INTRODUCTION TO DOSAGE FORMS

Drug

- Drug is an agent used for the diagnosis, mitigation, treatment, cure or prevention of diseases in humans or animals.

Dosage forms

- Dosage forms are the means through which drugs are delivered in the body towards its site of action.
- They are the final product containing drugs that is administered to the patients.
- Every dosage form is a combination of drug and non- drug component called Exipients

Drug + Non Drug (excipients) = Dosage Form

API (Active Pharmceutical Ingerdients)

These are the Chemical compound that are actually used for diagnosis, treatment and prevention of disease.

Excipients

Excipients are used to give particular shape to the formulation, to increase stability, palatability and to make the preparation more elegant

Exipients types:---

- Coloring agents
- Sweetening agents
- Flavoring agents
- Solubilizing agents
- Anti oxidants
- Preservatives
- Suspending agents
- Lubricants
- Perfumes

What is the need of a dosage form ?

Protection

1. Protection from external environment
   Eg. coated tablets and sealed ampoules.
2. Protection from degradation because of gastric juice.

To improve therapeutic activity

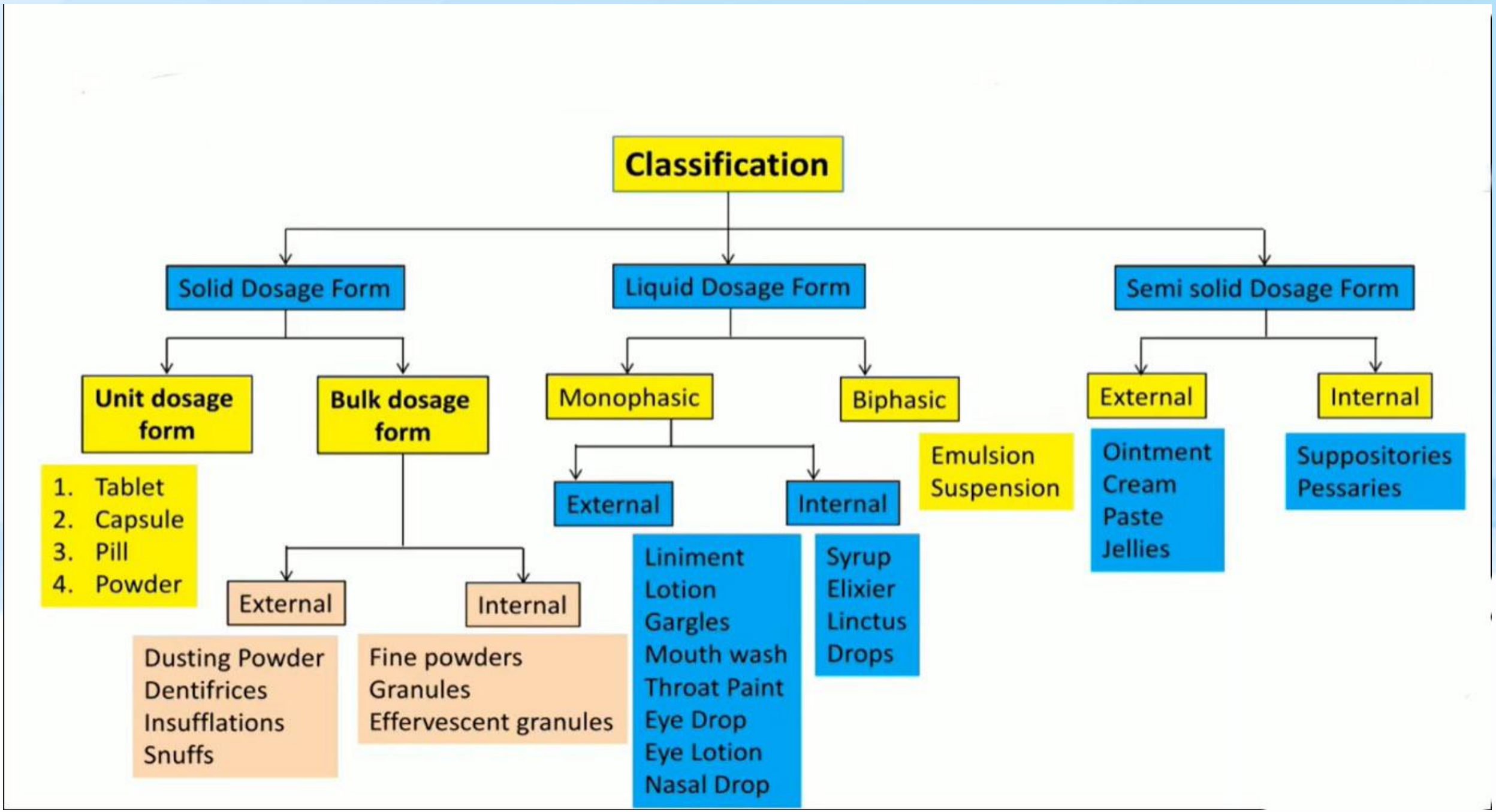
1.To provide optimal drug action directly to the site of action
Eg:-ointments.
2. To place the drug directly in to the orifices
E.g. Rectal and vaginal dosage forms

