

Review and General Information

- The major impurities in water are: calcium, iron, silica, etc...
- Water in pharmacy should be purified distilled water.
- Demineralizing processes means removal of impurities (minerals).
- Cohobation process means: double or triple distillation.
- No preservative should be added to aromatic water.
- Dilute HCl (0.1 N) is given orally (5ml well diluted with water) for the treatment of Achlorhydria (lack of 0.1 N HCl in the stomach).
- Lime water = calcium hydroxide solution.
- Ca(OH)₂ solution is prepared by cooling (for solubility).
- Ca(OH)₂ solution is protected from atmosphere because:

$$\text{OH}^- + \text{CO}_2 \longrightarrow \text{HCO}_3^-$$

$$\text{OH}^- + \text{HCO}_3^- \longrightarrow \text{CO}_3^{--} + \text{H}_2\text{O}$$

$$\text{Ca}^{++} + \text{CO}_3^{--} \longrightarrow \text{CaCO}_3 \downarrow \downarrow \text{milky chalk}$$
- Lugol's solution 5% is taken orally (0.3 ml three times daily).
- 1 g of iodine dissolves in 2950 ml of H₂O.
- Tincture of iodine contains alcohol and is used externally (topical).
- Solubility of calcium hydroxide being about 170 mg / 100 ml at 15° C.
- The official concentration of lime water is based upon 25° C, a solution containing in each 100 ml, not less than 140 mg Ca(OH)₂.
- Types of extracts: infusion, decoction, tincture, and resin.
- Alum (aluminum salts) are astringents.
- Zinc (zinc salts) are astringents.
- Boric acid is a weak acid (antiseptic).
- Fleet enema is a disposable rectal injection.

- Barium sulfate enema radiopaque (X-ray) purpose.
- Glycerin is a good co-solvent.
- Invert sugar = levulose + dextrose.
Levulose: sucrose: dextrose
173 : 100 : 74
- Invert sugar is more readily fermentable than sucrose.
- Invert sugar is 1.23 times as sweet as sucrose.
- Preservatives should be added to syrups.
- Preservatives e.g. benzoic acid, sodium benzoate, sodium metabisulfate, sulfurous acid, methyl -p-hydroxy benzoate.
- Suspending agents e.g. Acacia mucilage and tragacanth mucilage.
- Synthetic mucilage-like substances e.g. polyvinyl alcohol, methyl cellulose, carboxy methyl cellulose, sorbitol. (non glycogenetic used for diabetics).
- Salicylic acid collodion 10 % w/v (keratolytic agent).
- Made flexible by castor oil.
- Collodions are water-repellent protectives (corns, cuts).
- Elixirs are hydro-alcoholic liquids for oral use.
- Disadvantages of elixir: contains alcohol, which accentuates the saline taste of bromides.
- Incompatibilities of elixirs: because elixirs contain alcohol, it precipitates acacia, tragacanth, and agar from aqueous solutions.
- Glycerites (not less than 50% by weight of glycerin).
- Phenol- glycerin ear drops ($\text{NOH}_2\text{O} \rightarrow$ caustic).
- Sodium bicarbonate eardrops are not glycerites.
- Starch glycerite is an emollient preparation e.g (glysolide cream)

- Inhalations are low-pressure aerosol containers = Inhalants.
- Used in respiratory tract.
- The device may be called Inhaler or vaporizer. The controlled device may be called nebulizer.
- Alcoholic liniments may be used as rubefacients, counter irritant, mild astringents, and penetrating agents.
- Oily liniments used if massage is required.
- Calamine liniments are protective from sunburn....etc.
- Dental liniments are non-official.
- Oleo vitamins e.g A and D (official) → rancid → unstable
∴ storage in small tight-containers, under vacuum, or inert gas, protected from light.
- Aromatic ammonia spirit cannot be mixed with codeine phosphate because of acid-base reaction → ammonia-phosphate and codeine may be ↓ ↓ out of the solution.
- Toothache drops e.g clove oil, phenol, camphor, and creosote.

Notes:

- All the equations are important (complete).
- All the methods of preparation and examples for each method are important (enumerate)
- You must know the uses of each of the following preparations: (very important)
 - Aromatic water.
 - Burrow solution.
 - Lugol's solution.
 - Tincture of Iodine.
 - Douches.
 - Enemas.
 - Gargles and mouthwash.
 - Acacia syrup.
 - Glycyrrhize syrup.
 - Jellies.
 - Honeys.
 - Mucilages.
 - Collodions.
 - Elixirs.
 - Glycerites.
 - Inhalations.
 - Liniments.
 - Spirits.
 - Tooth drops/nasal.

- You must also know the active ingredients in the following:
 - Tincture Iodine: Iodine, KI, NaI, and alcohol.
 - Aspirin C tablets: acetylsalicylic acid + ascorbic acid.
 - Fleet enema: phosphate salts.
 - Barium sulfate enema: barium sulfate (BaSO_4) + starch enema.
 - Lugol's solution: Iodine + KI (no alcohol).
 - Elixir (aromatic elixir): alcohol + volatile oils.
 - Cough mixture: ammonium chloride + KI, Bromide salts, and codeine phosphate.
 - Gargle: Phenol, Menthol, NaCl, ZnCl, and antibacterial agents.
 - Nasal sprays: hormones, antihistamines, vasoconstrictors, and antibiotics. Nasal sprays should be isotonic and have the same nasal pH.

- Example of some medications:
 - Nasal sprays:

 - Cough syrup:

 - Analgesic liquid:

- Role of talc in aromatic water preparation is: