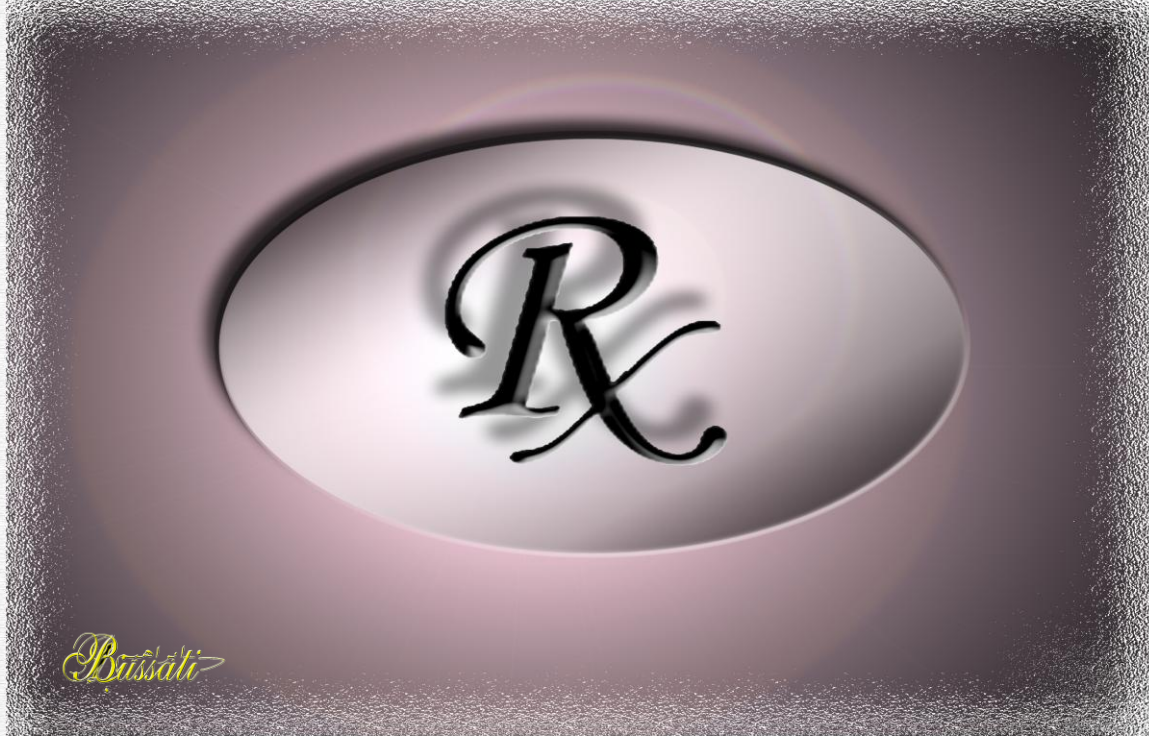




كلية العلوم الصحية للبنين - قسم الصيدلة



Practical Pharmaceutics 2

2nd year 4th level

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Mixtures

Definition: The mixture is a liquid preparation intended oral administration in which the drug or drugs are dissolved, suspended or dispersed in a suitable vehicle and generally several doses are contained in a bottle.

1. Potassium citrate and sodium bicarbonate mixture

\mathcal{R}_x			$\times 10$
Potassium citrate	0.1 gm		1 gm
Sodium bicarbonate	0.75 gm		7.5 gm
Syrup orange	1 ml		10 ml
Chloroform water	0.2 ml		2 ml
Dist. Water	to <u>10 ml</u>		To 100 ml

Calculation

Prepare 100 ml

$$\text{Factor} = \frac{100}{10} = 10$$

Therapeutic indication

It used as an alkalizer to make the urine alkaline and less acidic in the in the inflammatory conditions of the bladder, to prevent crystaluria during long term treatment with suphanamides. (Bactrim® or Septrin®)

Role of each ingredient

Potassium citrate: after absorption is metabolized and acts as urine less acidic.

