Transverse Section Microscopy of Ajwain

Experiment 17 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Aim

To study a transverse section of the assigned ajwain fruit and record diagnostic tissues.

Principle

A thin transverse section reveals how protective, conducting, supporting, storage and secretory tissues are arranged. A mericarp section shows outer pericarp, ridges with vascular tissue, oil ducts (vittae), seed coat and endosperm.

Identity and Drawing Guide

Field	Guide
Botanical source	Trachyspermum ammi
Family	Apiaceae
Part	Fruit
Labels to include	Label ridges, vascular bundles, vittae, endosperm and the commissural region.

Requirements

- Authenticated prepared section or teacher-assigned sectioning material
- Compound microscope, slides, coverslips and approved mountant/stains
- Pencil and labelled drawing sheet

Procedure

1. Verify material

Record botanical source, part, specimen treatment and section level.

2. Prepare or select slide

Use the assigned thin section or prepared slide; select an intact representative region.

3. Survey at low power

Identify the tissue outline and major regions before increasing magnification.

4. Examine diagnostic details

Locate supporting and secretory features. Oil ducts and mericarp architecture support identification.

5. Draw and label

Label ridges, vascular bundles, vittae, endosperm and the commissural region.

6. Compare

Compare with authenticated material and write which observed features support identity.

Observations and Record

Feature	Actual observation / drawing label
Outer protective region	_____
Ground / storage tissue	_____
Vascular arrangement	_____
Diagnostic structure	_____
Magnification / scale	_____

Result

Diagnostic tissues observed: _____. The section _____ supports the assigned identity because _____.

Precautions

- Volatile-oil ducts are secretory structures, not xylem vessels.
- Use prepared slides for toxic material and avoid direct exposure to powders.
- Do not mistake folds, air bubbles or stain deposits for diagnostic structures.
- Start with low power and record magnification.

Viva Questions and Answers

1. What is a transverse section?

A section cut across the long axis or specified plane of the material.

2. Why is tissue arrangement important?

The pattern helps distinguish plant parts and authentic materials.

3. Which feature is especially useful here?

Oil ducts and mericarp architecture support identification.

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