

PHB



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Course Name : D. Pharm
Year : First Year
Subject Name : Pharmaceutics
Topic Name : Syrups

Definition: Syrups are defined as oral liquids, which are sweetened, viscous, concentrated solutions of sucrose or, other sugars in water or any other suitable aqueous vehicles and then often contain added flavoring and coloring agents into which medicaments are incorporated. Syrups as such do not have any medicinal value, but used as vehicle for dispensing the drug.

Note: - According to I.P. the concentration of sugar in syrup is 66.7% w/w.

According to USP the concentration of sugar in syrup is 85% w/v.

Ingredients used in the preparation of Syrups are:

- 1) Vehicle – **e.g.:** Water, Glycerin
- 2) Coloring agents – **e.g.:** Tattazine, Amaranth
- 3) Preservatives – **e.g.:** Sodium benzoate, Propyl paraben, Methyl paraben
- 4) Flavoring agents - **e.g.:** Tincture of ginger, Tincture of lemon,
- 5) Stabilizers – **e.g.:** Sorbitol

Classification of Syrups:

Syrups are classified into two types namely ‘Medicinal’ and ‘Flavored syrups’

1. Medicinal syrups: These contain some medicinal substance along with their other additives. Sucrose concentration in simple syrup is a 66.7% w/w.

e.g.: Paracetamol syrup (I.P.), Ephedrine hydrochloride syrup (N.F.)

2. Flavored syrups: Do not contain any medicament or drug. These syrups are used as a vehicle for other Liquid preparation to mask the disagreeable taste of drug.

e.g: Orange syrup (B.P.), Lemon syrup (B.P.C.)

Preparation of Syrups:

They are prepared by two methods

1. Solution method. **e.g.:** Simple syrup
2. Extraction method. **e.g.:** Tolu syrup

Advantages:

- ❖ Syrups retard oxidation of drugs.
- ❖ They are sweet in taste. Therefore, bitter taste of drugs can be reduced.
- ❖ Syrups prevent microbial decomposition of many vegetable drugs.

Disadvantages:

- ❖ Syrups are not suitable for diabetic patients and patients who are on a restricted calorie intake.
- ❖ On continuous intake syrups promote dental decay and cause gingivitis because it is a very good supplement for bacterial growth.
- ❖ Aluminum salts cannot be included in syrups as these are incompatible with sucrose.



Fig: Simple Syrup Marketed Products

SIMPLE SYRUP

Aim: To prepare and submit 100 ml of simple syrup.

Requirements: Sucrose, Purified water, Beakers, Glass rod, Measuring cylinder, funnel and spatula

Category: Sweetening agent.

Principle: Simple syrup (I.P.) is a concentrated or nearly saturated solution of sucrose in purified water. according to IP, the concentration of sucrose is 66.7% w/w. The solubility of sugar in water is slow; at such a high concentration. Therefore, the solution is heated to increase the rate of dissolution. If necessary, Methyl paraben at a concentration not higher than 0.15% may be used as preservative. Simple syrup is sweet in taste and used as vehicle in formulations containing nauseous bitter substances. Sucrose is a disaccharide, which partially hydrolyzed in to monosaccharide as glucose and fructose. These monosaccharides are called as invert sugars and reaction is called as inversion.

Simple Syrup Formulation Table:

S. No	Ingredients	Official Formula (I.P.)	Uses of Ingredients
1.	Sucrose	66.7 gm	Sweetener
2.	Purified water	q. s. to 100 ml	Vehicle

Procedure:

1. Transfer the weighed amount of sucrose in conical flask.
2. Add sufficient amount of water.
3. Then heat the mixture with occasional stirring.
4. It can also be agitated to accelerate the solubilization.
5. Take a precaution, not to overheat solution as it leads to crystallization of sugar.
6. Filter if necessary, and then syrup is transferred into amber color container and labeled it.

Dispensing: Transfer the syrup to a clear or amber colored, narrow mouthed glass bottle and close it.

Storage: Stored in a tightly closed container in a cool place.

Auxiliary label: "Store in a well closed container at a temperature not exceeding 25⁰C".

Report: I have prepared and submit the 100 ml simple syrup in a neat and cleaned glass bottle and labelled it properly.