Sodium bicarbonate: decreases renal acidosis making the urine less acidic.

Syrup orange: flavoring agent.

Chloroform water: added as flavoring agent.

Dist. Water: vehicle for the mixture.

Remarks

- Each 1 ml of this mixture provides 0.9 millimole of sodium and potassium ions which may be important in patients with electrolyte imbalance.
- Plenty of fluids taken orally must be recommended.
- In patient with severe UTI (urinary tract infection) a proper antibiotic should be used with this mixture.

Label

- Red or White
- **Sig. 30 ml TID with amount of water**

كلية العلوم الصحية بالمدينة المنورة قسم الصيدلةPotassium citrate and sodium.....bicarbonate mixture.....Fow tablespoonful to be taken three..times daily with amount of water..... الصيدلي: التاريخ: / / هـ

Procedure:

1. Dissolve Potassium citrate (1 gm) and Sodium bicarbonate (7.5 gm) in (50 ml) in Dist. Water in beaker.
2. Add Syrup orange (10 ml) and Chloroform water (2 ml).
3. Complete to the required final volume by addition of Dist. Water to (100 ml)
4. Pure the mixture in to the bottle and put the closure then adhere the label.

2. Potassium iodide mixture

\mathcal{R}		$\times 6.667$
Potassium iodide	0.15 gm	
Sodium bicarbonate	0.15 gm	
Syrup lemon	0.6 ml	
Tr. liquorice	0.5 ml	
Distill. Water	to 15 ml	

Calculation

Prepare 100 ml

Factor = $100 \div 15 = 6.6667$

Therapeutic indication

It used as expectorant cough mixture in the case of cough with sputum e.g. chronic bronchitis.

Role of each ingredient

Potassium iodide: is used as an expectorant agent.

Because the bronchial secretions are reflex increased by stimulation of gastric mucosa.

Sodium bicarbonate: has an expectorant effect and cause the mucous secretions less viscous.

Syrup lemon: flavoring agent.

Tr. liquorice: increases the secretions of upper respiratory tract.

Dist. Water: as a solvent and as a vehicle for the mixture.

Remarks

- The use of proper antibiotic for controlling the respiratory tract infection is recommended.
- Storage of the mixture for long periods is not desirable due to the formation of iodoform from the released free iodine.

Label

- Red or White
- Sig. 30 ml TID with amount of water

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Procedure:

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4. Acid mixture

\mathcal{R}		$\times 5$
Hydrochloric acid	1.5 ml	
Tr. Nux vomica	0.5 ml	
Glycerin pepsin	2 ml	
Syrup orange	1.5 ml	
Chloroform water	to 20 ml	

Calculation

Prepare 100 ml

Factor= $100 \div 20 = 5$

Therapeutic indication

To increase the appetite in case of a chlorhydria.

Role of each ingredient

Hydrochloric acid: use to helps the digestion and increases the appetite.

That via HCl converts pepsinogen into pepsin.

Tr. Nux vomica: contains strychnine and acts as a bitter stomachic (i.e. increasing appetite).

Glycerin pepsin: contains pepsin and helps in digestive action.

Syrup orange: acts as flavoring agent.

Chloroform water: as a diluent for HCl and as a vehicle for the mixture and carminative action.

Label

- Red or White
- Sig. 15 ml BID before meals

Procedure:

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6. Chloroquine sulphate mixture

\mathcal{R}		$\times 5$
Chloroquine sulphate	0.3 gm	
Sulfuric acid (dil.)	1.0 ml	
Syrup lemon	4.0 ml	
Distill. Water	to 20 ml	

Calculation

Prepare 100 ml

Factor= $100 \div 20 = 5$

Free vehicle= $100 - (5 + 20) = 75$ ml

Therapeutic indication

It used as anti-malarial mixture.

Role of each ingredient

Chloroquine sulphate: is active ingredient as the drug of choice for acute attack of malaria

Sulfuric acid (dil.): is used to help in dissolving Chloroquine sulphate.

