

# Diploma in Pharmacy 1<sup>st</sup> Year

## Pharmacognosy Practical

### To perform the physical and chemical tests of Agar

#### **Aim:**

To perform the physical and chemical tests of Agar.

#### **Reference :**

Dr. Gupta G.D , Dr. Sharma Shailesh , Kaur Navjit , “Practical Manual of Pharmacognosy” Published by Nirali Prakashan , Pg.No 144 - 148

#### **Biological Source :**

Agar is the dried hydrophilic colloidal polysaccharide complex extracted from the agarocytes of algae belonging to the class Rhodophyceae. It is also obtained as the dried gelatinous substance from *Gelidium amansii* and several other species of red algae such as *Gracilaria* and *Pterocladia*, belonging to the family Gelidaceae. The predominant agar-producing genera are *Gelidium*, *Gracilaria*, *Acanthopeltis*, *Ceramium*, and *Pterocladia*.

#### **Materials and Apparatus Required**

Test tube, conical flask, beaker, burner, water bath, Fehling's solution test, Molisch, test, concentrated HCl, barium chloride solution, ruthenium red solution, KOH, N/20 iodine solution, and tannic acid.

#### **Theory**

Agar is a jelly-like substance, obtained from algae, and derived from agarose (polysaccharide), which forms the supporting structure in the

cell wall of certain algae species, and which is released on boiling. These algae are known as agarophytes belonging to the Rhodophyta (red algae) phylum.

## Physical Tests

- 1) **Colour:** Yellowish-grey or white to nearly colourless.
- 2) **Odour:** Odourless.
- 3) **Taste:** Bland and mucilaginous.
- 4) **Shape:** Strips, sheets, flakes, or coarse powder.
- 5) **Size:** Sheets are 45-60cm long and 10-15cm wide; bands are 4cm wide: strips are 4mm in width.
- 6) **Solubility:** Insoluble in cold water, forms a gelatinous mass after cooling hot solution; soluble in boiling water; insoluble in organic solvents.

## Chemical Constituents

Agar consists of agarose and agaropectin (polysaccharides). Agarose contains D-galactose and 3.6 anhydro L-galactose units. It also contains cellulose (about 3.5%) and nitrogen containing substances (6%).

## **Uses**

- 1) It is used as an emulsifying agent, bulk laxative, and a suspending agent.
- 2) It is used for preparing bacteriological culture medium.
- 3) It is used in the production of ointments and medicinal encapsulations.
- 4) It is also used as a dental impression mold base.

## **Result :**

The physical and chemical test of Agar was performed successfully.