

Transverse Section Microscopy of Curcuma

Experiment 25 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Aim

To study a transverse section of the assigned curcuma rhizome and record diagnostic tissues.

Principle

A thin transverse section reveals how protective, conducting, supporting, storage and secretory tissues are arranged. A rhizome section contains outer protective tissue, parenchyma, numerous starch grains, secretory cells and scattered vascular bundles.

Identity and Drawing Guide

Field	Guide
Botanical source	Curcuma longa
Family	Zingiberaceae
Part	Rhizome
Labels to include	Label outer tissue, ground parenchyma, vascular bundles, starch and coloured secretory contents.

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. Starch-rich rhizome tissue and characteristic coloured contents are useful together.

Pharmacognosy

5. Draw and label

Label outer tissue, ground parenchyma, vascular bundles, starch and coloured secretory contents.

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

- Commercial curing affects starch appearance; record specimen treatment.
- 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?

Starch-rich rhizome tissue and characteristic coloured contents are useful together.

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