

PHB



Dr. Arvind Kumar Gupta
(M.Pharm, PDCR, PGDMM & Ph.D)
GATE 2003 Qualified with 97.2 percentile
Dr. S. N. Dev College of Pharmacy
Shamli (U.P.)

OFFICE: BUILDING No. 3/314, OFFICE-1, GAUSHALA ROAD, SHAMLI DISTRICT SHAMLI (U.P.) – 247776

Mobile: +91-9719638415

Email: arindrkgit@gmail.com

Course Name : D. Pharm
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Subject Name : Pharmaceutics
Topic Name : Elixirs

Elixirs are defined by the USP as clear, flavored, sweetened, hydroalcoholic liquid preparations for oral administration. The Percentage of alcohol varies from 5 to 40 percentage (10-80 proof), e.g. Phenobarbital Elixir, USP. In this elixirs Propylene glycol, ethanol, and glycerol these are all acts a vehicle and co-solvent to increase the solubility of poorly soluble ingredients. Chloroform spirit acts as a preservative. Invert syrup acts as a sweetening agent. Elixirs are flavored hydro alcoholic solutions to which glycerin often is added to enhance the solvent properties and act as a preservative.

Medicated elixirs

1. **Expectorant:** used to facilitate productive cough. **E.g.:** Terpin hydrate elixirs.
2. **Antihistaminic elixirs:** used against allergy. **E.g.:** Chlorampheniramine maleate elixirs (USP),
3. **Sedative and hypnotic elixirs:** **E.g.:** pediatric chloral hydrate elixirs.
4. **Miscellaneous:** **E.g.:** Acetaminophen (paracetamol) elixirs, which are used as analgesics.

Non-medicated elixirs

They are used as solvents or vehicles for the preparation of medicated elixirs: aromatic elixirs, isoalcoholic elixirs (NF), or compound benzaldehyde elixirs (NF). Active ingredient dissolved in a solution that contains 15 to 50% by volume of ethyl alcohol.

Note: - An elixir is a hydro-alcoholic solution of at least one active ingredient. The alcohol is mainly used to:

- Solubilize the active ingredients and some excipients
- Retard the crystallization of sugar
- Preserve the finished product
- Provide a sharpness to the taste
- Aid in masking the unpleasant taste of the active ingredients

Formulation:

An elixir may also contain the following excipients:

- ❖ Buffering agents.
- ❖ Chelating agents like sodium ethylene diamine tetra acetic acid (EDTA).
- ❖ Sugar and/or sugar substitutes like the sugar polyols glycerol and sorbitol.
- ❖ Flavoring agents and flavor enhancers
- ❖ Coloring agents
- ❖ Preservatives like parabens, benzoates and antioxidants like butylated hydroxytoluene (BHT) and sodium metabisulfite

Adjuncts

1. Chemical Stabilizers: Some special chemicals are required to make the elixir stable.

E.g. Citric acid, disodium edetate etc.

2. Coloring agents: Many elixirs are attractively colored by coal tar dyes.

E.g. Amaranth (magenta red), Compound Tartrazine (saffron) and Tartrazine (Green).

3. Flavoring agents: Fruit flavor is used in elixirs.

E.g. Blackcurrant syrup (to mask bitter taste of drug), Raspberry Syrup (to mask bitter taste of drug), Compound Orange Syrup (to mask sour and bitter taste of drugs).

4. Sweetening agents:

E.g. Plain and flavored sucrose syrup, glycerol, sorbitol, invert syrup and saccharin sodium.

5. Preservatives: To reduce the mould growth and fermentation preservatives are added.

- Vehicle containing 20%v/v alcohol, propylene glycol or glycerol have preservative action.
- High concentration of syrup has high osmotic pressure thus acts as preservative.
- Chloroform Water, Chloroform Spirit have preservative action.
- Benzoic acid, methyl parahydroxybenzoate acid (methyl paraben) or propyl parahydroxybenzoate (propyl paraben) may be used as additional preservatives.

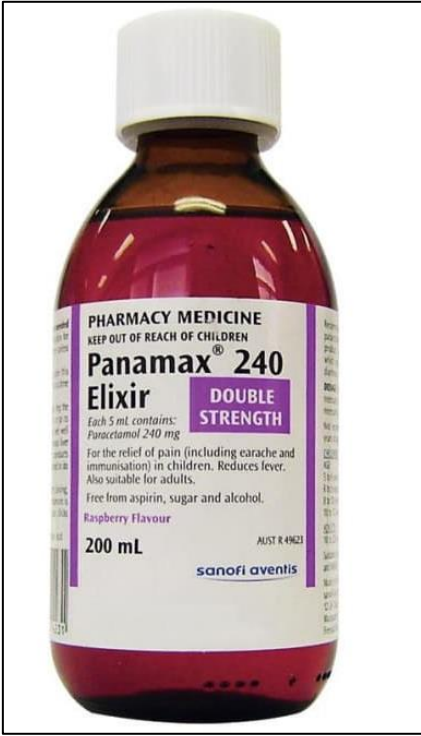


Fig: Elixir Solution Marketed Products

PIPERAZINE CITRATE ELIXIR

Aim: To prepare and submit 100 ml of piperazine citrate elixir.

Requirements: Piperazine citrate, Chloroform spirit, Glycerin, Orange oil, Syrup, Beakers, glass rod, measuring cylinder.

Category: Anti helminthic

Principle: Elixirs are flavored hydro alcoholic solutions to which glycerin often is added to enhance the solvent properties. The alcohol which is present in the chloroform spirit act as a preservative. Piperazine citrate is unpleasant taste which is masked with the syrup to prevent the unpleasant taste of elixir.

Piperazine citrate elixir (B.P.) Formulation Table:

S. No	Ingredients	Official formula (I.P.)	Uses of Ingredients
1.	Piperazine citrate	18 gm	Anthelmintic
2.	Chloroform spirit	0.5 ml	Preservative
3.	Glycerin	10 ml	Co-solvent, preservative
4.	Orange oil	0.025 ml	Flavouring Agent
5.	Syrup	50 ml	Sweetening agent, Viscosity Enhancer
6.	Purified water	q. s. to 100 ml	Vehicle

Procedure: Piperazine citrate is dissolved in small amount of purified water. Glycerin, syrup and chloroform spirit are mixed. Sufficient volume of water is added to produce the final volume.

Dispensing: Transfer the elixir to a clear or amber colored, narrow mouthed glass bottle, close it thoroughly with metallic screw cap, polish and label.

Storage: Store in a closed container at a temperature not exceeding 25°C.

Direction: 4-15ml daily in divided doses to be taken at night.

Report: I have prepared and submit the 100 ml of Piperazine citrate elixir in a neat and cleaned glass bottle and labelled it properly.