3. To provide optimal drug action in the blood stream. e.g. Injections
4. To provide rate controlled drug action. e.g. modified release dosage forms
5. To improve Bioavailability of drugs with narrow absorption window e.g. Gastro retentive dosage forms

To improve patient compliance

1. To maintain accuracy of dose
E.g.:- Unit dosage forms
2. Reduction in frequency of dosing
Eg:- Sustained Release and Controlled Release.

Classification of Dosage Forms


Classification
Solid Dosage Form
Liquid Dosage Form
Semi solid Dosage Form
Unit dosage form
Bulk dosage form
Monophasic
Biphasic
External
Internal
1. Tablet
2. Capsule
3. Pill
4. Powder
External
Internal
External
Internal
Emulsion
Suspension
Ointment
Cream
Paste
Jellies
Suppositories
Pessaries
Dusting Powder
Dentifrices
Insufflations
Snuffs
Fine powders
Granules
Effervescent granules
Liniment
Lotion
Gargles
Mouth wash
Throat Paint
Eye Drop
Eye Lotion
Nasal Drop
Syrup
Elixier
Linctus
Drops

Solid Dosage Forms

- Solid dosage forms one of the oldest dosage forms and solid dosage forms are available as Unit dose and bulk dose.

The Unit Dosage Forms

- Dosage form of which a single unit is equivalent to a single dose of the drug
- e.g.- Tablets, capsules, Pills

Tablets

- Tablets are solid oral dosage forms of compressed powders or granules intended for oral administration.
- Tablets are unit dosage forms consisting of active ingredient and suitable pharmaceutical excipients
- Tablets may vary in size shape weight hardness and thickness and in other aspects
- They are the most widely used and convenient dosage form.

Types of Tablets

Compressed Tablets

- ☐Chewable tablets
- ☐Film coated tablets
- ☐Enteric coated tablets
- ☐Effervescent tablets
- ☐Dispersible tablets
- ☐Immediate release tablets
- ☐Sustained release tablets

Special Tablets

- ☐ Sub-lingual tablets
- ☐Buccal tablets
- ☐Vaginal tablets
- ☐Rectal tablets

Capsules

• Capsules are solid dosage forms in which medicinal agents and pharmaceutical ingredients are enclosed within a small shell of gelatin.

• They are manufactured using Gelatin which is made up of proteins extracted from animal collagen.

