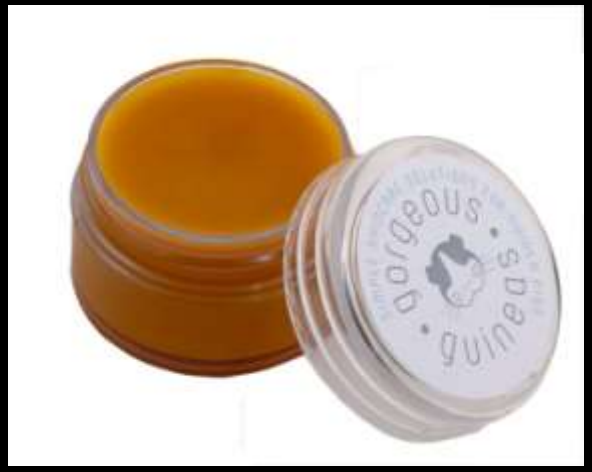
Pharmaceutical Dosage Forms(1)

Ointments

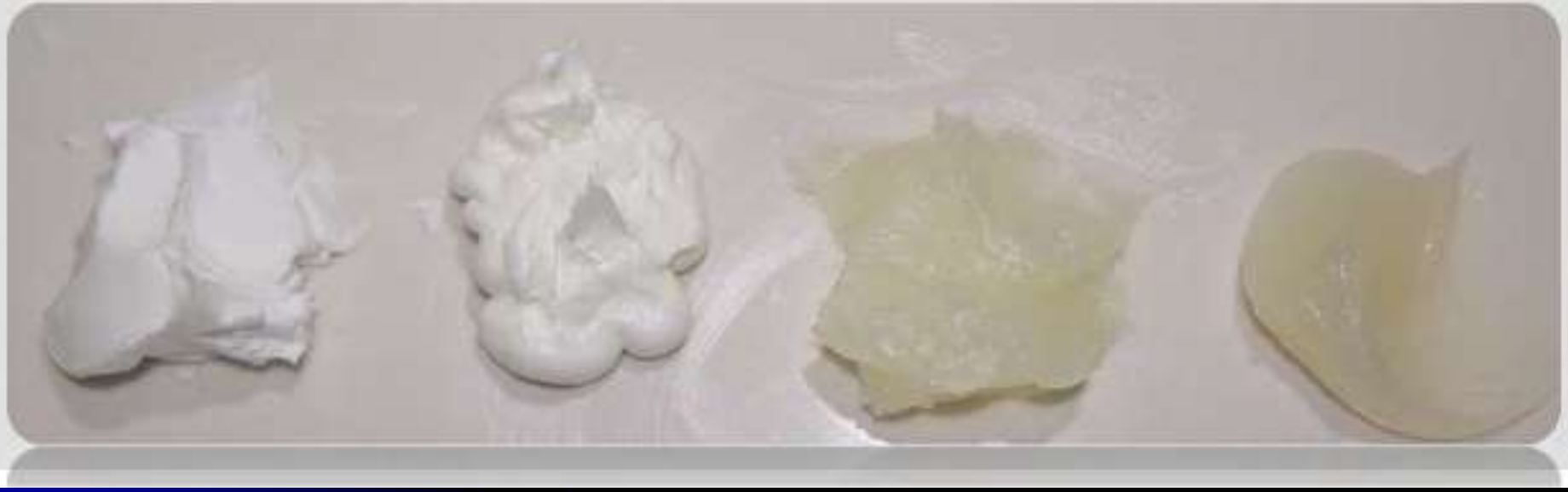


- **Ointments** are semisolid preparations intended for external application to the skin or mucous membranes.
- Ointments may be medicated or not.
- Unmedicated ointments are used for the physical effects they provide as protectants, emollients, or lubricants.
- Ointment bases, may by used for their physical effects or as vehicles for medicated ointments.

CLASSIFICATION OF BASES

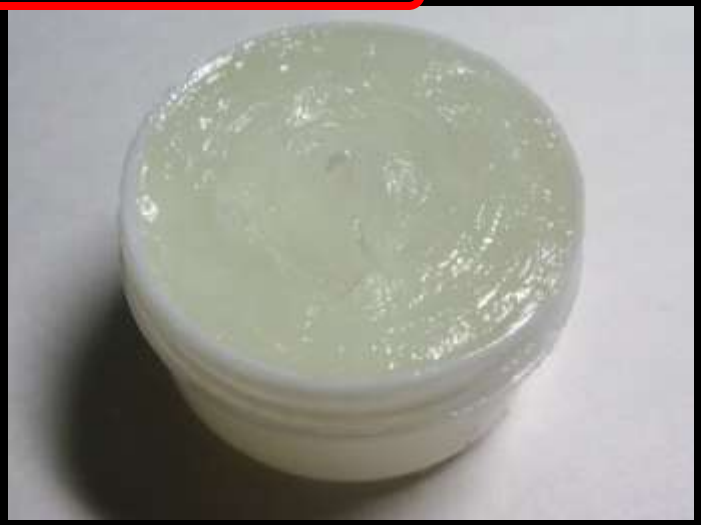
BASES

- **WATER SOLUBLE BASE**
- **EMULSION BASE**
- **ABSORPTION BASE**
- **OLEAGINOUS BASE**



Ointment bases:

