Transverse Section Microscopy of Liquorice

Experiment 23 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Aim

To study a transverse section of the assigned liquorice root or stolon and record diagnostic tissues.

Principle

A thin transverse section reveals how protective, conducting, supporting, storage and secretory tissues are arranged. Secondary vascular tissue contains vessels, fibres, rays and starch-bearing parenchyma; crystal-bearing cells can accompany fibre groups.

Identity and Drawing Guide

Field	Guide
Botanical source	Glycyrrhiza glabra / assigned pharmacopoeial Glycyrrhiza species
Family	Fabaceae
Part	Root or stolon
Labels to include	Label cork if retained, phloem, cambium, xylem vessels, fibres, rays and observed crystals.

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. Vessel, fibre, starch and crystal features are assessed together.

5. Draw and label

Label cork if retained, phloem, cambium, xylem vessels, fibres, rays and observed crystals.

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

- Roots and stolons may differ, including the presence of a pith in stolons.
- 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?

Vessel, fibre, starch and crystal features are assessed together.

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