Syrup lemon: used as a flavoring and sweetening agent and used to reduces the bitter taste of Chloroquine sulphate.

Dist. Water: as a solvent and as a vehicle for the mixture.

Procedure:

Label

- Red or White
- Sig. 30 ml TID

كلية العلوم الصحية بالمدينة المنورة قسم الصيدلة
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10. Chlorhexidine mouth wash

\mathcal{R}_x		$\times 5$
	Chlorhexidine	0.2 ml
	Alcohol	1.4 ml
	Aqua Distillata	to 20 ml
		1 ml
		7 ml
		To 100 ml

Calculation

Prepare 100 ml

$$\text{Factor} = 100 \div 20 = 5$$

Therapeutic indication

It is used as a disinfectant mouth wash in cases of **oral** cavity inflammation.

📖 It may be diluted with equal volume of water and used as a disinfectant for **skin**

Role of each ingredient

Chlorhexidine: has a disinfectant property and it is effective against Gram +ve bacteria.

Alcohol: is used as a solvent and a diluent's for chlorhexidine.

Also it inhibits the growth of microorganism in the solution.

Dist. Water: as a solvent and as a vehicle for the mouth wash solution.

Label

- Red or White
- Sig.: the solution should be used undiluted as a mouth wash solution tid – qid .

كلية العلوم الصحية بالمدينة المنورة قسم الصيدلة
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Procedure:

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11. Compound Sodium Chloride Mouth Wash

Rx

Sodium chloride	1.5 gm
Sodium bicarbonate	1 gm
Peppermint water	5ml
Chloroform water	50 ml
Aqua Distillata	to 100 ml

Calculation

Prepare 100 ml

Therapeutic indication

It used as a mouth wash in the inflammatory conditions of the oral cavity associated with mucosal salivary crusts.

Role of each ingredient

Sodium chloride: is added to make the solution is hypertonic so that mucosal edema is reduced.

Sodium bicarbonate: reduced the viscosity of the mucous secretion and helps in cleaning the oral cavity.

Peppermint water: acts as a flavoring agent and helps in providing a feeling of “freshness” in the oral cavity.

Chloroform water: has a flavoring property and gives a pleasant flavor to the solution.

Dist. Water: as a solvent, diluent's and as a vehicle for the mouth wash.

Label

- Red or White
- Sig. used as mouth wash bid. after each meal.

Procedure:

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12. Detergent Mouth Wash

\mathcal{R}		$\times 0.5$	
	Boric acid	10 gm	5 gm
	Sodium borate	10 gm	5 gm
	Amaranth solution	10ml	5 ml
	Aqua Distillata	to 200 ml	To 100 ml

Calculation

Prepare 100 ml

$$\text{Factor} = 100 \div 200 = 0.5$$

Therapeutic indication

It used as a detergent mouth wash.

Role of each ingredient

Boric acid: has a mild local bacterostatic effect. (By inhibits the bacterial growth)

Sodium borate : has antiseptic and detergent effect.

Amaranth solution: is used as coloring agent (provides a red color to the solution).

Dist. Water: as a solvent, diluent's and as a vehicle for the mouth wash.

Label

- Red or White
- Sig. 15 ml to be diluted with equal volume of warm water and used as mouth wash tid.

كلية العلوم الصحية بالمدينة المنورة قسم الصيدلة

..... Detergent mouth was

..... One tablespoonful to be diluted with equal
volume of warm water and used as mouth
wash three times daily

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Procedure:

- ~ Dissolve Boric acid and sod. Borate in half the volume of vehicle by use the warm water.
- ~ Add amaranth solution and mix well.
- ~ Complete to the final required volume by using warm water.

13. Iodine solution Mouth Wash

Rx

Aqueous iodine solution	2 ml
Glycerin	15 ml
Aqua Distillata	to 100 ml

Calculation

Prepare 100 ml

Therapeutic indication

It used as an anti septic mouth wash in cases of the inflammation of oral cavity e.g. glossitis, stomatitis, and gingivitis

Role of each ingredient

Aqueous iodine solution: has a topical antiseptic property.

