral substances, such as kaolin or talc.
- Talc may be contaminated with pathogenic micro-organisms such as clostridium tetani, etc. And hence it should be sterilized by dry heat.
- Dusting powders should not be applied to broken skin if desired powders should be micronized or passed through a sieve 80 or 100.
- Dusting powders should have adsorption and adsorption capacity.
- They provide protection to the skin against irritation caused by friction moisture or chemical irritations.

B. Insufflation:

- Insufflations are a class of powders meant for application to body cavities
- Eg. Ear, nose, vagina etc.
- The powder has to be extremely fine and must find an entry to the cavity deep enough to bring about its action the site.
- Its is delivered to the effected part in a stream with the help of the device called an insufflators, which blow the powder to the site.
- Pharmaceutical industry packages the insufflations in pressurized from
- Eg. Aerosols.
- Aerosols contain the medication in a stout container with a suitable value the delivery of the powder being accomplished by a liquefied or compressed gas propellant of very low boiling points.
- On pressing the actuator of the value the propellant delivers the medication in a stream.

2. Bulk power for internal use:

A. Effervescent Powder:

- Effervescent powders create a carbonated drink when added to room temperature water.
- **Example: Eno, etc.**
- This dosage form is useful for patients who don't tolerate capsules/tablets, who need a high dose of the active ingredient & who need a more palatable flavour for the drug. The combination of the carbonation & the flavour (i.e. mango, passion fruit or raspberry) can override the negative taste of the active ingredient.

B. Effervescent granules:

- Granular solid dosage form consisting of one or more active medicament in a dry mixture usually composed of sodium bicarbonate, citric acid and tartaric acid when added to water the acid and base react to liberate carbon dioxide resulting in effervescences and are administered as carbonated solutions.

Formulation:

- Active medicaments **ex:** Antacids, Laxatives, Antibiotics, Antipyretics etc.

Citric acid and Tartaric acid.

Sweetening agent: Sucrose and aspartame

Colouring agent: Titanium dioxide, turmeric etc.

Flavouring agent: Peppermint oils, lemon oil etc.

- The effervescent granules (salts) are prescribed to be dispensed in bulk form, no granulation is necessary.
- The ingredients are mixed uniformly and directions stated on the label to add the prescribed quantity to water before use.

Advantage of granules:

- They also remove or control dust.
- They increase the compressibility.
- They have good flowability than powders.
- Their physical and chemical stability is much more than powders because they have a smaller surface area.