First Hope

COMPLETE NOTES

Click here to visit our website

PHARMACY PRACTICAL NOTES

Complete subject and semesters are available on FirstHope app only.

Scan or click here

Click here to get the app >

Available on Google Play

JOIN THE FIRSTHOPE COMMUNITY

Join our Telegram channel

Click here to join Telegram >

Scan or click here

@FirstHopeNotes

Instagram

@firsthope.official

Click here to follow >

YouTube channel

FirstHope-Pharmacy / Live streams

Click here to watch >

WhatsApp channel

Follow FirstHope on WhatsApp

Click here to join >

FirstHope website

firsthope.co.in

Click here to visit >

B.Pharm / D.Pharm / M.Pharm / Pharm.D

Complete subjects and semesters are available in the FirstHope app.

Total Alkaloid Content of Herbal Materials

Practical 9 - Analytical practical

Aim

To estimate method-defined alkaloid-equivalent content in an authenticated herbal material.

Principle

Use a validated class-appropriate extraction and calibrated assay; no single response quantifies every alkaloid equally. Results must state the chosen reference equivalent and extraction basis.

The test preparation, blank, calibration or titrant standardisation and independent controls are part of the measurement. State the actual concentration units, test conditions and adopted method before interpreting the result.

Materials and Requirements

- Authenticated material and validated class assay
- the specified alkaloid standard reference and suitable extraction blank
- Calibrated spectrophotometer or selected validated detector
- Qualified balance and volumetric equipment
- Controlled method and raw-data worksheet

Procedure

1. Identify the material, intended attribute, method version and acceptance criteria. Record preparation and instrument or reagent identities.
2. Prepare the prescribed blank and reference or standardised reagent. Verify the measurement with an independent check where applicable.
3. Prepare the extract and reference series using the method-specific reaction and measurement conditions.
4. Evaluate native-colour, reagent and matrix interference and a recovery control.
5. Calculate reference-equivalent concentration and convert to the stated original-material or extract basis.
6. Record individual readings for independently prepared test portions. Keep all raw observations, including unsuccessful measurements and their investigation.
7. Calculate the result on the stated mass, volume or area basis, including dilution, blank and recovery corrections as justified.
8. Compare the evidence with the applicable criteria and write a conclusion limited to the tested preparation and conditions.

Observations and Record

Enter actual measurements or the supplied teaching data. Record the method, material identity, conditions and units.

Preparation / attribute	Method condition	Raw measurement	Calculated result
Extraction blank	Record	Record	Calculate
Reference series	Record	Record	Calculate
Recovery control	Record	Record	Calculate
Test preparation	Record	Record	Calculate

Calculations

• Equivalent content (mg/g) = calibrated equivalent concentration (mg/mL) x extract volume (mL) x dilution / material mass (g)

Worked Example

Illustrative equivalent concentration 0.10 mg/mL in 25.0 mL from 0.50 g material gives 5.0 mg reference equivalents/g.

This is not automatically 5 mg/g of every constituent in the class.

Result and Interpretation

• Report the specified alkaloid standard equivalents, method selectivity and mass/moisture basis.

• Report replicate variability and the evidence that the method can measure the intended attribute in this matrix.

Precautions

• Do not omit matrix blanks.

• Control reaction time, temperature and wavelength.

• Do not infer biological efficacy from a class-equivalent assay.

• Use the adopted laboratory procedure, suitable controls and the designated waste arrangements.

Viva Questions and Answers

Why name the reference?

It defines the equivalent response basis.

Why can class assays disagree?

Different chemistries respond to different subsets and interferents.

Does total content identify individual compounds?

Individual constituent analysis is a separate task.

First Hope

COMPLETE NOTES

Click here to visit our website

PHARMACY PRACTICAL NOTES

Complete subject and semesters are available on FirstHope app only.

Scan or click here

Click here to get the app >

Available on Google Play

JOIN THE FIRSTHOPE COMMUNITY

Join our Telegram channel

Click here to join Telegram >

Scan or click here

@FirstHopeNotes

Instagram

@firsthope.official

Click here to follow >

YouTube channel

FirstHope-Pharmacy / Live streams

Click here to watch >

WhatsApp channel

Follow FirstHope on WhatsApp

Click here to join >

FirstHope website

firsthope.co.in

Click here to visit >

B.Pharm / D.Pharm / M.Pharm / Pharm.D

Complete subjects and semesters are available in the FirstHope app.