




LIQUIDS DOSAGE FORM

Biphasic Liquids: An Overview




❖ TOTAL TOPICS:-

- About Liquid Dosage Form.
 - Types Of Liquid Dosage Form.
 - Monophasic Liquid And It's Example.
 - Biphasic Liquid And It's Example.
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❖ Liquid Dosage Form:-

- ▶ Liquid Dosage Form Is One Kind Of Classification Of Dosage Form On The Base Of Physical State.
 - ▶ Liquid Form Of A Dose Of A Drug Used As A Drug Or Medication Intended for Administration Or Consumption.
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❖ Preparation Of Liquid Dosage Form:-

➤ Three Methods To Prepare Liquid Dosage Form:-

1) By **DISSOLVING** The Active Substance In An Aqueous or Non Aqueous.

✓ Example:- (Alcohol, EITHER, GLYCERIN) Solvents.

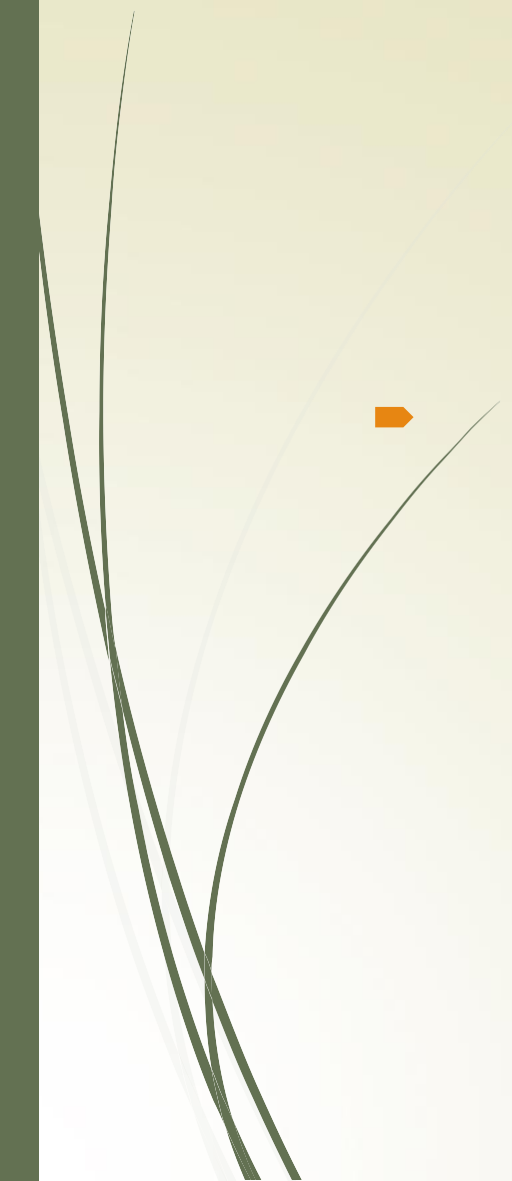
2) By **SUSPENDING** The Drug In Appropriate medium.

3) By **INCORPORATING** The Drug Substance Into An Oil Or Water Phase.

