

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

## Pharmacognosy Practical

### To perform the Gross anatomical study (Transverse Section) of Coriander

#### **Aim:**

To perform the Gross anatomical study (Transverse Section) of Coriander

#### **Reference :**

Dr. Gupta G.D , Dr. Sharma Shailesh , Kaur Navjit , “Practical Manual of Pharmacognosy” Published by Nirali Prakashan , Pg.No 80 - 83

#### **Biological Source :**

Coriander is made up of dried ripe fruits of the *Coriandrum sativum* Linn, which belongs to the Umbelliferae family.

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

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

#### **Theory:**

Coriander herb is grown once in a year. It is also well-known by the names of cilantro or Chinese parsley. All its parts are edible but fresh leaves and dried.

seeds are mostly used for cooking purpose. The epidermis part of the pericarp is formed of polygonal tubular cells with stomata. Inner epidermis of pericarp consists of parquetry cells. Calcium oxalate prisms are found in epidermal cells. In mesocarp, inner and outer layer

of parenchyma is present along with a layer of sclerenchyma between them. Presence of seed is one of the main characteristics of umbelliferous fruits. It lacks starch grains, trichomes, and lignified reticulate parenchyma. In endosperm, fixed oil globules are found and volatile oil is present in the vittae. The polygonal thick walled cellulose parenchyma of endosperm contains aleurone grains.

## Morphological Characters

The pericarp is well developed and epicarp, mesocarp, and endocarp are the three components of the pericarp.

- 1) **Epicarp:** It is a single row of tiny cellulose cells with thick walls and minute calcium oxalate crystals. It is cuticulated.
- 2) **Mesocarp:** The mesocarp is divided into three segments, as shown below.
- 3) **Simple Parenchyma Cells:** They are cellulosic and are loosely arranged.
- 4) **Lignified Fibres:** TF is found beneath the secondary ridges, while LF is found beneath the primary ridges. The vascular bundle is found beneath the major ridges, arranged over the LF.
- 5) **Lignified Parenchyma:** They are thick lignified which are arranged in a compact manner. Cells of the endocarp are single-layered with parquetry pattern.
- 6) **Vittae:** The commissarial surface (ventral surface) of the mericarp has two vittae. Due to the resinification of volatile oil, it turned brown.

## Seed:

- 1) **Testa:** Testa is made up of single layered yellowish cells.
- 2) **Endosperm:** Endosperm is a colourless, fixed oil and aleurone grains. thick polygonal parenchyma with
- 3) **Raphe:** It is non-functioning conductive strands seen on one side of a seed.

4) **Carphophore:** The lignified fibrous groups that are responsible for the attachment of two mericarps.

## **Procedure**

1. 2-3cm long pieces of seed should be taken.
2. The seed should be placed between thumb and first finger of left hand.
3. The razor should be taken in the right hand with the edge of the blade facing inward and held at right angle to it.
4. The top portion of the seed should be dipped in water.
5. Then the seed should be cut in transverse sections as soon as possible in a watch glass containing water.
6. The thinnest part of the seed should be selected with the help of a delicate brush.
7. Thin section of the seed should be transferred into clean watch glass with water.
8. Few drops of safranin stain should be applied in the watch glass with water.
9. The seed should be left for 3-5 minutes.
10. Stain should be removed and cleaned with water if required.
11. The thinnest part should be placed in the center of the slide.
12. A drop of glycerine should be applied over the seed.
13. The seed should be covered with a coverslip with the help of needle.
14. The seed should be observed under a compound microscope after staining and mounting.

## **Result :**

The gross anatomical study of Coriander was performed and determined.