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Syrups	عنوان المحاضرة باللغة الانجليزية
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Pharmaceutical Dosage forms and Drug Delivery Systems By Haward A. Ansel; latest edition.	المصادر والمراجع
Sprowel's American Pharmacy.	

محتوى المحاضرة

Liquid Dosage Forms: Syrups

Sucrose and Non-Sucrose Based Syrups

- Sucrose is the most common sugar in syrups.
- Sometimes replaced fully or partially by:
 - Other sugars/substances: sorbitol, glycerin, propylene glycol.
 - Nonglycogenetic substances: methylcellulose, hydroxyethylcellulose.
 - These are not hydrolyzed or absorbed into blood → ideal for diabetic patients.
- Viscosity importance:
 - Thick syrup masks taste by reducing drug contact with taste buds.
 - Provides a soothing effect in antitussive syrups as it coats the throat.

Flavorants and Colorants

- Flavorants: synthetic or natural (volatile oils like orange oil, vanillin).
 - Must be water-soluble.
 - Sometimes alcohol added to keep poorly soluble flavorants dissolved.
 - Colorants: improve appearance and usually match flavor (e.g., green = mint, brown = chocolate).
 - Requirements: water-soluble, chemically inert, stable to pH and light.
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Preparation Methods of Syrups

Syrups are most often prepared by one of four general methods, depending on ingredient properties:

1. Solution with heat

- Used when quick preparation is needed and ingredients are heat-stable.
- Steps:
 1. Dissolve sugar in purified water with heat.
 2. Add other heat-stable components.
 3. Cool and adjust volume with purified water.
- Volatile/heat-sensitive ingredients (e.g., flavoring oils, alcohol) are added after cooling.
- Caution:
 - Overheating causes sucrose inversion (sucrose → dextrose + fructose = invert sugar).
 - Invert sugar is sweeter but may darken (caramelization) and is more prone to fermentation → syrups can't be sterilized by autoclaving.

2. Solution by agitation without heat

- Prevents sucrose inversion.
- Ingredients are dissolved by agitation in purified water.
- More time-consuming but yields maximum stability.
- Solid agents: dissolve first in minimal water, then incorporate.

3. Addition of sucrose to medicated/flavored liquid

- Example: using tinctures or fluid extracts.
- If alcohol-soluble constituents are needed → use solubilization techniques.
- If undesirable → precipitate and filter them before preparing syrup.

4. Percolation method

- Either sucrose or the medicinal substance is percolated.
- Example: Ipecac Syrup.
 - Prepared from powdered ipecac via percolation with hydroalcoholic solvent.
 - Contains alkaloids (emetine, cephaline, psychotrine).
 - Traditionally used in poisoning management to induce vomiting in children.