• Types:
• 1. Hard gelatin Capsules
• 2. Soft gelatin Capsules

Hard gelatin Capsule

Two pieces fit together and hold the drug, either powder or granular form

Soft gelatin Capsule

Two pieces fit together and hold the drug, either powder or granular form

Pills

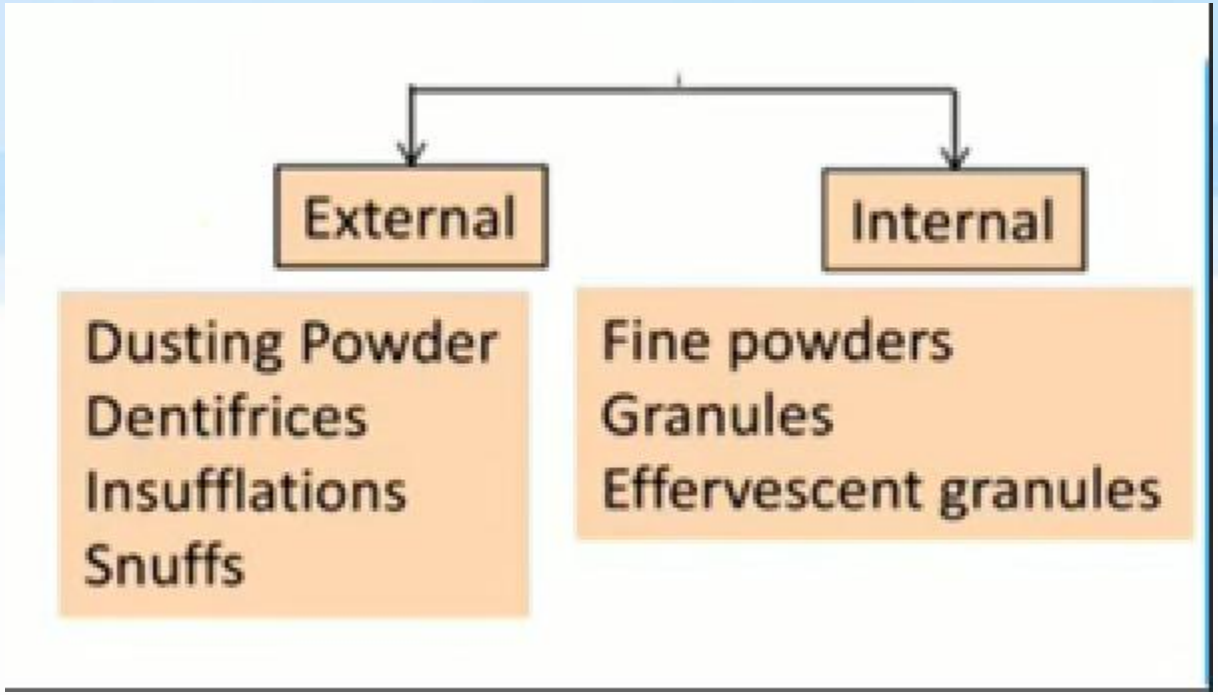
- Pills are small rounded solid dosage form containing medicament and are indented to be administered orally

- Rarely used nowadays

The Bulk Dosage Forms

Dosage form of which a single unit is equivalent to many dose of the drug.

Used as internally or externally



Fine Powders

- Pharmaceutical powders are intimate mixtures of dry finely divided drugs or chemicals.

Granules

- Bitter nauseous unpleasant and unstable powders cannot to be given in the form of tablets, capsules and liquid. Such medicament are given in the form of granules

- **Effervescent granules**
- Effervescent granules are meant for internal use.

- They contained medicaments mixed with citric acid, tartaric acid & sodium bi carbonates, sometime saccharin or sucrose may be added for sweetening taste.

- Before, administration desired quantity of granules are dissolved in water, the acid & bicarbonate reacts with each other results in the formation of carbon dioxide which appears as bubble, i.e. effervescence
- Such carbonated water will mask the bitter and saline taste of drug

Dusting Powders

These are powders which are in a fine state for external applications usually to the skin.

e.g.: talc, kaolin, etc.

Usually 2 types

- Medical Dusting powders
- Surgical Dusting powders

Insuflations

- These are medicated dusting powders meant for introduction into body cavities (nose, throat, ear, vagina etc) with the help of an apparatus known as a insufflator.

- It sprays the powders (in a state of fine particles) on site of application.

Snuffs

- These are finely divided solid dosage forms of medicaments which are inhaled into nostrils.
- They are mainly used for their antiseptic, bronchodilator and decongestion action.

