UNIT – 2

Monophasic Liquids:

Gargles:

- **Definition:** Gargles are aqueous solutions used to rinse the throat and mouth. They are not swallowed but are intended for localized treatment.
- **Preparation:** Gargles are prepared by dissolving active ingredients, such as antiseptics or anaesthetics, in a suitable aqueous vehicle.

Mouthwashes:

- **Definition:** Mouthwashes are aqueous solutions designed for oral hygiene and freshness. They are swished around the mouth and then spit out.
- **Preparation:** Mouthwashes typically contain active ingredients like antimicrobial agents or fluoride, mixed with an aqueous vehicle.

Throat Paint:

- **Definition:** Throat paint is a viscous liquid used to coat and soothe the throat. It is often used to relieve sore throat symptoms.
- **Preparation:** Throat paints are formulated with thickening agents to increase viscosity for adherence to the throat.

Eardrops:

- **Definition:** Eardrops are sterile solutions or suspensions administered into the ear canal to treat ear infections or other ear conditions.
- **Preparation:** Eardrops are prepared as sterile solutions containing antibiotics, analgesics, or other active ingredients.

Nasal Drops:

- **Definition:** Nasal drops are sterile solutions used to relieve nasal congestion or deliver medications through the nasal passages.
- **Preparation:** Nasal drops are formulated with active decongestants, saline solutions, or medicated solutions.

Enemas:

- **Definition:** Enemas are solutions or suspensions administered rectally for various purposes, such as bowel cleansing or medication delivery.
- **Preparation:** Enemas can include laxative solutions, saline solutions, or medicated solutions.

Syrups:

- **Definition:** Syrups are concentrated, sweet, and viscous solutions used for oral administration. They are often used to mask the taste of medications.

- **Preparation:** Syrups contain an active ingredient, sweetening agents (e.g., sucrose or sorbitol), and flavouring agents.

Elixirs:

- **Definition:** Elixirs are clear, sweetened, hydroalcoholic solutions used for oral administration. They are alcohol-based and often contain volatile ingredients.
- **Preparation:** Elixirs are prepared by dissolving the active ingredient in a hydroalcoholic vehicle, with sweeteners and flavouring agents.

Liniments:

- **Definition:** Liniments are liquid formulations applied topically for pain relief and inflammation. They are rubbed onto the skin.
- **Preparation:** Liniments contain active ingredients like analgesics, along with suitable oils or alcohol-based vehicles.

Lotions:

- **Definition:** Lotions are liquid preparations for external application to the skin. They are typically non-greasy and easy to spread.
- **Preparation:** Lotions contain active ingredients like antipruritic agents, emollients, and aqueous or alcoholic vehicles.

Biphasic Liquids - Suspensions:

Definition of Suspensions:

- Suspensions are biphasic liquid dosage forms consisting of solid particles dispersed in a liquid vehicle. The particles are not completely dissolved and tend to settle over time.

Advantages of Suspensions:

- Suitable for administering drugs with poor solubility.
- Allow for flexible dosing, as the concentration can be adjusted by shaking the bottle.
- May provide sustained-release effects for some drugs.

Disadvantages of Suspensions:

- Prone to particle settling, requiring shaking before use.
- May have limited stability, especially for certain drug types.
- Potential for variability in dosing if not properly mixed.

Preparation of Suspensions:

- Suspensions are prepared by dispersing solid particles into a liquid vehicle, followed by the addition of suspending agents, wetting agents, and flavouring agents.

Flocculated and Deflocculated Suspensions:

- Flocculated suspensions have particles that clump together and settle more slowly due to weak attractive forces between particles.
- Deflocculated suspensions have particles that remain dispersed due to electrostatic repulsion and require more thorough shaking.

Stability Problems and Methods to Overcome:

- Stability problems in suspensions include sedimentation, caking, and creaming.
- Methods to overcome these issues include the addition of suspending agents, adjusting pH, and controlling particle size.

Biphasic Liquids - Emulsions:

Definition of Emulsions:

- Emulsions are biphasic liquid dosage forms consisting of two immiscible liquids: oil and water, dispersed by an emulsifying agent.

Classification of Emulsions:

- Emulsions are classified into oil-in-water (O/W) and water-in-oil (W/O) types, depending on whether oil droplets are dispersed in water or vice versa.

Emulsifying Agent:

- Emulsions require emulsifying agents (surfactants) to stabilize the mixture, prevent phase separation, and create a homogenous product.

Test for the Identification of Emulsion Type:

- The phase inversion method can be used to determine whether an emulsion is O/W or W/O. This involves changing the ratio of oil to water and observing changes in appearance.

Methods of Preparation:

- Emulsions can be prepared using various methods, such as the continental or dry gum method for O/W emulsions and the English or wet gum method for W/O emulsions.

Stability Problems and Methods to Overcome:

- Stability issues in emulsions include phase separation and creaming. These problems can be addressed by using appropriate emulsifying agents, controlling droplet size, and optimizing formulation.

Understanding the preparation, advantages, disadvantages, classification, and stability considerations of both monophasic and biphasic liquid dosage forms is crucial for pharmacists and healthcare professionals to ensure safe and effective medication delivery to patients.