Serum Urea Estimation

Experiment 13 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Aim

To determine urea by the assigned urea assay.

Principle

Urea can be measured through urease-generated products or another specified validated reaction. Urea concentration and blood urea nitrogen are different reporting bases.

Requirements

- Assigned test material and the prescribed method reagents or standards.
- Calibrated volumetric glassware, appropriate instrument and record sheet.

Procedure

1. Prepare and identify the test

Confirm the analyte, method version, concentration basis and test-portion amount. Prepare the test solution as specified and record any dilution.

2. Set the measurement basis

Check the instrument or standardised titrant. Prepare the specified blank, standard and control so that the test and comparison use the same basis.

3. Make the measurement

Apply the prescribed the assigned urea assay method and record blank-corrected response against a urea standard. Record replicate readings and any interfering appearance.

4. Calculate

Apply the stated equation with the correct blank correction, dilution and unit conversion. Show the substitution and retain the observed readings.

5. Assess the result

Compare replicate agreement and the assigned specification. Record a result with units and the limitations of the method.

Observations and Record

Measurement	Reading
Test portion / dilution	_____
Blank / standard	_____
blank-corrected response against a urea standard	_____
Calculated content and unit	_____

Worked Example

The numbers below are illustrative; enter your own observations in the record.

- Concentration = corrected response ratio × urea-standard concentration × dilution factor.
- For conventional mg/dL units, BUN ≈ urea ÷ 2.14. Thus a teaching urea value of 42.8 mg/dL corresponds to BUN 20 mg/dL; do not apply this conversion to a value already reported as BUN.

Result

Record the completed observations, calculations and conclusion with units. State any limitation of the observation.

Precautions

- Use the exact method reagents and assigned endpoint; different methods are not interchangeable.
- Record the blank correction and the actual test portion rather than an assumed value.
- Hazardous reagent operations require the specified laboratory facilities and supervision.

Viva Questions and Answers

1. What produces the analytical signal?

Urea can be measured through urease-generated products or another specified validated reaction. Urea concentration and blood urea nitrogen are different reporting bases.

2. Why include a blank or control?

It identifies contributions unrelated to the analyte or checks that the measurement system performed appropriately.

3. What must accompany the result?

Units, method, dilution basis, relevant control performance and any limitation.

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.