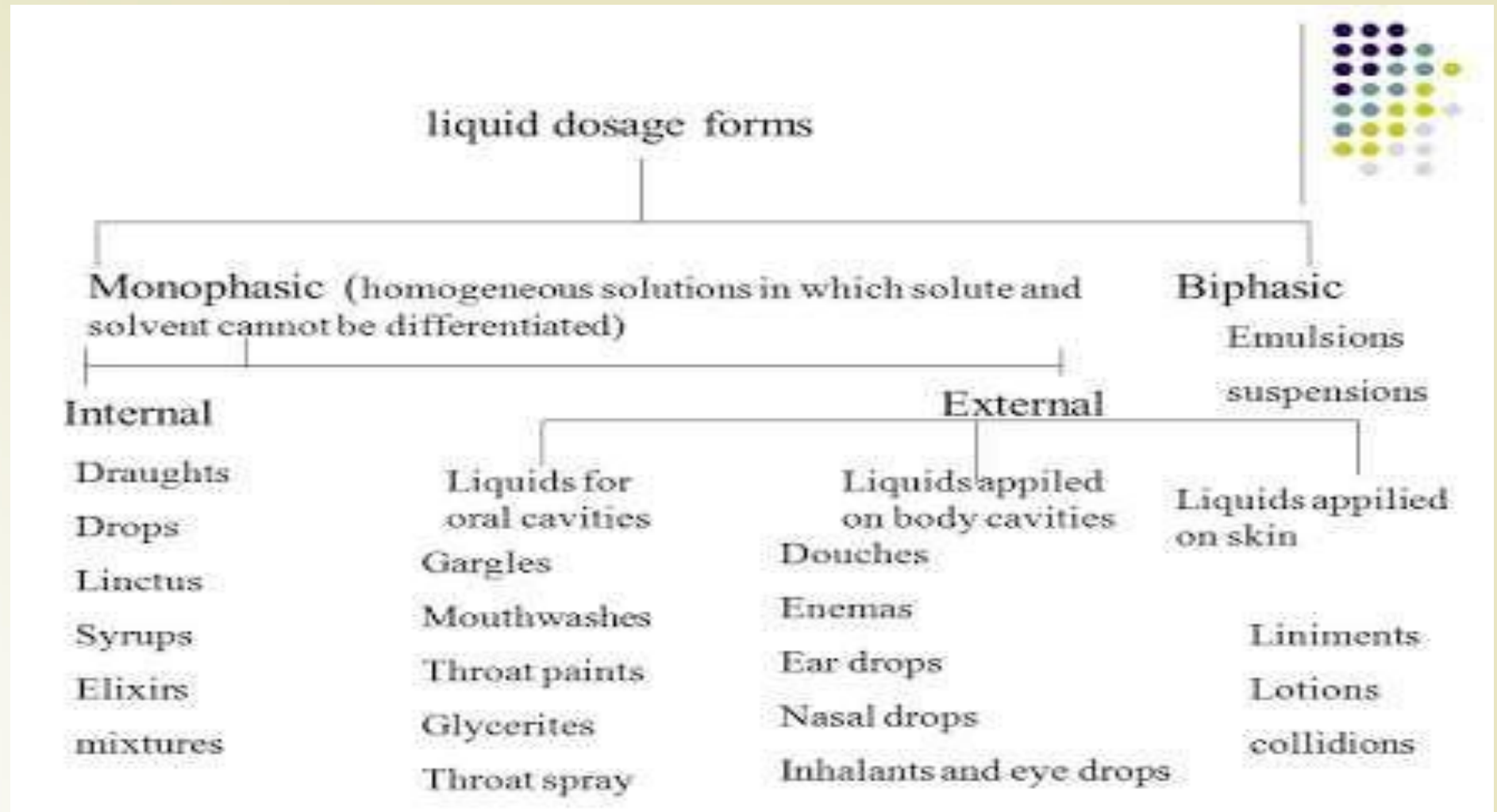


❖ LDF's Classification:-

LDF Is Classified Into Three two Part By Phase Of The Liquids:-

1. MONOPHASIC LIQUID.
 2. BIPHASIC LIQUID.
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❖ Classification Of liquids:-



❖ MONOPHASIC LIQUIDS:-


- ▶ As The Word ' MONOPHASIC' Suggest That System Contains Only One Phase No Matter Components Might Be Minimum 2 Or More Than 2.
- ▶ One Phase Is the Solvent And The Other One Is The Solute . Solute Might Be One Or More Than One.
- ▶ This Is The Most Simplest Form Of Presenting Medication For Rapid Absorption Of The Drug.
- ▶ They Are Dispensed For Various Purposes As shown In Section Of Previous Slide.






❖ BIPHASIC LIQUID:-

- ▶ Biphasic Liquid Dosage Form Contain 2 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.



❖ About Biphasic Liquid:-

- 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**.
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❖ About Biphasic Liquid:-

- ▶ These Two Highly unstable Systems Are made Stable By Employing various Pharmaceutical aids Like; **SUSPENDING AGENT** , **EMULSIFYING AGENT**.
- ▶ They are Categorised As Coarse Particles ,Usually **1 To 100** Microns In Size.
- ▶ Dispersion Containing particles Of smaller Size Are called Fine Dispersion And If The Particles Are In the Colloidal Range (**< 1 Micron**), They are termed **MAGMAS**.





❖ Types Of Biphasic Liquid:-

- ▶ There Are Two Types Of Biphasic Liquid:-
 1. SUSPENSION
 2. EMULSION

- ▶ There Are subcategories In Those Two Types Of Biphasic Liquid:-
 1. SUSPENSIONS Are categorised Into

- ▶ Applications, Enemas, Lotion, Inhalation, Aerosols, Eye Drop.
 2. EMULSIONS Are Categorised Into

- ▶ Application, Liniment, Lotion, Enemas .



❖ SUSPENSION:-


- ▶ Heterogeneous biphasic dosage form.
- ▶ solid is dispersed in liquid medium.
- ▶ Dispersed phase, dispersion medium.


□ PROPERTIES:-

1. Rapid settling.
2. Easily redispersible.
3. pourable.
4. if parenteral flow through syringe needle.
5. if external spread easily ---Pleasing in colour , odour , appearance.



❖ Physical Features of the Dispersed Phase of a Suspension

- ▶ Good pharmaceutical suspensions, the particle diameter is between 1 to 50.
 - ▶ Particle size reduction is generally accomplished by dry-milling prior to the incorporation of the dispersed phase into the dispersion medium.
 - ▶ One of the methods of producing fine drug powders of about 10 to 50 μm size is micro pulverization.
 - ▶ For still finer particles, under 10 μm , the process of fluid energy grinding, sometimes referred to as jet-milling or micronizing.
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❖ Dispersion Medium:-

- ▶ Suspending agents are added to the dispersion medium to lend its structure to assist in the suspension of the dispersed phase.
- ▶ Examples:
 1. Carboxymethylcellulose
 2. Methylcellulose
 3. Microcrystalline cellulose
 4. Polyvinyl pyrrolidone,
 5. Xanthan gum Bentonite



❖ EMULSIONS:-

- ▶ An emulsion is a dispersion in which the dispersed phase is composed of small globules of a liquid distributed throughout a vehicle in which it is immiscible.
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❖ Classification of emulsions:-

- ▶ Based on dispersed phase Oil in Water (O/W): Oil droplets dispersed in water
Water in Oil (W/O): Water droplets dispersed in oil.
- ▶ Classification of emulsions :
- ▶ „Based on size of liquid droplets 0.2 –50 mm Macro emulsions (Kinetically Stable)
0.01 –0.2 mm Micro emulsions (Thermodynamically Stable).



❖ General Types of Pharmaceutical Emulsions:

➤ General Types of Pharmaceutical Emulsions:

- „1) Lotions
- „ 2) Liniments „
- 3) Creams
- „ 4) Ointments
- „ 5) Vitamin drop



❖ Theories of Emulsification:-

- ▶ 1) Surface Tension Theory: -lowering of interfacial tension.
- ▶ „2) Oriented-Wedge Theory: -mono molecular layers of emulsifying agents are curved around a droplet of the internal phase of the emulsion.
- ▶ „3) Interfacial film theory: -A film of emulsifying agent prevents the contact and coslescung of the dispersed phase.