



**AL-Mustaqbal University College
Medical laboratory Techniques
Department**

**Practical Clinical Biochemistry
Lecture One (1)**

(Determination of glucose in blood)

Lecturer : M. Sc. Noor Qahtan Sabri

Glucose

It is a type of simple or monosaccharide which a person obtains from food, and uses it to produce the energy needed for the body. Glucose carries the chemical formula (C₆H₁₂O₆).

Blood sugar or blood glucose which is easily absorbed to enter the bloodstream and travels through it to reach the cells.

Glucose concentration may be determined in whole blood, plasma, or serum samples .

Rapid separation of the sample will prevent glycolysis and will allow the sample to be used for other determinations.

Glucose oxidase is widely used method for measuring blood glucose level. In the glucose oxidase assay, the glucose is first oxidized by glucose oxidase to produce gluconate and hydrogen peroxide. The hydrogen peroxide is then be used to oxidize a chromogen to produce a red colored compound which can measured by spectrophotometer



Conditions associated with hyperglycaemia:

- ✓ Diabetes mellitus
- ✓ Cushing's syndrome (Adrenal cortical hyperactivity)
- ✓ Hyperthyroidism
- ✓ Acromegaly (increase growth hormone)
- ✓ Obesity

Symptoms of Hyperglycemia:

- 1- blood glucose over 240 mg/dl
- 2- more urine output than usual
- 3- increased thirst.
- 4- dry skin and mouth.
- 5- blurred vision.
- 6- Slow healing of wounds.

***NO.EXP = 1**

***Name of EXP:(** Determination of glucose in blood)

***The purpose of the experiment:** To estimate the level of sugar in the blood

***Equipment and tools:**1- Spectrophotometer

2- Centrifuges 3- Water bath 4- Micropipettes

5- Tubes, cuvettes, tourniquet, syringes ,cotton, plain tubes, yellow and blue tips



Procedure:

- 1- Take the blood from the person.
- 2- Centerifuge the blood to gets the serum.
- 3-Prepare three test tubes and making the additions

	Blank	Standard	Test
Reagent	1ML	1ML	1ML
Standard	10 μ
Serum	10 μ
D.W	10 μ

4- Mix well and let for 5 minutes at 37o C or 10 minutes at room temperature.

5-Read the absorbance for standard and test against the blank at wave length 500 nm.

Calculations:-

Con. of test = (Abs. of test/Abs. of standard) *100 mg/dL

The normal range is:

***Adults 70-105 mg/dL (3.89-5.83 mmol/L)**

***Children 60-110 mg/dL (3.33-6.11 mmol/L)**

***Newborns 40-60 mg/dL (2.22-3.33 mmol/L)**

Discussion and Conclusion

Your blood sugar may rise if you:

- *Skip or forget your insulin or oral glucose-lowering medicine
- *Eat too many grams of carbohydrates.
- * Have an infection
- * Are under stress
- * Take part in strenuous physical activity, especially when your blood sugar levels are high and insulin levels are low.

Hypoglycemia:

1. As a result of over – dosage of insulin in the treatment of diabetes mellitus.
2. Starvation.
3. Pancreatic tumors.
4. Hormone deficiency.
5. Excessive alcohol intake.