

Determination of Starch-Grain Number by Lycopodium Method

Practical 12 | Pharmacognosy and Phytochemistry I

Aim

To determine Starch-Grain Number by Lycopodium Method, and interpret the recorded observations.

Principle

- A known spore-count standard allows a ratio estimate of test particles in a uniformly represented teaching mixture.
- 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

- Instructor-prepared counting mounts, known lycopodium standard and 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. Review the known standard mass and its stated spores-per-gram value.
2. Identify the test mass and the instructor-prepared mixture/mount.
3. Count test grains and standard spores in representative comparable fields.
4. Retain repeated counts and check whether the preparation supports a ratio estimate.
5. Apply the count-ratio and mass correction in the stated equation.
6. Report the estimated number per gram and the standard/counting basis.

Observation Record

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

Observation / parameter	Record / finding
Test mass w	_____
Standard mass l	_____
Spores per gram S	_____
Grain count n	_____
Spore count s	_____

Calculations and Interpretation

- Estimated grains per g = $(n/s) \times (l \times S)/w$.
- Use consistent mass units, representative fields and the assigned standard count.

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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