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Diploma in Pharmacy 1st Year
Pharmacognosy
Experiment

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

Aim:

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

Reference :

Dr. Gupta G.D , Dr. Sharma Shailesh , Kaur Navjit , "Practical Manual of Pharmacognosy" Published by Nirali Prakashan , Pg.No 71 - 74

Biological Sources:

Cinnamon is the dried inner bark of coppiced shoots of *Cinnamomum zeylanicum Nees*. which belongs to the Lauraceae family.

Materials and Apparatus Required

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

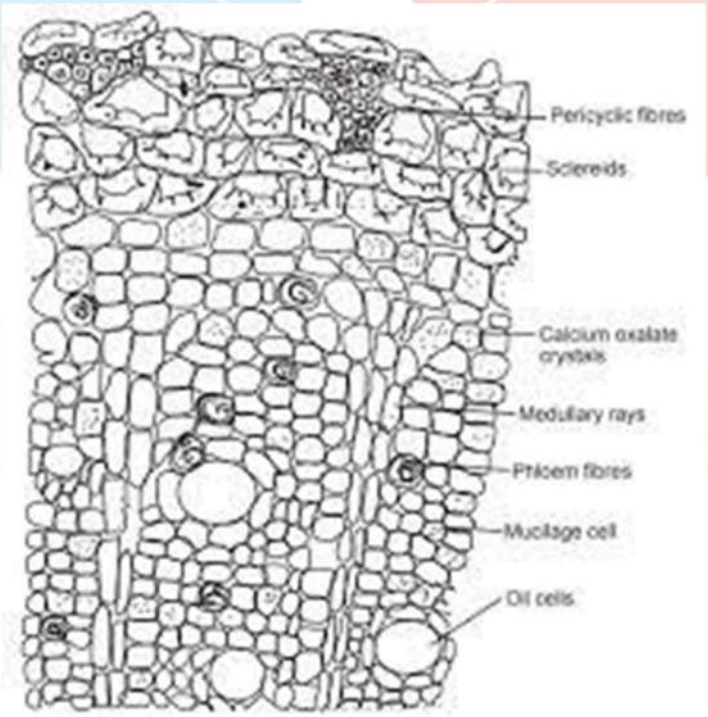
Theory

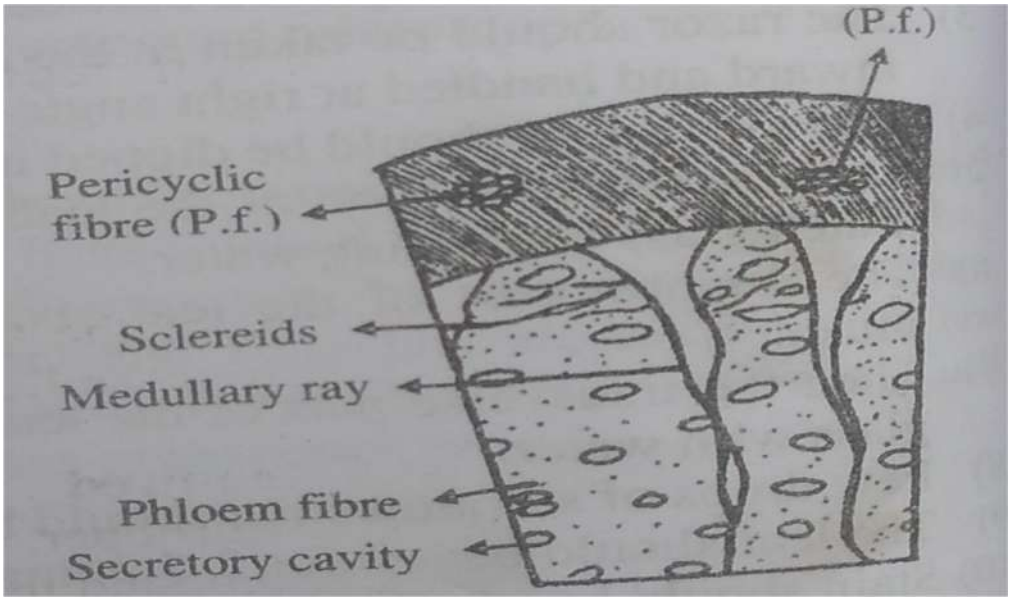
- Clove obtained from the inner bark of the trees of genus Cinnamomum is majorly used in sweet and savoury foods.

Microscopic Character

- Sclereids : These are lignified, pitted, thick-walled isodiametric cells with a thick wall. They have a classic U-shaped form. It has a few starch grains in it.
- Peficyclic Fibers: They are small, long, thick-walled, lignified fibres that are scanned in sclereids.
- Secondary Phloem: Phloem parenchyma, fibres, and medullary rays make up secondary phloem.

- Phloem Parenchyma: They are polygonal, cellulosic, and have a thin wall. Starch grains and acicular calcium oxalate crystals are stored in them. Idioblasts are longitudinally elongated and have mucilage or volatile oil. The tissue of the sieve tube is embedded in the phloem parenchyma.
- Medullary Rays: Cellulosic, tangentially elongated, Uni- or biseriate medullary rays that emerge from the centre and ends in the cortex.
- Other Properties: The width of the phloem fibres and the size of the starch grains are major distinguishing characteristics of cinnamon, especially when compared to cassia bark. In cortical parenchyma and medullary rays, starch grains are found. In the cells of parenchyma, calcium oxalate crystals have been observed.





Procedure

Taking Sections :

- The dissected plant should be placed between index finger and thumb, keeping the razor's edge perpendicular to the plant's longitudinal axis. It should be cut down into thin sections.
- These sections should be shifted into a watch glass with the help of a brush using the edge of blade. The watch glass must hold water.

Process of Staining :

- 2 to 4 thin transverse section should be picked and shifted to a different watch glass which contains safranin stain.
- The seed should be left completely rest in the stain for few minutes.
- After a while, the section of the stain should be removed and rinsed again with water to remove any extra strain.

Mounting :

- Stained section should be placed in the middle of the clean slide and mount it with water or glycerine.
- The coverslip should be placed slowly using a needle.
- Blotting paper can be used to remove excess water or glycerine from the edge of the coverslip.
- It should be confirmed that no air bubbles emerge during the mounted process.

Precautionary Measures :

- Enough water should be available to both the blade and the substance during dissecting the segment.
- A brush should be used during working with sections.
- The coverslip should be gently placed to prevent air bubbles.
- Using filter paper excess glycerine can be removed.

Result

The gross anatomical study of Cinnamon was performed and determined.