D.PHARM • FIRST YEAR

Pharmaceutics

CHAPTER 5.3

Liquid Oral Preparations



ENGLISH CHAPTER NOTES

DIPLOMA IN PHARMACY

LIQUID ORAL PREPARATIONS

Medicines intended for swallowing may be supplied as solutions or dispersed liquid systems.

Why choose a liquid?

- Useful when swallowing solid dosage forms is difficult.
- Measured volumes allow flexible dose adjustment.
- Flavours and sweeteners can improve acceptability.
- Dissolved drug avoids tablet disintegration, but faster absorption is not guaranteed.



Limitations

- Liquid products are bulky and less convenient to transport.
- Chemical, physical and microbial stability need attention.
- Incorrect measurement can cause dosing errors.
- Some products need shaking, reconstitution or specific storage.

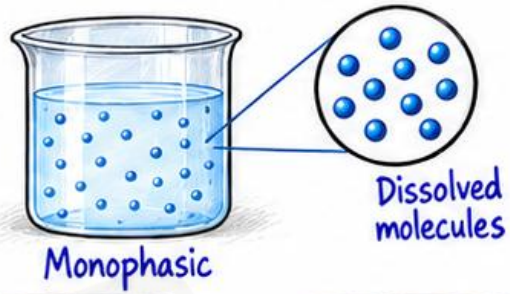
★ The formulation and measuring device are both important for an accurate dose.

CLASSIFICATION OF LIQUID DOSAGE FORMS

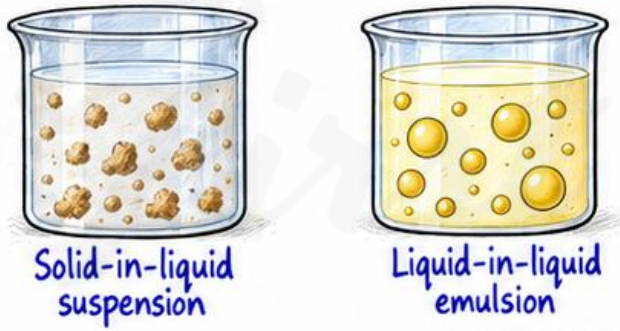
Physical nature and route are separate ways to classify preparations.

1. Physical nature

- **Monophasic:** true solutions, syrups and elixirs.



- **Biphasic:** solid-in-liquid suspensions or liquid-in-liquid emulsions.



- **Dry powders:** form a solution or suspension after reconstitution.



2. Route of administration

- **Oral:** solutions, syrups, elixirs, suspensions and emulsions.



- **Topical:** lotions, liniments, paints and collodions.



- **Parenteral:** injections and infusions.

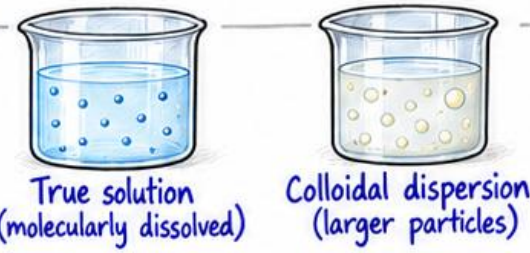


- **Other routes:** ophthalmic, otic, nasal and inhalation preparations.



3. Important distinction

- A colloidal dispersion is not a molecularly dissolved true solution.
- Similar-looking liquids are not interchangeable across routes.



Not interchangeable across routes.

PACKAGING AND LABELLING

Select a compatible container that protects the product throughout use.



Packaging

- Glass or suitable plastic with a secure closure.
- Light protection where required; amber colour alone does not prove compatibility.
- Control evaporation for alcohol-containing preparations.
- Use suitable tamper-evident and child-resistant features where required.
- Provide an appropriate calibrated measuring device.

Label essentials

- Product name, strength, oral route and dose in mL.
- Shake well when required; state reconstitution instructions if applicable.
- Storage, expiry and in-use discard instructions.
- Relevant alcohol, sugar or excipient information.
- Keep out of reach of children.
- Use a calibrated device, not a household spoon.

Medicine Name
Strength
Oral Use
Shake well (if required)
Reconstitution instructions (if applicable)
Storage instructions
Expiry and in-use discard instructions
Contains alcohol, sugar or excipients (if applicable)
Keep out of reach of children.
Use a calibrated device, not a household spoon.

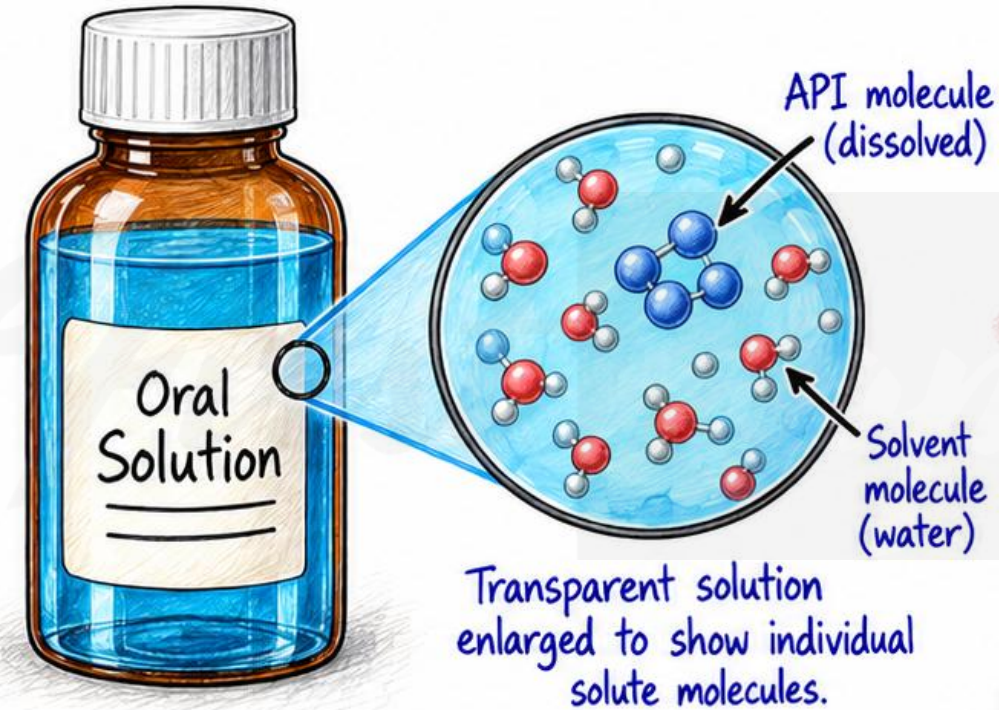


ORAL SOLUTIONS: FORMULATION

A true solution contains API molecularly dissolved in a suitable solvent or miscible solvent mixture.

MAIN COMPONENTS

- API: dissolved drug.
- Vehicle: commonly purified water.
- Co-solvents: ethanol, glycerin, propylene glycol or PEG where suitable.
- Buffers: help maintain the required pH.
- Preservatives: control microbial growth when required.
- Sweeteners, flavours and permitted colours improve acceptability.





SOLUBILITY STRATEGIES

- Select an appropriate solvent or co-solvent system.
- Adjust pH within stability and safety limits.
- Suitable surfactants may help solubilization.

A true solution may be coloured but should have no undissolved drug sediment.

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