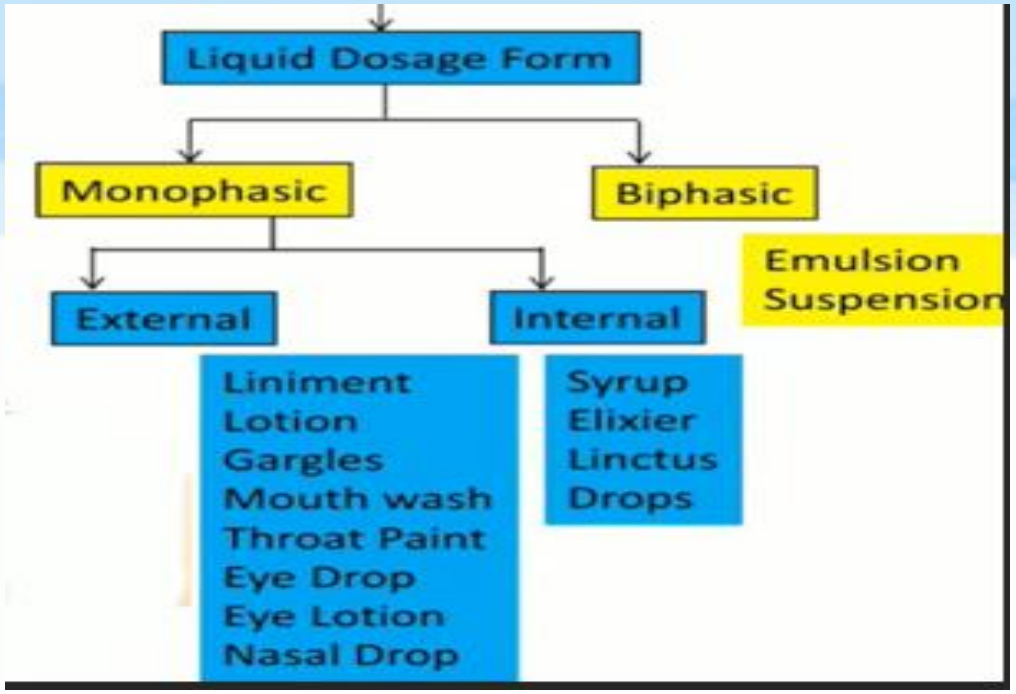
Dentrifices

- Dosage forms (Powder, Gels or liquids) that are used to clean the surface of the teeth.

- They contain detergent, abrasive and anticariogenic agent.
- e.g.: closeup, colgate,etc

Liquid Dosage Forms

- Liquid dosage forms are intended for External, Internal or parenteral use
- They mainly classified in to two category namely as –
  A. Monophasic Liquid dosage forms.
  B. Biphasic liquid dosage forms



Monophasic Liquid dosage formsDosage Forms

Syrup

- It is a concentrated or saturated solutions of sucrose in purified water.

- The concentration of sucrose is 66.7% w/w & due to that it is a viscous preparations.

- The syrup which contains medical substance called as a medicated syrup & those containing aromatic or flavored substance known as a flavored syrup.

Elixirs

- It is clear, sweetened, aromatic, hydroalcholic preparations meant for oral use.

- The medicated elixirs are generally contained potent drug like as antibiotics, antihistamine or sedative , where as non – medicated elixirs contained flavoured.

- The composition of elixirs contained mainly as ethyl alcohol (active ingredients),water, glycerin or propylene glycol, colouring agent, flavouring agent & preservative

Linctuses

- These are viscous liquid preparations that's are used for the treatment of cough.
- They contain medicaments which have demulcent, sedative, expectorant action.
- They are taken in small doses without diluting with water to have prolonged effect of medicines

Drops

- These are liquid preparations meant for oral administration
- The oil soluble vitamins, such as vitamin A & D concentrates in fish – liver oil are presented as drops for administration.
- Since these preparations contain potent medicaments, the dose must be measured accurately
- Use of a dropper which is accurately graduated in fractions of a milliliters commonly used for this purpose

