

## PHARMACEUTICS. CHAPTER—

### 3 PHARMACEUTICAL AIDS.

**Oragnoleptic character**—Oragnoleptic character mainly based on the sensory organs. Oragnoleptic character involves color, odor, taste, flavor etc.

**Pharmaceutical aids:** - The substances which are essentially used in manufacturing or compounding of various pharmaceutical dosages form is called as pharmaceutical aids. It helps in masking the unpleasant odor, taste, and flavour of any dosages form and made to more elegant during the dosages administration.

Drugs are the preparation which contains the active pharmaceutical ingredients and excipients (coloring, flavouring, sweetening agents, preservatives etc). Excipients are also known as the pharmaceutical aids.

**Pharmaceutical aid or excipients** shown no or little pharmaceutical effect but it play an important role to modifying the drugs dosages form (tablets, capsule, syrups, emulsion, solution etc). Example of pharmaceutical aids contains—coloring agents, sweetening agents, emulsifying agent, suspending agents, flavouring agents, diluents, lubricants etc.

**Importance/Application of pharmaceutical aids—**

- It helps in masking the unpleasant odor, taste, and color etc.
- It insures safe, efficiency, reproducible, and convenient manner of drug delivery.
- Pharmaceutical aids increase the shelf life of the drugs.
- It protects the chemical changes and microbial action of main API, they include antibacterial agents and antioxidants.
- Due to involvement of the pharmaceutical aids we design the different form of shape, size of the dosages form.
- It is overcomes the patients inconvenience and helps in manufacturing, to design attractive dosages form.

### **Ideal characteristics of the pharmaceutical aids—**

- It does not change chemical nature of the drugs.
- It does not cause any toxic effects.
- Masking the unpleasant color, odor, and taste.
- During administration it does not cause any allergic reactions.
- Overcomes the patient inconvenience.
- It prevents the microbial activity or contamination in the pharmaceutical products.
- It improves the shelf life of the products.
- It works on low concentration.
- Cheap and easily available

### **Coloring agent**

**Colorants or coloring agents** are mainly used to improve the distinctive appearance of pharmaceutical dosages form, which helps in the identification during manufacturing and increase the patient acceptance towards the pharmaceutical dosages form.

In pediatric and geriatrics coloring agents play a major role and attract the consumer by providing the aesthetic appearance to dosages form.

### **Classification of coloring agents—**

- On the basis of their origin it is divided into two parts—
  - A. **Synthetic**—Tartrazine, Azorubine, brilliant blue, erythrosine.
  - B. **Natural**—Animal—carmine, tyrian purple.
    - Plants—Annatto, caramel, lycopene
    - Mineral—malachite, cinnabar, aragonite.
- On the basis of their solubility it is divided into two categories—
  - A. **Colorant dyes (soluble in the medium)** —Indigo carmine, brilliant blue, caramel.
  - B. **Pigments (insoluble in the medium)** —Cadmium pigment, chromium pigment, cobalt pigment.

### **Uses/Applications of coloring agents—**

- Coloring agent provide the suitable color to formulation and helps in the identification.
- Increase the consumer acceptance.

### **Flavouring agents**

**Flavourants or flavouring agents** are mainly used for masking the unpleasant or unacceptable odor from formulation and provide more pleasant taste or flavour.

There are four basic taste sensations are salty, sweet, bitter, and sour. Flavour added to drug solutions can make a medicine more acceptable to take especially if the drug has an unpleasant taste. In the pediatrics dosages form flavour play a key role for administration of the drugs.

Flavouring agents are more sensitive against the heat (thermolabile nature) so it cannot be added prior to an operation involving heat, they are often mixed with the granules as an alcohol solution. In market many coating tablet are present for masking the flavour.

### **Classification of flavouring agents—**

- **It is classify into two categories—**
  - A. **Natural flavouring agents**—Citrus fruit (lemon, orange), spice (cinnamon, peppermint, ginger, onion), fruits (apple, banana).
  - B. **Synthetic flavouring agents**—Benzaldehyde, cinnamic aldehyde, coumarin, ethyl methyl ketone.

### **Uses/Applications of flavouring agents—**

- Masking the unpleasant taste or flavour and provide suitable flavour.
- Increase the consumer acceptance.

## Sweetening agents

**Sweetening agents or sweeteners** are mainly used for masking the undesirable or bitter taste of any drug formulation and increase the patient acceptance towards pharmaceutical dosages form. In pediatric dosages form it is widely used because children prefer more the sweetening drugs.

In Homeopathic medication, small sugar pills are used during the drug delivery. Recently it is widely used in the Ayurvedic medicine also.

Sugar is the most widely used sweetening agent, due to its viscosity nature it also used as preservative for liquid preparation.

### **Classification of sweetening agents—**

- **It is divided into two categories—**
  - A. **Natural sweetening agent**—Glucose, fructose, sucrose, dextrose, sorbitol.
  - B. **Artificial coloring agent**—sucralose, aspartame, saccharin.

### **Uses/Applications of sweetening agents—**

- Sweetening agent masking the undesirable or bitter taste.
- Increase the consumer acceptance.

## Presevative

**Preservative** are the chemical agent which prevents the product contamination or product decomposition by the action of any contaminant (environmental or biological). Preservative commonly add in the pharmaceutical and various food products for enhancing their stability and shelf life. Phenolic compounds like sodium benzoate are highly used as preservative during the manufacturing.

### **Classification of preservative—**

- **On the basis of mechanism of action it is divided into three categories—**
  1. **Antimicrobial agents**—that agent which prevents the contamination (gram positive and gram negative) and degradation by microbes is called

as antimicrobial agents. These agents are active in low concentration. Example- phenolic compounds, parabens, propylene glycol, BHT, BHA.

- On the basis of their activity it is further divided into two parts.
  - a. **Microbiostatic**—that inhibits the growth and multiplication of the microbes.
  - b. **Microbiocidal**—that agent directly kills the microbes.
- 2. **Antioxidants agents**—those agents which prevent the products oxidation or degradation in the presence of molecular oxygen. Generally API is more reactive towards the oxygen, so antioxidants are mixed with the product and overcome the product reactivity.  
Example— ascorbic acid, citric acid, tocopherols, BHA, BHT.
- 3. **Chelating agents**—those agents which form the cyclic compounds or complexes with the pharmaceutical ingredients and prevent the degradation of pharmaceutical formulation  
Example—EDTA, polyphosphates.
- On the basis of sources it is divided into two parts—
  - 1. **Natural preservatives**—vinegar, honey, castor oil, salt, sugar.
  - 2. **Synthetic preservatives**—sodium benzoate, BHA, BHT.

#### Uses/Application of preservatives—

- Preservatives enhance the stability and shelf life of the products, so it maintains the product activity for long time.
- It prevents the product by any microbial contamination increase their resistance power against the microbial growth.
- Many environmental factors affect the products property, for overcoming this activity preservatives are also used.
- It also mixes with the food preparation for prevention of their oxidation.