# PHB

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| **Course Name** | **: D. Pharm** |
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Ch – 12.1

# Liquid Oral Preparations

**Liquid dosage forms** are either monophasic or biphasic. A monophasic liquid dosage form is onewhich contains only one phase. That is, it is a true solution. A true solution is a homogenous mixture of solid, liquid or gas in a liquid. A biphasic liquid dosage form contains two phases.

***Classification of Liquid Dosage Forms***

Liquid dosage forms are broadly classified into two groups:

**a)** Monophasic liquid dosage forms

**b)** Biphasic liquid dosage forms

***Advantages of Liquid Dosage Forms***

**i)** They are the most suitable dosage form for infants, children and geriatric patients.

**ii)** The drug is rapidly available for absorption.

**iii)** The unpleasant taste of the drugs can be masked by adding sweetening and flavouring agents.

**iv)** It is attractive in appearance and gives beneficial psychological effects.

***Disadvantages of Liquid Dosage Forms***

**i)** It is bulky to carry.

**ii)** A spoon is needed to administer a dose.

**iii)** The liquid dosage forms have less stability when compared to solid dosage forms.

**iv)** Accidental breakage of the container results in loss of whole dosage form.

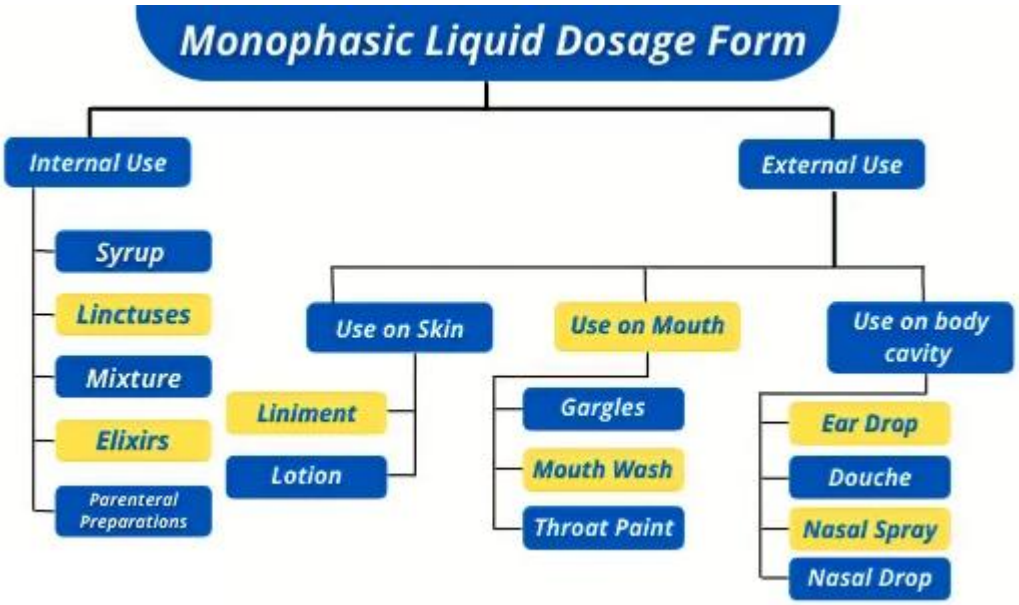
## ***Monophasic Liquid Dosage Forms***

**Monophasic dosage form** refers to liquid preparation containing two or more components in one phase system, it is represented by true solution. A true solution is a clear homogenous mixture that is prepared by dissolving solute in a suitable solvent. The component of the solution which is present in a large quantity is known as "***Solvent***" whereas the component present in small quantity is termed as "***Solute***". The monophasic liquid dosage form is broadly classified intofour groups.

**Monophasic liquids**: **E.g.:**

- Gargles,
- Mouthwashes,
- Throat Paint,
- Eardrops,
- Nasal drops,
- Enemas,
- Syrups,

- Elixirs,
- Liniments and Lotions.




