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Sprowel's American Pharmacy.	

محتوى المحاضرة

Elixirs

Elixirs are clear, sweetened hydroalcoholic solutions intended for oral use and usually flavored to enhance palatability.

- Nonmedicated elixirs are employed as vehicles.
- Medicated elixirs provide the therapeutic effect of the medicinal substances they contain.

Elixirs vs. Syrups

- Elixirs are less sweet and less viscous (contain less sugar) → less effective in masking unpleasant taste.
- Because of their hydroalcoholic character, they can maintain both water-soluble and alcohol-soluble components in solution, unlike syrups.

- From a manufacturing perspective, elixirs are easier to prepare (simple solution) and more stable.
 - Disadvantage: unfavorable dosage form for Muslims due to alcohol content.
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Composition of Elixirs

- Alcohol proportion varies according to the solubility of ingredients.
 - Agents with poor water solubility require higher alcohol content.
 - Other solvents may include glycerin and propylene glycol.
 - Sweetening: sucrose, sucrose syrup, sorbitol, glycerin, or artificial sweeteners (e.g., saccharin for high-alcohol elixirs).
 - Contain flavorings and coloring agents for palatability and appearance.
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Properties

- Elixirs with more than 10–12% alcohol are usually self-preserving (no antimicrobial needed).
 - Advantage: easy dosing for patients with difficulty swallowing solids.
 - Disadvantage: alcohol content (unsuitable for children, adults avoiding alcohol).
 - Must be stored in tight, light-resistant containers and protected from heat.
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Preparation of Elixirs

1. Prepared by simple solution with agitation or mixing two or more liquids.
2. Alcohol-soluble and water-soluble components are dissolved separately.
3. Aqueous solution is added to the alcoholic solution (to maintain alcohol strength).

4. Final volume adjusted with solvent/vehicle.
 - If the mixture is cloudy (due to flavoring oil separation):
 - Allow to stand → oil globules coalesce.
 - Remove by filtration.
 - Talc often used as filter aid (absorbs excess oils).
 - Solvents like glycerin, syrup, sorbitol, and propylene glycol:
 - Enhance solubility and stability.
 - Increase viscosity and slow filtration.
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Example: Digoxin Elixir

- Digoxin = cardiotonic glycoside from *Digitalis lanata*.
 - White crystalline powder.
 - Insoluble in water but soluble in dilute alcohol.
 - Official digoxin elixir contains ~10% alcohol.
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Tinctures

- Alcoholic or hydroalcoholic solutions prepared from vegetable materials or chemical substances.
- Differ in method of preparation, strength, alcohol content, and medical use.
- From chemicals (e.g., iodine, thimerosal): prepared by simple solution in solvent.

Alcohol content

- Ranges from 15% to 80%.
- Provides microbial protection and keeps extractives in solution.
- Other solvents (e.g., glycerin) may be added.

- Cannot be mixed with liquids too different in solvent character (risk of precipitation).
- Example: compound benzoin tincture precipitates if diluted with water.

Storage

- Must be tightly stoppered, protected from heat, and stored in light-resistant containers.

Examples

- Oral medicated tinctures: Paregoric (camphorated tincture of opium).
 - Opium tincture (Laudanum): 10% opium (~1% morphine).
 - Camphorated tincture: 0.4% opium (~0.04% morphine).
 - Must not be confused due to potency differences.
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Spirits

- Alcoholic or hydroalcoholic solutions of volatile substances.
 - Usually >60% alcohol.
 - Can contain higher concentrations of aromatics than aromatic waters.
 - Mixed with water → volatile substances separate → milky preparation.
 - Uses:
 - As flavoring agents.
 - As medicinal products (therapeutic value of volatile solute).
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Administration of Liquid Peroral Forms

- Measured with teaspoons/tablespoons, but calibrated devices are preferred (avoid inaccurate household spoons).
 - Should be followed with a glass of water.
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Topical Solutions and Tinctures

- Topical solutions → aqueous vehicles.
- Topical tinctures → alcoholic vehicles (sting on skin).

Sprays

- Aqueous or oleaginous solutions, applied to skin or nasopharyngeal tract.
- Often contain antihistamines, sympathomimetics, antibiotics.
- Potential for systemic delivery (e.g., insulin, glucagon).
- Other sprays: sunburn, throat sprays (antiseptics, anesthetics, flavorants).
- Devices: spray bottles, atomizers.

Special Preparations

- Coal tar topical solution: alcoholic solution (20% coal tar, 5% polysorbate 80).
 - Prepared with sand (increases surface area, aids solvent action).
 - Used externally for chronic skin conditions.
- Chlorhexidine gluconate solution: antiseptic (4% as surgical scrub).
- Povidone-iodine solution: iodine–polyvinylpyrrolidone complex (10% iodine), slow release antiseptic

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