Glycerin: acts as an emollient and a sweetening agent for the mouth wash.

Dist. Water: as a solvent, diluent's and as a vehicle for the mouth wash.

Label

- Red or White
- Sig. dilute the solution with equal volume of water and use it as a mouth wash tid.

كلية العلوم الصحية بالمدينة المنورة قسم الصيدلة الصيدلي: التاريخ: / / هـ
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Procedure:

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14.Lemon mouth wash

Rx

Citric acid		0.675 gm
Lemon syrup		5 ml
Glycerin		15 ml
Chloroform water		5 ml
Aqua Distillata	to	100 ml

Calculation

Prepare 100 ml

Therapeutic indication

It used as a mouth wash in cases of the inflammation of oral cavity. And used in cases of fever associated with excessive thirst.

Role of each ingredient

Citric acid: gives a local cooling sensation to oral mucosa.

Lemon syrup: is used as a flavoring agent with gives a feeling of freshness and cooling on oral mucosa.

Glycerin: has an emollient property on mucous membrane.

Chloroform water: is added as a flavoring agent.

Dist. Water: as a solvent, diluent's and as a vehicle for the mouth wash.

Label

- Red or White
- Sig. dilute the solution with equal volume of water and use it as a mouth wash TID.

كلية العلوم الصحية بالمدينة المنورة قسم الصيدلة

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Procedure:

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15. Calamine Topical Suspension

℞	
Calamine	80 gm
Zinc oxide	80 gm
Glycerin	50 gm
Liquefied Phenol	10 ml
Water	to 1000 ml

Calculation:

Prepare 100 ml.

Therapeutic indication

As protective lotion for topical application on the skin in cases of acne, sunburn, chicken box, etc...

Role of each ingredient:

Calamine: a stringent action.

Zinc oxide: mild a stringent and also acts as protective and soothing agent on skin.

Glycerin: emollient and smooth agent

Liquefied Phenol: Antipruritic, disinfectant and topical anesthetic.

Water: acts as a diluent's and as a vehicle.

Label

- Red or White
- Sig.: m.d.u

كلية العلوم الصحية بالمدينة المنورة قسم الصيدلة

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Shake the bottle before use

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Procedure:

1. In dry mortar, triturate the zinc oxide powder until fine powder is formed.
2. Add calamine powder to zinc oxide powder and triturate until good mixing.
3. Add glycerin to mixture and mix well to form a smooth paste.
4. Add liquefied phenol to mixture and mix well.
5. Add sufficient amount of water to mixture (gradually) and triturate well and transfer the mixture to the cylinder measure and wash by little of water
6. Complete to the final volume with water.
7. Write the red label and attached to the bottle.

16. Menthol and paraffin nasal drop

℞	Menthol	0.1 gm	$\times 3$	0.3 gm
	liquid paraffin	to 10 ml		to 30 ml

Calculation:

Prepare 30 ml

Factor: $30 \div 10 = 3$

Therapeutic indication:

For softening and removal of nasal 'crusts' in cases of atrophic rhinitis and for prevention of such 'crusts' postoperatively.

Role of each ingredient:

Menthol: mild local anesthetic and dulls nasal sensations which helps in removal of these 'crusts'. it is also provides local cooling sensation.

Liquid paraffin: lubricant when applied locally.

Remarks:

These nasal drops provide symptomatic relief in these cases. in patient with deviated septum surgical interference may be required for long lasting beneficial effect.

