

Diploma in Pharmacy 1st Year

Pharmacognosy Practical

To perform the gross anatomical study (transverse section) of Ashwagandha.

Aim:

To perform the gross anatomical study (transverse section) of Ashwagandha.

Reference :

Dr. Gupta G.D , Dr. Sharma Shailesh , Kaur Navjit , “Practical Manual of Pharmacognosy” Published by Nirali Prakashan , Pg.No 84 - 88

Biological Source :

It is made up of the dried roots and stem bases of *Withania somnifera* Dunal, belonging to Solanaceae family.

Materials and Apparatus Required

Ashwagandha, sharp razor, brush, dropper, needles, watch glass, microscopic slides, cover-slips, glycerine, and compound microscope.

Theory:

The plant *Withania somnifera* (Ashwagandha) is highly regarded. The ashwagandha plant's root and berry are used in Ayurvedic medicine in India. Ashwagandha is a tonic (sometimes known as "Indian ginseng") that is used to promote physical and mental health as well as treat a variety of ailments.

Morphological Characters:

Young roots have less secondary tissue and a more prominent cortex than older roots. Tetrarch is the primary xylem. The cork cells in mature roots are isodiametric and non-lignified. As the diameter of the roots grows, more secondary tissue is produced, including more ray parenchyma cells.

The cells are almost square in shape and are arranged in rows. In the secondary xylem, cells are packed with starch grains, small vascular bundles with one or two arteries, and few fibres. The phloem parenchyma has intercellular gaps, but the xylem parenchyma does not. Phloem fibres are lacking, while xylem fibres are abundant. Simple, reniform, and oval starch granules are generally present in the parenchyma of the cortex and vascular area.

Procedure

- 1) The area where practical is to be performed should be cleaned and the apparatus should be provided.
- 2) The sample of crude drugs should be provided.
- 3) The sample should be prepared for sectioning.
 - i) The sample should be boiled.
 - ii) The section should be cut down.
 - iii) The section should be transferred into the watch glass containing water. If the crude drug is too difficult, or in any circumstance where the subject teacher feels it is necessary, the sample for sectioning is prepared one hour or a day before the practical, or may be altered in some cases)

4) Staining Process:

- i) A clean watch glass should be taken and staining solution should be added to it.
- ii) The section which has been taken from watch glass containing water to stain the solution should be transferred with the help of brush and should be kept for 2-3 minutes
- iii) Then the solution should be transferred to the watch glass containing plain water so that excess stain is washed away. This section which is to be mounted is ready.

5) Mounting Process:

- i) The section which is to be mounted on the glass slide should be transferred with the help of brush
- ii) 1-2 drops of water should be added on the section with the help of stopper
- iii) The clean cover slip should be placed over the section with the help of forceps and needle

- iv) Excess water present outside the coverslip should be removed with the help of blotting paper. The slide is now ready to be examined

6) Observation:

- i) Choose a location in the laboratory for the microscope that has enough light. The microscope should be arranged so that the C-Arm is facing towards the viewer and the objective and mirror are towards the light.
- ii) The diaphragm should be opened completely using sub-stage mirror. The position should be adjusted so that the entire field of view is well illuminated .
- iii) The prepared slide should be placed on the stage of the microscope's centre with the section aligned with the stage window above the condenser.
- iv) The slide should be fixed between the clips. With the use of two screws on the mechanical stage, the slide can now be moved forward, backward, or sideways above the stage. The observation should be noted.

Result :

The gross anatomical study of Ashwagandha was performed and determined.