Liniments

- Liniments are liquid or semi- liquid preparations meant for external application to the skin.
- They are usually applied to the skin with friction & rubbing of the skin.
- Are usually alcoholic and oily liquid preparations
- Alcoholic liniments penetrate the skin more readily than do those with an oil base.
- The oily liniments are milder in their action and may function solely as protective coatings
- Liniments should not be applied to skin that are bruised or broken

Lotions

- Are usually aqueous, alcoholic or oily liquid preparations.
- They are intended for external application without friction or rubbing to the affected area
- Usually applied with the help of some absorbent material such as cotton wool or gauze.
- It is generally used to provide cooling, soothing and protective & antiseptic action.

Gargles

- Gargles are aqueous solutions used for treating throat infection (pharynx and nasopharynx part)

- Supplied in concentrated forms with directions of dilution with warm water before use

- They are used into intimate contact with the mucous membrane of throat for few seconds, before they are thrown out of the mouth.

Mouth wash

- These are aqueous solutions with pleasant or acceptable taste & odour

- These are used to make clean & deodorise the buccal cavity or used for oral hygiene and to treat infections of the mouth.

- They mainly contain antibacterial agent, alcohol, glycerin, sweetening agent, flavoring agent & colouring agent.

Throat paints

- Throat paints are viscous liquid preparations used for mouth and throat infections

- Glycerin is commonly used as a base because being viscous it adheres to mucous membrane for long period and it possess a sweet taste.

Eye drops

- Sterile, aqueous/oily solutions or suspensions intended for instillation in eye sac.

- Eye drops may contain buffers, stabilizing agents, dispersing agents, solubilising agents, anti-oxidants & agents required for tonicity/ viscosity adjustment

Nasal drops

- Drugs in solution may be instilled into the nose from a dropper or from a plastic squeeze bottle.

Eye lotions

- These are the aqueous solutions used for washing the eyes.

- These are supplied in concentrated forms & are required to diluted with warm water immediately before use.

Biphasic Liquid dosage formsDosage Forms

- The liquid which consist of two phases are known as a biphasic liquid dosage forms.

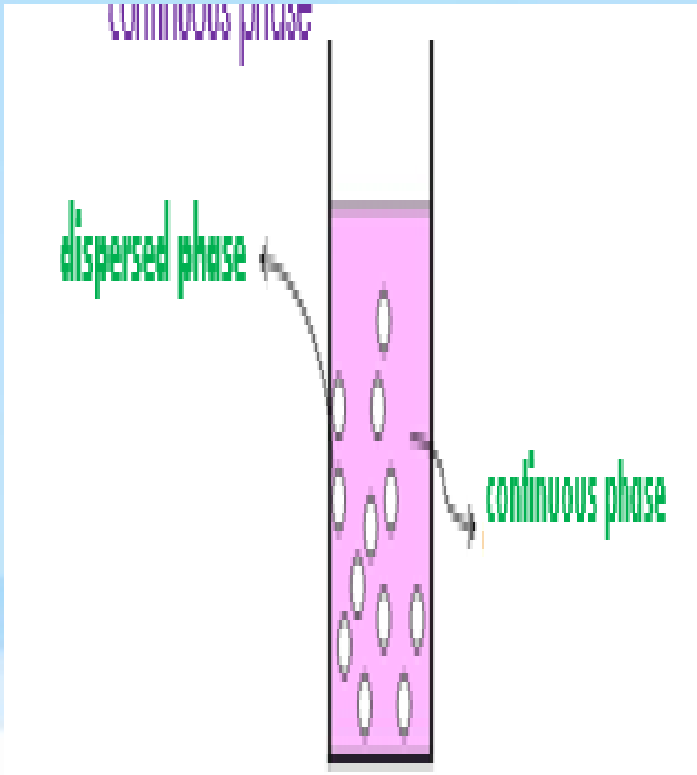
- They are sub categorized into two different forms namely as –

  I) Emulsion II) Suspension

- In emulsion both phases are available in liquid
- where as in suspension, finely divided solid particles are suspended in liquid medium.