Label:

- Red or White
- Sig.: 2-3 drops of the solution to be instilled in each nostril 2-3 times a day

كلية العلوم الصحية بالمدينة المنورة قسم الصيدلةMenthol and paraffin nasal drop.....2-3 drops of the solution to be instilled in each nostril 2-3 times a day.....التاريخ / / هـ.....الصيدلي.....
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17. Alkaline nasal wash

℞		$\div 0.6$ or $\times 1.66$
Sodium bicarbonate	0.20 gm	0.33 gm
Borax	0.20 gm	0.33 gm
NaCl	0.27 gm	0.45 gm
White sugar	0.30 gm	0.5 gm
Aqua	to 30.0 ml	to 50 ml

Calculation:

Prepare 50 ml

Factor: $30 \div 50 = 0.6$ or $50 \div 30 = 1.66$

Therapeutic indication:

As nasal wash in cases of excessive nasal 'crusts' and in atrophic rhinitis.

Role of each ingredient:

Sodium bicarbonate and borax: softening the nasal crusts and removal of crusts when increasing nasal secretions.

NaCl: antiseptic agent.

White sugar: make the solution isotonic.

Aqua: solvent and as a vehicle.

Remarks:

Solution should be used as nasal wash only after dilution.

Label:

- Red or White
- Sig.: 5 ml of solution to be dissolved in a 240 ml of water and used for nasal wash bid-tid.

<p>كلية العلوم الصحية بالمدينة المنورة قسم الصيدلة</p> <p>..... Alkaline nasal wash.....</p> <p>....One teaspoonful of solution to be dissolved... in a tumblerful of water and used for nasal wash 2-3 times a day</p> <p>..... التاريخ / / هـ</p> <p>..... الصيدلي</p>
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18.Ephedrine nasal drop

℞			
Ephedrine			0.15 gm
Sodium chloride			75 mg
Aqua	to		15 ml

Calculation:

Prepare 15 ml

Ephedrine (%) =

Therapeutic indication:

As a nasal decongestant in cases of congestion of the nasal passages.

Procedure:

Role of each ingredient:

Ephedrine: a sympathomimetic agent causes local vasoconstriction on topical application. It thus relieves nasal congestion.

Sodium chloride: is added to make the solution isotonic.

Aqua: is used as a solvent for ()? And acts as a vehicle for the nasal drops.

Remarks:

Avoid excessive use of these drops in patients with coronary insufficiency and hypertension.

Label:

- Red or White

كلية العلوم الصحية بالمدينة المنورة قسم الصيدلة
Ephedrine nasal drop () %
2-3 drops of the solution to be put in each nostril 4-6 times a day
الصيدلي التاريخ / / هـ

19. Menthol and thymol nasal drop

℞			
Menthol		457	mg
Thymol		229	mg
Cineole		0.208	ml
liquid paraffin	to	100	ml

Therapeutic indication:

As a nasal drops to relive nasal catarrh in cases of rhinitis.

Role of each ingredient:

Menthol: on topical application produces a sensation of 'coolness' followed by a local analgesic effect on the nasal mucosa.

Thymol: local disinfectant property but is chiefly used as deodorant in nasal drops.

Cineole: has pungent cooling taste and relieves catarrh

Liquid paraffin: used as a solvent for menthol and thymol and as vehicle for the nasal drops.

Remarks:

- Store the liquid in airtight container.
- In patients with associated nasal infection, use of appropriate chemotherapeutic agent(s) should be recommended.

Label:

- Red or White

كلية العلوم الصحية بالمدينة المنورة قسم الصيدلة
Menthol and thymol nasal drop
Put 2 to 3 drops of the solution in each nostril 3 to 4 times a day
الصيدلي: التاريخ: / / هـ

20.Nasal saline baby drops

℞

Sodium chloride	0.9 gm
Distilled water	to 100 ml

Therapeutic indication:

As nasal wash and softening the nasal crusts for infant

Procedure:

Role of each ingredient:

Sodium chloride:

make the solution isotonic.

