

Determination of Fibre Length and Width

Practical 11 | Pharmacognosy and Phytochemistry I

Aim

To determine Fibre Length and Width, and interpret the recorded observations.

Principle

- Micrometric measurements distinguish longitudinal length from transverse width and require a suitable calibrated objective for each.
- 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 fibre mounts and calibrated microscope.
- 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. Calibrate the objective used for the longitudinal and transverse measurements.
2. Identify fibres in the prepared mount.
3. Record the endpoints used for fibre length and width.
4. Measure representative fibres without confusing folded or broken objects with intact fibres.
5. Convert divisions to micrometres and summarize the readings.
6. State the preparation and measurement limitations.

Observation Record

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

Observation / parameter	Record / finding
Fibre identity	_____
Length divisions	_____
Width divisions	_____
Calibration	_____
Replicates	_____

Calculations and Interpretation

- Length or width in micrometres = measured divisions × applicable calibration.
- Report the range and mean for the assigned number of fibres.

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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