Exp #1

Glucose

Quantitative determination of glucose in serum or plasma

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Glucose is a major carbohydrate present in the peripheral blood . The oxidation of glucose is the major source of cellular energy in the body. Glucose determinations help to .(diagnose and treat the diabetes mellitus(D.M

The blood glucose level is normally maintained within a narrow range under various conditions by hormones ,such .as insulin, glucagon, or epinephrine

Patients with diabetes demonstrate an inability to produce .insulin

Clinical diagnosis should not be made on a single test .result

:Clinical significant

:Elevated glucose associated with

pancreatitis, pituitary or thyroid dysfunction, renal failure and liver disease

:Low glucose associated with

insulinoma, hypopituitarism , neoplasms, or insulin hypoglycemia

:Principle

$$\text{Glucose} + O_2 + H_2O \xrightarrow{\text{GOD}} \text{Gluconic acid} + H_2O_2$$

$$H_2O_2 + \text{4 aminoantipyrine} + \text{PHBA} \xrightarrow{\text{POD}} \text{quinoneimine dye(red color)} + 4H_2O$$

The quinoneimine dye has an absorption maximum at 510 nm. The amount of color produced is directly proportional to the glucose content of the sample

*GOD=glucose oxidase

*PHBS=p-hydroxybenzoic acid

*POD=peroxidase

***Specimen:**

Serum or plasma or CSF

Free of hemolysis or clot(glycolysis)

Stability: stable at 2-8 ºC for one day.

:Procedure

:Assays conditions .1

Wavelength……..505 nm

Cuvette……1 cm light path

Temperature…….37 ºc

Adjust the instrument to zero with distilled water. 2

Pipette into a cuvette .3

	STD	Test Tube
WR - µl	**1000**	**1000**
STD	**10**	**--**
Test	**--**	

Mix and incubate for 10 min at 37ºc .4

.Read the absorbance (A) at 505 nm .5

The color is stable for at least 60 min *

Calculation

A)Sample x 100(std conc)= mg/dl)

A)standard)

:Normal Range

Fasting……75-115 mg/dl