- 1- Oleaginous or hydrocarbon base:
- 1- Anhydrous
- 2- Non-hydrophilic
- 3- Insoluble in water
- 4- Non-water removable



- Ex. Petrolatum, Fixed oils of vegetable origin(castor), oils of animal origin as lard and silicones

Ointment bases:

- 2- Absorption base:
- 1- Anhydrous
- 2- Hydrophilic
- 3- Insoluble in water
- 4- Non-water removable
- Ex. Anhydrous lanolin

Ointment bases:

- 3- Emulsion base
- A.(w/o):
- 1- Hydrous
- 2- Insoluble in water
- 3- Non-water removable
- Ex. Hydrous lanolin and cold cream

Ointment bases:

- B- Emulsion (o/w) water removable base:
- 1- Hydrous
- 2- Insoluble in water
- 3- Water removable
- Ex. Hydrophilic lanolin and vanishing cream

Ointment bases:

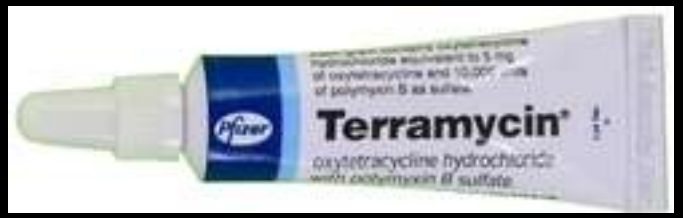
- 5- Water soluble base:
- 1- Anhydrous
- 2- Hydrophilic
- 3- Soluble in water
- 4- Water removable
- 5- Greaseless
- Ex. Polyethylene glycols (PEG) ointment

PREPARATION OF OINTMENTS

- Ointments are prepared by two general methods:
- (*a*) incorporation
- (*b*) fusion,

- Depending primarily on the nature of the ingredients.

Ophthalmic Ointments



- Meant for application to the eye
- Shoud be steril and free from irritation

Ointment base is selected must be

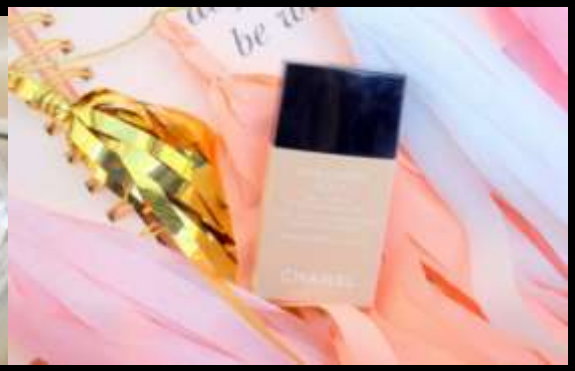
1- nonirritating to the eye

2- permit diffusion of the drug throughout the secretions

3-increase the stability of preparation

- Petrolatum is mainly used as abase for ophthalmic drugs

Creams



- Viscous liquid or semisolid emulsions intended for application to the skin.

i.e. for external use

- **Classified into two type**

Aqueous creams O/W

Oily creams W/O

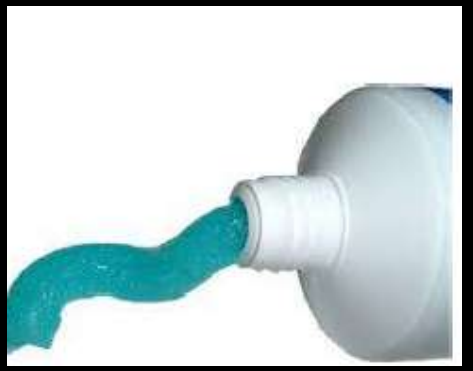
Advantages

- More accepted to patient
- Interfere less with skin function
- (o/w) creams can be rub more readily onto the skin and easy removed by washing
- Evaporation of water from o/w creams causes cooling sensation
- o/w creams absorbs discharges from the wound very quickly
- w/o creams (cold cream) restricts evaporation from skin so can be used to prevent dehydration (emollient)

Disadvantages

- Used only for external use not internal
- Aqueous phase mean it is suitable media for fungal and bacterial growth so need preservatives
- Oil phase increase the incident of rancidification takes place

