

# Role of Liquid Dosages Forms Current Scenario B.PHARM 5<sup>TH</sup> SEMESTER PHARMACEUTICS-V

***Presented By:-DR. R. KUMAR***  
***Department of Pharmaceutics***  
***Email:-ram.chy6@gmail.com***

## PHARMACEUTICS-V

1. **Liquid Dosages Forms:** Introduction, types of additives used in formulations, Vehicles, stabilizers, preservatives, suspending agents, emulsifying agents, solubilizer, colors, flavours and others, manufacturing packaging and evaluation of clear liquids, suspensions and emulsions official in pharmacopoeia.
2. **Semisolid Dosage Forms:** Definitions, types, mechanisms of drug penetration, factors influencing penetration, semisolid bases and their selection. General formulation of semisolids, clear gels manufacturing procedure, evaluation and packaging.
3. **Suppositories:** Ideal requirements, bases, manufacturing procedure, packaging and evaluation.
4. **Extraction and Galenical Products:** Principle and method of extraction, preparation of infusion, tinctures, dry and soft liquid extracts.
5. **Blood Products and Plasma Substitutes:** Collection, processing and storage of whole human blood, concentrated human RBCs, dried human plasma, human fibrinogen, human thrombin, human normal immunoglobulin, human fibrin, foam plasma substitutes, -ideal requirements, PVP, dextran etc. for control of blood pressure as per I.P.
6. **Pharmaceutical Aerosols:** Definition, propellants, general formulation, manufacturing and packaging methods, pharmaceutical applications.
7. **Ophthalmic Preparations:** Requirements, formulation, methods of preparation, containers, evaluation.
8. **Cosmeticology and Cosmetic Preparations:** Fundamentals of cosmetic science, structure and functions of skin and hair. Formulation, preparation and packaging of cosmetics for skin, hair, dentifrice and manicure preparations like nail polish, Lipsticks, eye lashes, baby care products etc.

# Reference book for PHARMACEUTICS V (Pharmaceutical Technology - I)

- ▶ Bently's Textbook of pharmaceuticals edited by E.A. Rawlins (All India Traveller Book Seller, New Delhi)
- ▶ The Theory and Practice of Industrial Pharmacy by Lachmann, Libermann and Kanig (Varghese Pub. House, Bombay)
- ▶ Pharmaceutical Dosage Forms and Drug Delivery Systems by Ansel, Allen and Popovich (B.I.Waverly Pvt. Ltd., New Delhi)
- ▶ REMINGTON : The Science and Practice of Pharmacy, (Lippincott Williams & Wilkins, Baltimore)
- ▶ Pharmaceuticals : The Science of Dosage Form Design by Aulton (Churchill Livingstone, Edinburgh)
- ▶ Dispensing pharmacy by Cooper and Gun
- ▶ Tutorial Pharmacy by Cooper and Gun
- ▶ Cosmetics by P P Sharma, B M Mittal
- ▶ Dispensing pharmacy By R M Mehta for UG course

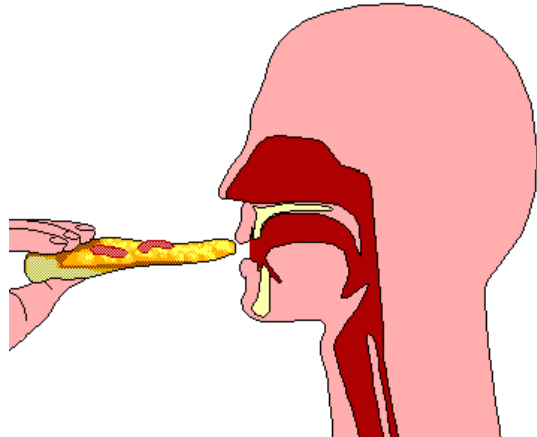
# Liquid Dosages Forms:

- ▶ Introduction, types of additives used in formulations, Vehicles, stabilizers, preservatives, suspending agents, emulsifying agents, solubilizer, colors, flavours and others, manufacturing, packaging and evaluation of clear liquids, suspensions and emulsions official in pharmacopoeia.

## *Why Liquid Dosage Forms*

Provide a route for medication to those patients-----

- ❑ who can not swallow solid dosage forms
- ❑ Young Elderly
- ❑ After oral surgery



# Introduction

- ▶ Liquid dosage forms are either monophasic or biphasic. A monophasic liquid dosage form is one which 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.

