

Diploma in Pharmacy 1st Year

Pharmacognosy Practical

To perform the physical and chemical tests of Acacia

Aim:

To perform the physical and chemical tests of Acacia.

Reference :

Dr. Gupta G.D , Dr. Sharma Shailesh , Kaur Navjit , “Practical Manual of Pharmacognosy” Published by Nirali Prakashan , Pg.No 135 - 139

Biological Source :

Acacia is the dried gummy exudation obtained from the stems and branches of Acacia senegal (L.) Willd or other African species of Acacia. It is also found in the stems and branches of Acacia arabica, Willd. It belongs to family Leguminosae.

Materials and Apparatus Required

Test tube, conical flask, beaker, burner, petroleum ether and alcohol, borax, lead sub acetate, hydrogen peroxide solution, conc. HCl, NaOH, water, Fehling's solution A and B, Ruthenium red solution, dil HCl, Barium chloride solution, hydrogen peroxide (10%), benzidine, alcohol, and lead acetate solution.

Theory

Acacia is a genus of plant (figure 35) including different types of trees and shrubs. Some plants of genus acacia contain toxic chemicals that can potentially cause hair loss, affect GIT's ability to intake nutrients, and cause stunt growth.

Physical Tests

- 1) **Colour:** Tears are white, pale yellow, or creamish brown to red coloured, powder is off white, pale yellow, or light brown coloured.
- 2) **Odour:** Odourless.
- 3) **Taste:** Bland and mucilaginous
- 4) **Shape:** Tears are mostly spheroidal or ovoidal.
- 5) **Size:** Tears have a diameter of about 2.5-3.0cm.
- 6) **Solubility:** Soluble in water resulting in a viscous and acidic solution, insoluble in alcohol.
- 7) **Appearance:** Tears are invariably opaque either due to the presence of cracks or fissures produced on the outer surface during the process of ripening, the exposed surface is glossy.
- 8) **Fracture:** Usually very brittle.

Chemical Constituents

Arabin, a complex mixture of calcium, magnesium, and potassium salts of Arabic acid, is the chief constituent of acacia. Arabic acid hydrolyses into L-arabinose, L-rhamnose, D-galactose, and D-glucuronic acid. It also contains oxidase and peroxidase enzymes. Since it contains diastase, it readily converts into powdered guaiacum resin. On drying at 100°C, its moisture content decreases by about 12.14% and it yields 2.7-4.0% of ash.

Uses

- 1) Its mucilage is a demulcent.
- 2) It is an essential pharmaceutical aid for emulsification and to be used as a thickening agent.
- 3) It is used as a binding agent in tablet formulations.
- 4) It is used in the granulation process of tablet manufacturing due to its compatibility with other plant hydrocolloids, starches, carbohydrates, and proteins.
- 5) It is combined with gelatin to form coacervates for drug microencapsulation.
- 6) It is a colloidal stabiliser.

Result :

The physical and chemical test of Acacia was performed successfully.