

Determination of Vein-Islet, Vein-Termination and Palisade Measurements

Practical 09 | Pharmacognosy and Phytochemistry I

Aim

To determine Vein-Islet, Vein-Termination and Palisade Measurements, and interpret the recorded observations.

Principle

- Vein-islet and termination counts use a defined leaf area; palisade ratio relates underlying palisade cells to the selected epidermal-cell area.
- The property is obtained from a defined observable under controlled conditions.
- Replicate measurements, instrument checks and consistent units are needed before comparison.

Materials and Apparatus

- Prepared cleared-leaf/palisade teaching mounts and calibrated viewing area.
- Assigned test material and calibration or comparison material.
- The apparatus specified for this property, a balance or volumetric equipment where relevant, and a record sheet.

Method

1. Identify the measured property, units and controlled variables before setting up the apparatus.
2. Check the instrument, zero or calibration and record the relevant operating conditions.
3. Prepare a representative measured portion without changing its intended composition.
4. Obtain the readings specified for the property and repeat under the same conditions.
5. Calculate the required property, including corrections stated for the apparatus or method.
6. Summarize the replicate results and explain the effect of the variable studied.

Observation Record

Complete this record using actual laboratory findings or the provided teaching data.

Observation / parameter	Record / finding
Area	_____
Vein islets	_____
Vein terminations	_____
Epidermal cells	_____
Underlying palisade cells	_____

Calculations and Interpretation

- Vein-islet number = islets counted/area examined.
- Vein-termination number = terminations counted/area examined.
- Palisade ratio = palisade-cell count associated with the selected epidermal cells/number of those epidermal cells, using the assigned convention.

Result

Record the actual finding, calculated value with units where relevant, and a conclusion supported by the observations.

Finding: _____

Conclusion: _____

Precautions

- Keep temperature and test conditions consistent across comparative readings.
- Record raw readings before rounding calculated values.
- Do not compare results obtained with different methods as if they were interchangeable.

Viva Questions

1. Why control the test conditions?

A change in conditions may alter the measured property independently of the intended variable.

2. Why retain replicate readings?

They show repeatability and help identify an anomalous measurement.

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