The physical form of a drug product that is pourable displays Newtonian or pseudoplastic flow behavior and conforms to its container at room temperature. In contrast, a semisolid is not pourable and does not flow at low shear stress or conform to its container at room temperature. According to its physical characteristics, liquid dosage forms may be dispersed systems or solutions.

Dispersed systems are dosage forms composed of two or more phases, where one phase is distributed in another. If a dispersed system is formed by liquid phases, then it is known as an “ emulsion. ” In contrast, the dispersed system is named a “ suspension ” when the liquid dosage form is accomplished by the distribution of a solid phase suspended in a liquid matrix. The solid phase of a suspension is usually the drug substance, which is insoluble or very poorly soluble in the matrix.

# Objective of liquid dosage forms: -

- ▶ Ease of administration
- ▶ Difficulty in swelling dosage form minimized
- ▶ Homogenous liquid means system in which the drug and drug in solution.



---

## Types of liquid dosage forms

- |                   |                    |
|-------------------|--------------------|
| 1. Solutions      | 10. Aromatic water |
| 2. Suspensions    | 11. Decoctions     |
| 3. Syrups         | 12. Collodion      |
| 4. Lotions        |                    |
| 5. Tinctures      |                    |
| 6. Spirits        |                    |
| 7. Elixirs        |                    |
| 8. Fluid extracts |                    |
| 9. Liniments      |                    |

# Important terms for different Pharmaceutical Liquid Dosage Form

- ▶ **Aromatic Waters:** - It is a Saturated aqueous solution of volatile oils or other aromatic or volatile substances.
- ▶ **Elixirs:** - Many oral solutions that contain alcohol as a co-solvent have traditionally been designated as elixirs. However, many other oral solutions containing significant amount of alcohol are not designated as elixirs.
- ▶ **Spirits:** - It is an Alcoholic or hydro-alcoholic solution of volatile substances. Some spirits are used as flavoring agents, others are medicinal.
- ▶ **Syrups:** - It is an oral aqueous solution containing high concentrations of sucrose is a solution of sucrose (66.7%) in purified water. It promotes dental decay and unsuitable for diabetic patients. 'Sugar-Free' syrups are obtained by replacing with Hydrogenated glucose, Mannitol, Sorbitol, Xylitol etc.
- ▶ **Tinctures:** - It is an Alcoholic or hydro-alcoholic solution prepared from vegetable materials chemical substances. Due to the variability in the vegetable material concentration can vary.
- ▶ **Emulsion:** - It is biphasic liquid dosage form, in which one phase (Water) is dispersed in another phase(Oil) & vice-versa & is thermodynamically unstable.
- ▶ **Suspension:** - It is biphasic liquid dosage form, in which one phase is suspended in another phase.

# ADVANTAGES

- ▶ Liquid dosage forms are popular because it is easy to administer than the solid dosage form.
- ▶ It is easily administered to the person, who have difficulty in swallowing.
- ▶ Active pharmaceutical ingredients are rapidly absorbed than the solid dosage form.
- ▶ Manufacturing are easy than the other dosage form process.
- ▶ Manufacturing cost is less than the solid dosage form.
- ▶ This is an alternative dosage form for the dispensing of hydrophilic and hydrophobic API.

# Disadvantages of liquid dosage forms

1. Has short shelf life due to low stability.
2. Has less accuracy.
3. Needs special storage and transferring conditions.
4. Is easily infected by microorganisms.
5. Has special storage requirements

# Types of additives used in formulations

- ▶ **API (Active Pharmaceutical Ingredients)**
- ▶ **Vehicle**
- ▶ **Stabilizer**
- ▶ **Preservative**
- ▶ **Suspending agent**
- ▶ **Emulsifying agent**
- ▶ **Solubiliser**
- ▶ **Wetting agent**
- ▶ **Sweeteners**
- ▶ **pH adjuster**
- ▶ **Isotonicity Adjusters**
- ▶ **Flavor**
- ▶ **Color**

# API (Active Pharmaceutical Ingredients)

- ▶ **API:** -API is that chemical substance which possess pharmacological activity on body. Active pharmaceutical ingredients or APIs can be defined as the chemicals used to manufacture pharmaceutical drugs. The active ingredient (AI) is the substance or substances that are biologically active within the drug and is the specific component responsible for the desired effect it has on the individual taking it.
- ▶ API may be classified into two types -
  - ▶ I. **Hydrophilic API-** The chemical substance, having a strong affinity for water.
  - ▶ II. **Hydrophobic API-** The chemical substance, that do not dissolve in water.