Asritha
Quality First
www.asrithadiatech.in

GLUCOSE KIT (Mono Reagent)

(GOD /PAP method)
For the determination of Glucose in serum, plasma, & CSF.
(For In vitro Diagnostic Use Only)

CLINICAL SIGNIFICANCE

Glucose is the major carbohydrate present in blood. Its oxidation in the cells is the source of energy for the body.

INCREASES

Increased levels of glucose are found in diabetes mellitus, hyperparathyroidism, pancreatitis, renal failure.

DECREASES

Decreased levels are found in insulinoma, hypothyroidism, hypopituitarism and extensive liver disease.

METHODOLOGY : GOD / PAP method

PRINCIPLE

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

$$H_2O_2 + 4\ \text{AAP} + \text{Phenol} \xrightarrow{\text{POD}} \text{Red Quinoneimine dye} + H_2O$$

GOD – Glucose Oxidase 4AAP – 4 Amino Antipyrine
POD – Peroxidase

Intensity of the colour formed is directly proportional to the amount of glucose present in the sample.

REAGENT COMPOSITION

GOD ≥ 13 KU/L ≥ 4-AAP ≥ 1 mmol/L
POD ≥ 2 KU/L ≥ Buffer ≥ 180 mmol/L
Phenol ≥ 6 mmol/L Stabilizers and Activator

GLUCOSE STANDARD – 100mg/dl

STORAGE / STABILITY

Contents are stable at 2-8°C till the expiry mentioned on the labels. Upon storage the Glucose reagent may develop a slight pink colour. This does not affect the performance of the test.

REAGENT PREPARATION

Reagents are ready to use.

SAMPLE MATERIAL

Serum, plasma, CSF, Glucose is reported to be stable in the sample for 7 days when stored at 2-8°C.

ASSAY PARAMETERS

Reaction	End point	**Interval**	-
Wavelength	505 nm	**Sample Vol.**	0.01 ml
Zero Settings	Reagent blank	**Reagent Vol.**	1.0 ml
Incub. Temp	37°C / R.T	**Standard**	100 mg / dl
Incub Time	10 min / 15 min	**Factor**	-
Delay Time	-	**React. Slope**	Increasing
Read Time	-	**Linearity**	600 mg/dl
No. of read.	-	**Units**	mg/dl

ASSAY PROCEDURE

Wavelength / filter : 505 nm (Hg 546 nm) / Green
Temperature : 37° C / R.T.
Light path : 1 cm

Pipette into clean dry test tubes labelled as Blank (B), Standard (S), and Test (T):

Addition Sequence	B (ml)	S (ml)	T (ml)
Glucose Mono Reagent (A1)	1.0	1.0	1.0
Glucose Standard (S)	-	0.01	-
Sample	-	-	0.01

Mix well and incubate at 37^{0}C for 10 min or at R.T.(25^{0}C) for 15 min. Measure absorbance of the Standard (Abs.S) and Test Sample (Abs.T) against Blank.

CALCULATIONS

$$\text{Glucose in mg/dl} = \frac{\text{Abs.T}}{\text{Abs.S}} \times 100$$

KINETIC PROCEDURE:

Bring the Glucose Mono reagent to R.T. before use, pipette into test tubes labelled Standard (S) and Test (T) as follows:

ADDITION SEQUENCE	S	T
Glucose Mono Reagent	1.0 ml	1.0 ml
Standard	0.01 ml	-
Specimen	-	0.01 ml

Mix well and read absorbance of S and T at 37°C against distilled water at 505 nm (500-540) kinetically as follows:

Initial absorbance A0 = Exactly after 20 sec.

Final absorbance A1 = Exactly 40 sec, after A0.

Determine Δ Abs for S and T.

Δ Abs S = Abs S_1 – Abs S0

Δ Abs T = Abs T_1 – Abs T0.

CALCULATIONS

$$\text{Glucose in mg/dl} = \frac{\Delta \text{ Abs T}}{\Delta \text{ Abs S}} \times 100$$

LINEARITY

This procedure is linear upto 600 mg/dl. If values exceed this limit, dilute the serum with normal saline (NaCl 0.9%) and repeat the assay, calculate the value using the proper dilution factor.

NOTES

To avoid glycolysis the serum should be separated from the clot as soon as possible, and plasma should be collected in an EDTA + fluoride bulb (0.5 mg + 1 mg per ml of blood).

QUALITY CONTROL

To ensure adequate quality control each run should include assayed Normal and Abnormal controls.

NORMAL REFERENCE VALUES

Serum/ Plasma Fasting	:	70-110 mg/dl
Post prandial	:	Upto 150 mg/dl
CSF	:	50-80 mg/dl

It is recommended that each laboratory establish its own normal range representing its patient population.

REFERENCES: A

Trinder, P., (1969) Ann. Clin. Biochem. 6:24

PRESENTATION

PRODUCT CODE	PACK SIZE	GLUCOSE Mono REAGENT (A_1)	STANDARD (S)
AGM 0614	3 x 100 ml	3 Nos x 100ml	5 ml
AGM 0615	2 x 500 ml	2 Nos x 500ml	2 x 5 ml
AGM 0649	5 x 100 ml	5 Nos x 100 ml	2 x 5ml

PRODUCT FEATURES AT A GLANCE :

1. **One step Direct liquid reagent.**
2. **Two in One End point and Kinetic.**
3. **Specially Stabilized for Tropical Environment.**
4. **Highest linearity 600 mg/dl Endpoint, 1000 mg/dl Kinetic method.**
5. **Shelf Life – 18 months at 2-8^0 c.**
6. **Convenient pack size 3 x 100 ml, 2 x 500 ml.**

Asritha
Quality First

ASRITHA DIATECH INDIA PVT. LTD.

IN VITRO DIAGNOSTIC REAGENTS

5-5-35/206,1st Floor, Prasanth Nagar (I.E), Kukatpally, Hyderabad-500 072, Telangana, INDIA.
E-mail: asrithadiatech.india@gmail.com, sales.asritha@gmail.com, www.asrithadiatech.in