Distilled water:

solvent and as a vehicle

Label:

- Red or White

كلية العلوم الصحية بالمدينة المنورة قسم الصيدلة

Nasal saline baby drops

Put 1 to 2 drops of the solution in each nostril as
necessary

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21. Ichthammol and glycerin ear drop

℞			
Ichthammol		0.1 gm	
Glycerin	to	15 ml	

Calculation:

Prepare 15 ml

Therapeutic indication:

As a topical analgesic eardrops in case of furuncles in external ear canal.

Procedure:

Role of each ingredient:

- Ichthammol: has local irritant and antibacterial properties.
- Glycerin: has hygroscopic property, which reduces edema due to inflammation and relieves pain. Its emollient property maybe beneficial. It also acts as vehicle for the eardrops.

Remarks:

In sever cases simultaneous use of anti-inflammatory and/or analgesic agents and chemotherapeutic agent may be required.

Label:

- Red or White

كلية العلوم الصحية بالمدينة المنورة قسم الصيدلة Ichthammol and glycerin ear drop الصيدلي: التاريخ: / / هـ
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22.Sodium bicarbonate ear drop (Alkaline ear drops)

℞	
Na H CO ₃	0.75 gm
Glycerin	5 ml
Purified water	to 15 ml

Calculation:

Prepare 15 ml

Therapeutic indication:

As a "wax" softener for facilitating removal of wax from the external auditory canal.

Procedure:

Role of each ingredient:

- Na H CO₃: in the form of solution is an effective antipuritic agent and helps in softening the "wax" of the ear canal.
- Glycerin: local hygroscopic and emollient properties.
- Purified water: Acts as a solvent for NaHCO₃, diluent is for glycerin and as a vehicle for the eardrops.

Remarks:

- Store the solution in tightly closed container.
- Forceful extraction of wax mass from the external auditory canal must not be attempted.
- If need be irrigation of external auditory canal with KMnO₄ (1:10000) may be carried out before attempting removal of wax.

Label:

Red or White

قسم الصيدلة	كلية العلوم الصحية بالمدينة المنورة
.....Sodium bicarbonate ear drop.....	
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Eye drop

Ophthalmic products:

1. Eye drops
2. eye suspension
3. contact lens solution
4. eye lotion
5. eye ointment
6. ophthalmic inserts

Eye drops are sterile aqueous or oily solution or suspension for instillation in to the eye

applied in to the space between the eye ball and eye lids or an to the corneal surface

- **Eye drops must be:**

- ✦ sterile.
- ✦ isotonic.
- ✦ free from foreign particles.

To avoid irritation
to the eye

- **Eye drops contain substances having:**

- ✦ anti septic.
- ✦ anaesthetic.
- ✦ anti-inflammatory.
- ✦ mydriatic or miotic properties.
- ✦ substances used for diagnostic purpose.

- **Eye preservative:**

- ✦ Phenylmercuric nitrate acetate 0.002 %
- ✦ Bensalkanium chlorid 0.01 %
- ✦ Chlorhexidine acetate 0.01 %

23. Atropine sulphate eye drops

Asterile solution containing up to 2 % of atropine sulphate, with 0.002 % of phenylmercuric acetate or nitrate or 0.02 % v/v of benzalkonium chloride solution (0.01 w/v of benzalkonium chloride) in purified water.

\mathcal{R}		
Atropine sulphate		2 gm
Benzalkonium chloride		0.02 ml
Purified water	to	100 ml

Calculation:

Prepare 15 ml

Atropine sulphate (%) =

Therapeutic indication:

Mydriatic

Procedure:

Dissolved Atropine sulphate in ...

Role of each ingredient:

Atropine sulphate: parasympatholytic, mydriatic

Benzalkonium chloride: preservative

Aqua: it is used as a solvent for Atropine sulphate and acts as a vehicle for eye drops.

Remarks:

- Atropine may be cause blurring of vision.
 - Atropine sensitive to light.
 - may be occur for several day after instillation of the drops.
- Label: Red or White

كلية العلوم الصحية بالمدينة المنورة قسم الصيدلة Atropine sulphate Eye drops (.....) % الصيدلي التاريخ. / / هـ