Emulsion

- Emulsion is a biphasic liquid preparations containing two immiscible liquid (Continuous Phase & dispersed phase) made miscible.



- The liquid which is converted into minute globules is called as dispersed phase & the liquid in which the globules are dispersed is called the continuous phase

- An emulsion is a thermodynamically unstable system consisting of at least two immiscible liquid phases one of which is dispersed as globules in the other liquid phase stabilized by a third substance called emulsifying agent.

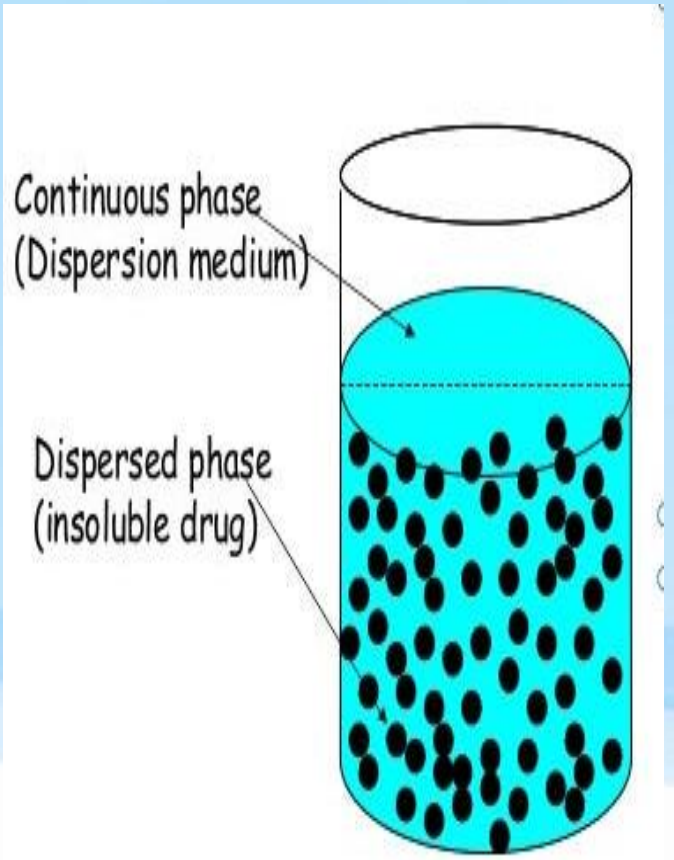
- The globule size in emulsion varies from 0.25 to 25 µm.

Suspension

- Suspensions are the biphasic liquid dosage forms of medicament in which finely divided solid particles ranging from 0.5 to 5 micron are dispersed in a liquid or semisolid vehicle, with aid of single or combination of suspending agent.

- In which solid particles acts as disperse phase where as liquid vehicle acts as continuous phase

- The external phase (suspending medium) is generally aqueous in some instance, may be an organic or oily liquid for non oral use.



Semisolid Dosage Forms

- Semisolid dosage forms meant for external application
- Semisolid dosage forms subcategorized are as-

I) ointment

II) creams

III) paste

IV) Jellies

V) Suppositories

- The suppositories are also included in this category but it is a unit dosage forms.

Ointment

- Ointment are semisolid preparation meant for application to skin or mucous membrane.
- The ointments are mainly used for their protective or emollient properties
- It may be defined as a medicament or medicaments dissolved, suspended or emulsified in ointment base

Creams

- These are viscous semisolid emulsions which are meant for external use.
- Cream is divided in to two types namely as

I) Aqueous creams

II) Oily creams

Pastes

- Pastes are semisolid preparations intended for external application to skin.
- The pastes are generally very thick & stiff

Jellies

- Jellies are transparent or translucent, non greasy, semi solid preparations mainly used for external application to skin.

- Jellies are of three types namely as
  - a)Medicated jellies
  - b) Lubricating jellies
  - c)Miscellaneous jellies


Thank You