***Mono-phasic Liquid Dosage Forms***

- **Liniments:** Liniments are liquid or semi-solid preparations meant for external application to the skin. Liniments are applied by rubbing or friction but should not be applied to the broken skin.
  **E.g.:** White liniment, soap liniment etc.
- **Lotion:** Lotions are liquid preparation meant for external application on the skin without friction.They are applied directly to the skin with the help of some absorbent material like cotton wool orgauze. They usually contain alcohol and glycerin because alcohol hastens to dry and produces coolingsensation where glycerin keeps the skin moist. They are generally used for the antiseptic purpose.
  **E.g.:** Calamine lotion
- **Syrups:** Syrups are sweet, viscous concentrated solutions of sucrose.Syrups are two groups-
  a. Syrups are prepared by a *simple solution method*. **e.g.** simple syrup
  b. Syrups made by the *extraction process*. **e.g.** tolu syrup
- **Elixir:** Elixirs are clear, flavoured, sweetened hydroalcoholic liquid preparations for oral administration.
  **E.g.:** Piperazine citrate elixir
- **Linctus:** Linctus is sweet, viscous liquid preparations containing medicinal substances whichhave demulcent, sedative or expectorant properties.
  **E.g.:** linctus codeine phosphateThey are used for cough treatment.

- **Gargles:** Gargles are aqueous solutions containing medicaments meant for throat infection.
  **E.g.:** Phenol gargle
- **Mouthwashes:** Mouthwash is an aqueous solution containing medicaments, used for rinsing, deodorant, antiseptic action.
  **E.g.:** Compound sodium chloride mouthwash
- **Throatpaints:** Throatpaints are viscous liquid preparation used for mouth and throat infections.
  **E.g.:** Iodine paint compound B.P.C
- **Sprays:** Sprays are simple solutions containing medicaments intended for spraying into the throat and nose.
- **Ear drops:** These are solutions of drugs which are introduced into the ear cavity with the help ofa dropper. It is used to prevent ear infections.
  **E.g.:** Hydrogen peroxide ear drops, phenol ear drops.
- **Eye drops:** Eye drops are sterile aqueous or oily solutions or suspensions which are introducedinto the eye.
  **E.g.:** Chloramphenicol eye drops, pilocarpine eye drops etc.

## BIPHASIC LIQUID

Biphasic liquid dosage form contains two phases. This includes undissolved drug and the solvent system (Vehicle).

Undissolved phase is distributed throughout a vehicle and intended for oral administration. In this preparation, this phase is called ‘Dispersed phase’ and the vehicle is called ‘Dispersed Medium’. It’s also called internal phase or external phase respectively.

- The Need of Biphasic Liquid Dosage forms arise when the medicaments are poorly soluble in the Solvent medium.
- Medicaments from the Dispersed Phase of the system which might be either solid or liquid.
- When solid medicament is distributed in the Dispersion Medium, the system formed is called **SUSPENSION.**
- When liquid medicament is distributed in the Dispersion Medium, the system formed is called **EMULSION.**

**Type of Biphasic liquids:**

- Emulsions ***E.g.:*** Liniment, Lotion, Enemas.
- Suspensions ***E.g.:*** Enemas, Lotion, Inhalation, Aerosols, Eye Drop.
- Dry Powder for Reconstitution

**Biphasic Liquid Dosage forms**

- **Emulsions:** Emulsion is a biphasic liquid dosage form which containing two immiscible liquids, one of which is dispersed as minute globules into the other liquid with the help of an emulsifyingagent.

This is two types: -

(a) o/w type (oil in water) emulsion

(b) w/o type (water in oil) emulsion

- **Suspension:** Suspensions are the biphasic liquid dosage form in which finely divided solidparticles is dispersed in a liquid or semi-solid medium. They are used for external applications.

*example*- Ampicillin for oral suspension I.P.

- **Ointments:** Ointments are semi-solid preparations which are used for *skin and mucousmembrane.* The ointment is mainly used as protective or emollient for the skin.Types of ointments:

- Epidermic ointments
- Endodermic ointments