

Cell Walls and Cell Inclusions

Experiment 2 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Aim

To recognise wall types and cellular inclusions in prepared plant material.

Principle

Wall structure and intracellular inclusions can provide microscopic evidence of a plant tissue. Lignified walls, starch and calcium oxalate are different structures and require appropriate comparison.

Requirements

- Instructor-provided labelled diagrams, traces or data for this activity.
- Calculator, graph paper or spreadsheet, and the activity record.

Procedure

1. Locate the structures

Find epidermal, parenchymal, fibrous and vessel elements in the prepared material.

2. Compare wall features

Record thin or thick walls, pits and lignified elements using the assigned stain or image legend.

3. Identify inclusions

Use prepared images to distinguish starch grains, crystals and secretory material; draw each labelled observation.

Pharmacognosy and Phytopharmaceuticals

4. Record limits

Do not name a plant solely because a common inclusion is present.

Observations and Record

Record item	Entry
Activity / material identifier	_____
Measurement or visible feature	_____
Comparison / calculated outcome	_____
Interpretation and limitation	_____

Result

The recorded finding is ____; the supporting observation or calculation is _____. The main limitation is _____.

Precautions

- Use the supplied teaching material; distinguish a measured observation from an assumed value.
- Keep units, axes, labels and measurement conditions consistent.
- Record limitations and seek instructor review before applying a conclusion to a live case.

Viva Questions and Answers

1. What is the main endpoint?

Recognise wall types and cellular inclusions in prepared plant material.

2. Does one observed result prove a general conclusion?

No. Controls, repeatability and the limitations of the method must be considered.

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