

Date Name Group

Lab report from the practical lesson on biochemistry

Topic: Proteins in serum and urine

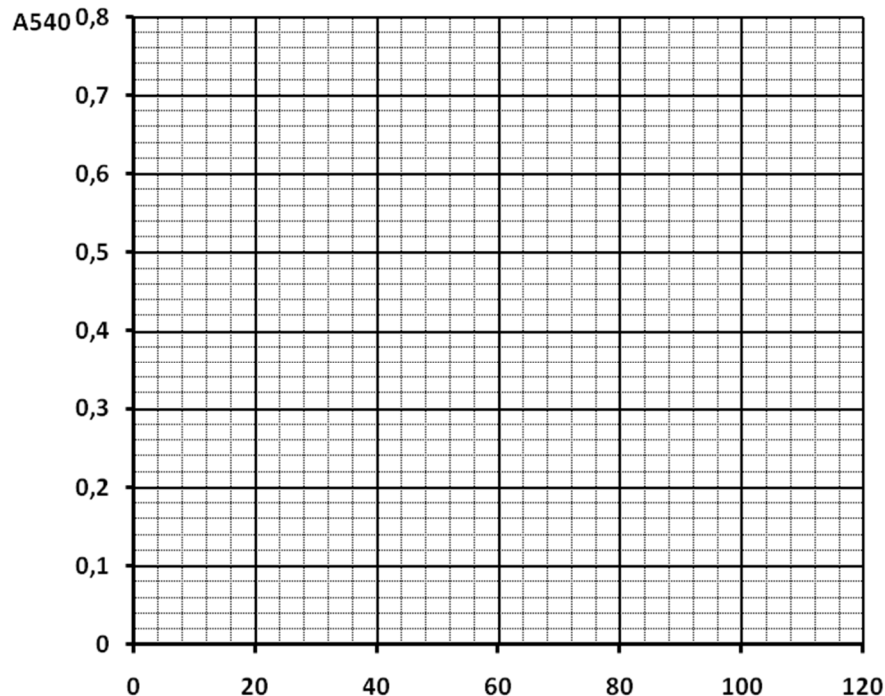
Task 1: Estimation of total serum protein with the biuret method

1. Principle:

2. Results:

	Test tube 1	Test tube 2	Test tube 3	Test tube 4	Test tube 5	Test tube 6	Test tube 7
	St.1 20 g/l	St.2 40 g/l	St.3 60 g/l	St.4 80 g/l	St.5 100 g/l	Unknown	Blank
A ₅₄₀							0

3. Reading of protein concentration from calibration graph:



Result:

Concentration of total protein in the unknown sample is:

.....

4. Conclusion:

Compare the total protein concentration measured in the unknown sample with the reference range.

Task 2: Estimation of serum concentration of albumin

1. Principle:

2. Results and evaluation:

	Test tube 1 Sample	Test tube 2 Standard	Test tube 3 Blank
A_{630}			0

$$\text{S-albumin (g/l)} = \frac{A_{\text{sample}}}{A_{\text{standard}}} \times \text{standard concentration}$$

$$\text{S-albumin (g/l)} =$$

3. Conclusion:

Compare the albumin concentration measured in the unknown serum sample with the reference range.

Task 3: Evaluation of electrophoresis of serum proteins

1. Principle:

2. Experiment and evaluation:

Authentic electrophoreograms of serum proteins are available.

Evaluate three of them. Redraw their densitometric records here and try to determine what type of dysproteinemia is present.

Task 4: Qualitative estimation of protein in urine

1. Principle:

2. Results:

Test	Urine with protein	Urine without protein
Sulfosalicylic acid		
Test strip		

Task 5: Quantitative estimation of protein in urine

1. Principle:

2. Results:

	Test tube 1 Sample	Test tube 2 Standard	Test tube 3 Blank
A_{600}			0

3. Evaluation:

Concentration of protein in urine (U-protein):

$$\text{U-protein (g/l)} = \frac{A_{\text{sample}}}{A_{\text{standard}}} \times \text{standard concentration}$$

U-protein (g/l) =

Loss of protein to urine per 24 hours (dU-protein):

$$\text{dU-protein (g/24 h)} = \text{U-protein (g/l)} \times \text{diuresis (l/24 h)}$$

dU-protein (g/24 h) =

4. Conclusion:

Interpret the measured values.

Task 6: Evaluation of electrophoresis of urinary proteins

1. Principle:

2. Experiment and evaluation:

Authentic electrophoreograms of urinary proteins are available. Evaluate three of them. Draw the positions of the observed protein fractions here and try to determine what type of proteinuria is present.