

**B.Pharm 4<sup>th</sup> sem**  
**Pharmacognosy and Phytochemistry-I**

**Topic- Carbohydrate**  
**Acacia**

Anju Singh  
Assistant Professor  
SPS, CSJMU, kanpur



# ACACIA

## SYNONYMS

Gum-arabic, Eucalyptus

### **Biological Source:-**

Indian gum is the dried gummy exudation obtained from the stem and branches of *Acacia arabica* belonging to family Leguminosae.

Gum arabic is a complex mixture of glycoproteins and polysaccharides. It is the original source of the sugars arabinose and ribose.

# **MACROSCOPY**

**Colour:** Tears are usually white pale yellow and sometimes creamish brown to red in colour .

**Odour:** Odourless there is a close relationship between colour and flavour due to the presence of tannins.

**Taste:** Bland and mucilaginous .

**Shape & Size:** Tears are mostly spheroidal or ovoid in shape and having a diameter of about 2.5 -3.0 cm.

**Apperance:** Tears are invariably opaque either due to the presence of cracks or fissures produced on the outer surface during the process or ripening. The fracture is usually very brittle in nature and the exposed surface apperas to be glossy.



# **COLLECTION**

1. The gum is produced as a result of injury to the plant. After the rainy season bark is tapped and transverse cuts are given to stem and braches to expose cambium and newly formed phloem .
2. Within 20-30 days, the tears are collected and made free from bark pieces and organic matter.
3. It is collected and dried in sun.
4. Gum arabica is most soluble of the gums.
5. Acacia is insoluble in alcohol an other org. solvents.



# CHEMICAL CONSTITUENTS

1. Major c.c is arabin which is a mixture of calcium magnesium potassium salts of arabic acid.
2. Acacia was originally thought to be composed only of four chemical constituents namely arabinose (+), galactose (-), rhamnose and (+) glucuronic acid.
3. On subjecting the gum acacia to hydrolysis with 0.01 N  $\text{H}_2\text{SO}_4$  helps in removing the combined product of (-) – arabinose and (+) – galactose whereas the residue consists of the product (+) – galactose and (+) – glucuronic acid. these two products are formed in the ratio of 3: 1.



# CHEMICAL TESTS

- 1. Lead Acetate Test:** An aqueous solution of acacia when treated with lead acetate solution it yields a heavy white precipitate .
  - 2. Borax Test:** An aqueous solution of acacia affords a stiff translucent mass on treatment with borax .
  - 3. Blue colouration due to Enzyme:** When the aqueous solution of acacia is treated with benzidine in alcohol together with a few drops of hydrogen peroxide ( $H_2O_2$ ), it give rise to a distinct-blue colour indicating the presence of enzyme.
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# USES

1. The mucilage of acacia is employed as a demulcent.
  2. It is used extensively as a vital pharmaceutical aid for emulsification and to serve as a thickening agent .
  3. It finds its enormous application as a binding agent for tablets cough lozenges .
  4. It is employed as colloidal stabilizer .
  5. It is used extensively in making of candy and other food products.
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# **STANDARD**

1. Moisture not more than 15%
2. Ash not more than 15%
3. Indian gum should not contain tannin, starch, and dextrin.
4. Leaves contain tannin 32% and fruits contain tannin 41.7%







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