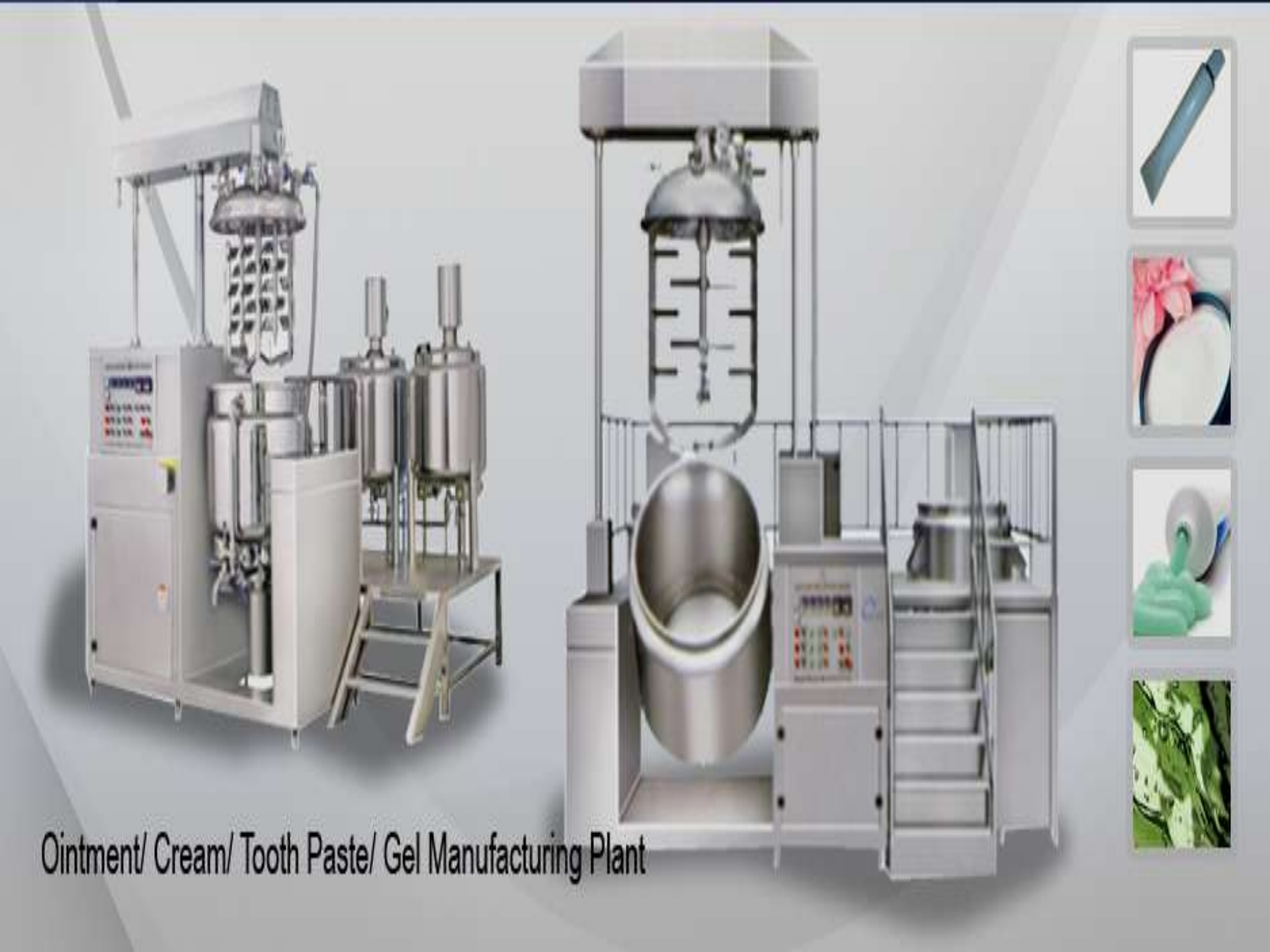
Pastes



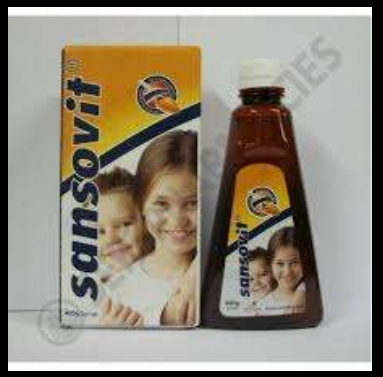
- Semisolid preparation meant for external application to the skin
- Contain large amount of finely powdered solid such as starch, zinc oxide
- Provide a protective coating over the areas to which they are applied

