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Diploma in Pharmacy 1st Year
Pharmacognosy
Experiment

To perform the physical and chemical tests of Gaur gum.

Aim:

To perform the physical and chemical tests of Gaur gum.

Reference :

Dr. Gupta G.D , Dr. Sharma Shailesh , Kaur Navjit , "Practical Manual of Pharmacognosy" Published by Nirali Prakashan , Pg.No 149 - 152

Biological Source :

Guar gum is the powder of the endosperm of the seeds of Cyamopsis tetragonolobus Linn., which belongs to family Leguminoseae.

Materials and Apparatus Required

Test tube, conical flask, beaker, burner, water bath, weak solution of iodine, ruthenium red solution, lead acetate solution, water, hydrogen peroxide, benzidine, alcohol, and borax.

Theory

Guar gum powder is obtained from the Guar seed undergoing multiple industrial processes. Guar gum attains uniformity and very high viscosity at low concentrations by getting rapidly hydrated in cold water. Being colloidal in nature, it provides excellent thickening to the solution.

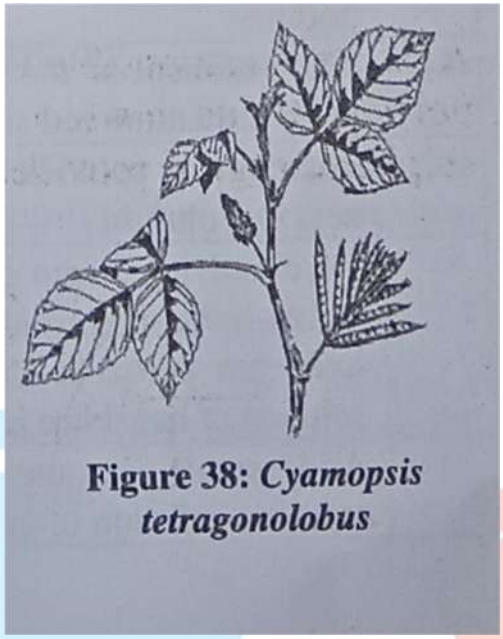


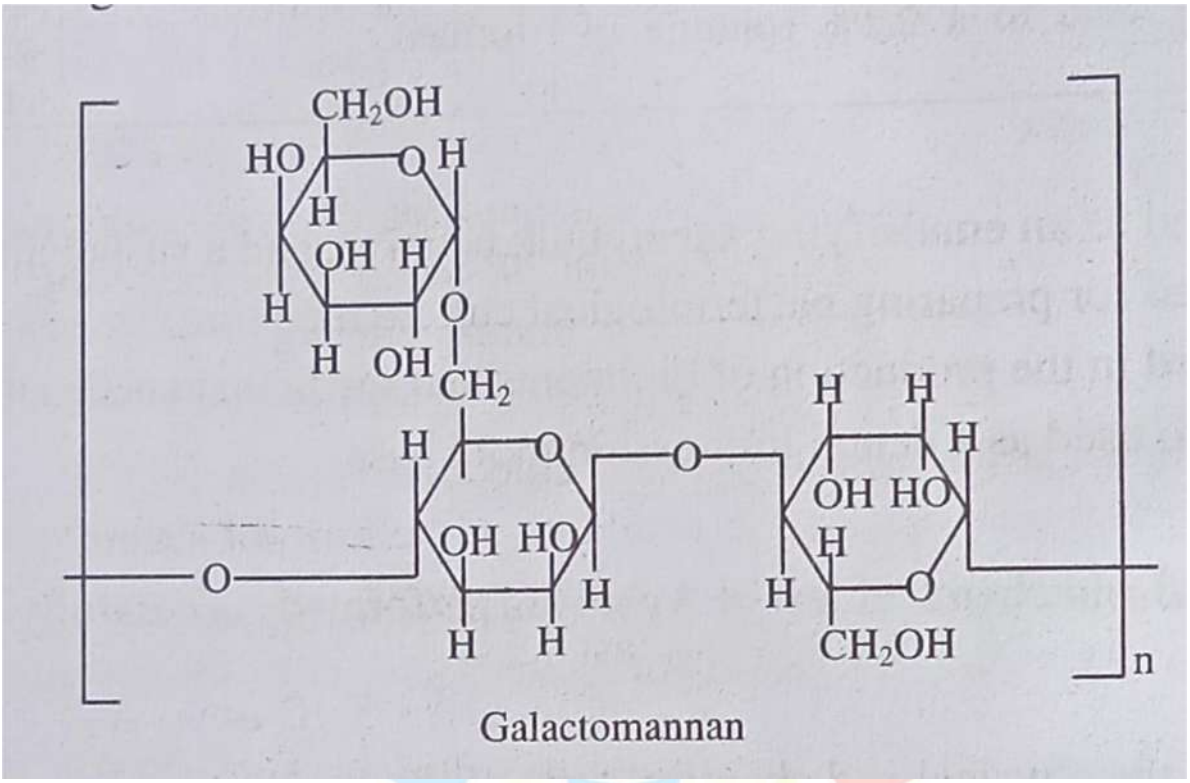
Figure 38: *Cyamopsis tetragonolobus*

Physical Tests

1) **Colour:** Colourless or pale yellowish-white.
2) **Odour:** Characteristic.
3) **Taste:** Mucilaginous.
4) **Solubility:** Completely soluble in cold and hot water; insoluble in alcohol; practically insoluble in oils, greases, hydrocarbons, ketones and esters.
5) **Extra Features:** The solutions of guar gum in water are tasteless, odourless, non-toxic, neutral, heat stable, and possess 5-8 times tluckening power than starch. In water, guar gum forms a thick colloidal solution and swells rapidly.

Chemical Constituents

Galactomannan (guaran) is the major constituent of guar gum. This substance hydrolyses to yield galactose and mannose. The water soluble content of guar gum is guaran which consists of linear chains of (14)-B-D mannopyranosyl units with a-D-galactopyranosyl units attached by (1-6) linkages. However, the ratio of D-galactose to D-mannose is 1.2. The gum also contains 5-7% of proteins.



Galactomannan

Chemical Tests

Sr. No.	Tests	Observations	Inferences
1)	On treating with a weak solution of iodine.	No olive green colour is obtained.	Presence of guar gum.
2)	On treatment of the gummy solution with ruthenium red solution.	No pink colour solution is formed.	Presence of guar gum.
3)	Guar gum solution with 2% lead acetate solution.	No ppt. is formed.	Presence of guar gum.
4)	On dissolving 0.5gm guar gum in 20ml water by shaking, and adding 0.5ml hydrogen peroxide and 0.5ml of 1% solution of benzidine in alcohol.	No blue colour is obtained.	Presence of guar gum.
5)	Add small amount of borax to aqueous solution of guar gum.	Jelly is formed.	Presence of guar gum.

Uses

1) It is used as a bulk laxative.
2) It is used as a protective colloid.
3) Since its thickening power is 5-8 times more than starch, it is used as a thickener.

4) It is used in treating peptic ulcer.
5) It is used as a binding and disintegrating agent in tablet manufacturing.
6) It is an appetite depressant.
7) It is used pharmaceutically to produce jelly.
8)) It is used in suspensions, emulsions, lotions, creams, and toothpastes

Result :

The physical and chemical test of Gaur gum was performed successfully.