



JES's College of Pharmacy, Nandurbar

Expectorants and Emetics

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EXPECTORANT

These are the agents which enhance the secretion of **sputum from trachea, bronchi or lungs** and hence they are used in treatment of **cough**.

❖OR

They are also defined as agent that **facilitates the removal of broncho-pulmonary mucus secretion membrane**.

Classification of Expectorants

Based on MOA they are categorized into two types:

1. Sedative expectorants
2. Stimulant expectorants



1. SEDATIVE EXPECTORANTS

✓ These are **stomach irritants** which are able to produce their effect through **stimulation of gastric reflux**.

✓ E.g. bitter drugs as Ipecac, senega, and compounds such as antimony potassium tartarate, ammonium chloride, potassium iodide.



2. STIMULANT EXPECTORANTS

- ✓ Expectorants which bring about stimulation of **secretory cells of the respiratory tract** directly or indirectly since these drugs stimulates secretion , more fluid gets produced in respiratory tract and hence sputum is diluted.
- ✓ E.g. Eucalyptus oil, Lemon, Anise and Terpene oil.



POTASSIUM IODIDE



- **Mol. Formula**-KI
- **Mol. Weight**-166 gm
- **Synonyms**- Pot. Iod , Kalli Iodidum
- **Standard**- It contain not less than 99% KI with reference to a dried basis
- **MOP**
 - a) Laboratory Method
 - b) Industrial Method



A) LABORATORY METHOD

Prepared by treating **slight excess of iodine** with a hot aqueous solution of **Potassium hydroxide**. The **pale yellow solution is evaporated to dryness** and **residue is heated with charcoal to reduce iodate to iodide**.



B) INDUSTRIAL METHOD

It can be prepared by using **potassium carbonate** and **iron fillings**. Iron fillings are agitated in the **iodine solution** to form **ferro ferric iodide** which on further boiling with conc. solution of **potassium carbonate** gives **potassium iodide**.



PHYSICAL PROPERTIES

- **White granular powder**
- Slightly hygroscopic in nature
- **Taste** saline and slight bitter
- **Soluble** in water, glycerin and alcohol
- On exposure to air, it become yellow

Storage condition-

It should be stored in well closed container



Incompatibility-

It is incompatible with salt of iron, bismuth, mercury, potassium chlorate and alkaloidal salts.

Uses-

1. As an **expectorant**
2. Act as source of **iodine and potassium**
3. In treatment of **goiter**
4. Use as **saline diuretics**
5. As anti-fungal agent in **veterinary practices**



Ammonium Chloride



- **Molecular Formula-** NH_4Cl
- **Molecular weight-** 53.49g
- **Synonyms-** Salmiac, Amchlor
- **Standard-** contains NLT 99.5% of ammonium chloride calculated with reference to dried substance
- **Method of Preparation-**
 1. By neutralizing hydrochloric acid with ammonia



2. By ammonium sulphate with sodium chloride



Physical Properties-

1. White, fine **crystalline powder**
2. **Odourless** and cooling saline taste
3. **Hygroscopic in nature**
4. Freely soluble **in water** but slightly soluble in **alcohol**

Chemical properties-

In its vapour form, it dissociate in ammonia and hydrochloric acid



Storage condition-

It should be stored in well **closed container**

Uses-

1. As Expectorant
2. As Diuretics
3. As systemic Acidifier



EMETICS



EMETICS

•Emetics are the agents which when administered orally or by **injection induce the vomiting**

Mechanism of action-

1. By stimulation of chemoreceptor trigger zone
2. By reflexly producing irritation on g.i.t. tract



COPPER SULPHATE

- **Molecular formula-** $\text{CuSO}_4 \cdot \text{H}_2\text{O}$
- **Molecular weight-** 249.7 g
- **Synonym-** Blue vitriol, Cupric sulphate



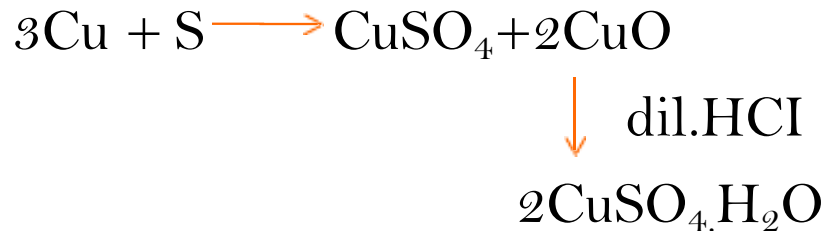
- **Physical properties-**
 1. Deep **blue crystals** of pentahydrate in granules or powder form
 2. Soluble in water insoluble in alcohol
 3. Acidic in nature



METHOD OF PREPARATION

Two step reaction-

1. **Copper granules** are heated with **sulphur**, a mixture of **copper sulphate** and **cupric oxide** is obtained. Solution is **filtered** to separate **copper sulphate crystals**.
2. In second step residue **CuO** is again treated with **dil. Sulphuric acid** to convert into **copper sulphate**.



STORAGE CONDITION-

- ✓ It must be protected from **air, heat and moisture.**
- ✓ **Incompatibility-** It has been incompatible with **alkalis, phosphates, propylene glycol, sulphathiaole**



Uses-

- Used as an **emetic**
- Use as chemical **antidote in phosphorus poisoning**
- Externally used as **astringents and fungicidal**
- As an ingredient in **Benedicts and Fehling's reagent**
- Use in preparation of **absolute alcohol**



Sodium Potassium Tartarate

- **Molecular formula-** $C_4H_4NaKO_6$
- **Molecular weight-** 210.158 g
- **Synonym-** Rochelle salt
- **Properties-**
 - **Colorless liquid**
 - **Taste is saline**
 - **Soluble in water, Insoluble in alcohol**



Uses

- It is used as **laxative**
- It has also been used in process of **silvering mirrors**



Thank you..!