Ex: Mg sulfate paste

Paste	Ointment
❑ Contain large amount of finely powdered solid (50%)	❑ Contain very less amount of powdered solid
❑ stiff	❑ Soft
❑ Adhere well when applied to the skin and remain confined in the area of application	❑ Less viscous so spread beyond the area of application
❑ Porous so perspiration (sweet) can escape through it	❑ Non-porous so perspiration cannot escape through it
❑ Less greasy than ointment	❑ More greasy than pastes


Ointment/ Cream/ Tooth Paste/ Gel Manufacturing Plant

Syrups



- Liquid oral preparations In which the vehicle is a concentrated aqueous solution of sucrose or other sugar.
- If its clear it is called elixir
- If its suspension it is called mixtures
- Simple syrup is a saturated solution of sucrose in purified water the concentration of sucrose is 66.7% w/w
- Medicated syrup contain medicinal substances
- Flavoured syrup contain aromatic or flavoured substances

Advantages of syrups

1- retards oxidation because its partly hydrolyzed into reducing sugar such as dextrose and levulose

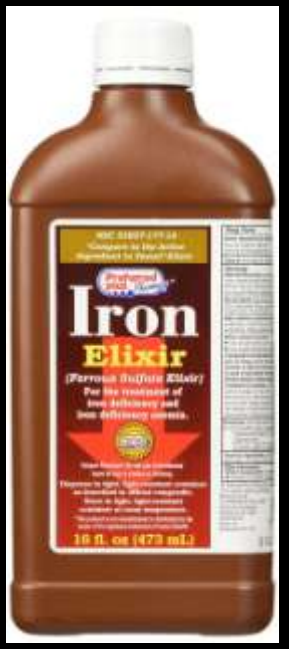
2- prevent decomposition of many vegetable substances

(syrups have high osmottic pressure which Prevents the growth of bacteria, fungi and molds which are the chief causes of decomposition in soln. of Vegetable matter

3- they are palatable due to the sweetness of sugar so it is a valuable vehicle for a dminstration of un palatable susbstances.

- **Syrups may be prepared by simple soln. or admixture or made by A process of extraction**

Elixirs



- Clear liquid oral preparations of potent or nauseous drugs

1- pleasently flavoured

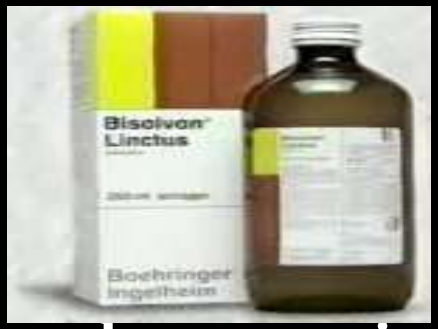
2- attractively coloured

3- very stable

- Vehicle used in elixir are alcohol, glycerol and propylene glycol.
- 10-20% alcohol useful for keeping oils in solution
- Drugs with low water solubility give clear solution when formulated as elixir.

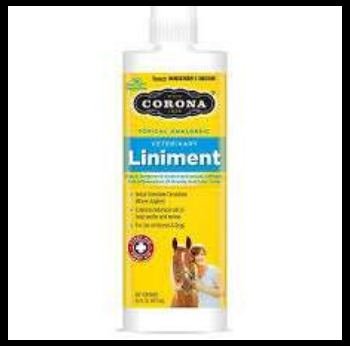
Ex: phenobarbital is insoluble in water but a clear product can be made by dissolving it in alcohol then diluting with glycerol and water

Linctuses



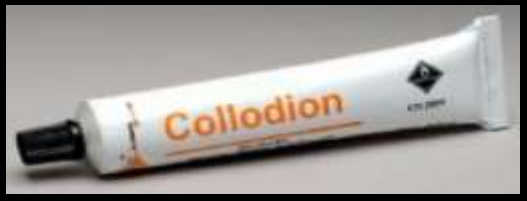
- **Viscous liquid oral preparations that are usually prescribed for the relief of cough**
- **The viscous vehicle soothes the sore membrane of the throat.**

LINIMENT



- Liquid semiliquid or semisolid preparations intended for application on the skin.
- They may be alcoholic or oily soln or emulsions
- Most are massaged onto the skin e.g counter-irritant type
- Must not be applied to broken skin bec. They would be very irritating.

Collodion



❑ Liquid preparations meant for external application to the skin

They are convenient for application on small cuts and abrasions

➢ also used when a prolonged contact between the skin and medicament is required

➢ The vehicle is volatile and evaporates on application to the skin leaving a flexible protective film covering the site.

Composed of :

1- Volatile solvents used are ether and alcohol

2- Film producing ingredient is pyroxylin (nitrocellulose)

3- plasticizer giving the flexibility is castor oil


Thank you