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GLUCOSE GOD/PAP

FREEZE DRIED



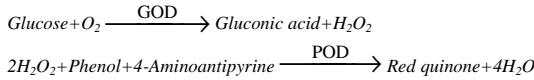
Cat. No.: 40851 40882
4x250 ml 40x500 ml

Reagent kit for the quantitative determination of glucose concentration in serum, liquor. Enzymatic colorimetric method (GOD/POD/PAP).

Determination of glucose concentration is important in the diagnosis and treatment of disorders of carbohydrate metabolism. Values higher or lower than the reference are of diagnostic significance. The levels are increased in diabetes mellitus, hyperthyroidism and in the hyperactivity of the pituitary gland. Decreased levels are observed in cases of overproduction of insulin by the pancreas, with tumors of the pancreas, as well as with hypofunction of the organs involved in glucose synthesis and carbohydrate metabolism.

Principle

Glucose oxidase (GOD) converts the sample Glucose into gluconate. The Hydrogenperoxide (H₂O₂) produced in the reaction is degraded by peroxidase (POD) and gives a colored product Phenol and 4-Aminoantipyrine which is measurable using Trinder indicator reaction at 505 nm. The increase in absorbance correlates with the glucose concentration of the sample.



Reference values

Serum: 3.89-5.84 mmol/l (70-105 mg/dl)
Cerebrospinal fluid: 2.78-3.89 mmol/l (50 -70 mg/dl)

It is recommended that each laboratory should assign its own normal range.

Reagents

1.Reagent (R1)

Phosphate buffer, pH:7.5 90 mmol/l
Phenol 0.5 mmol/l

2.Reagent (R2)

Glucose oxidase ≥ 10000 U/l
Peroxidase ≥ 1000 U/l
4-Aminoantipyrine 2.5 mmol/l

3.Reagent (R3)

Standard

Glucose
See label for exact value.

Sample

Serum free of haemolysis.
Cerebrospinal fluid.

PROCEDURE

Preparation and stability of working reagent

Dissolve one vial of (R2) in appropriate amount of (R1).

Stability (in brown vial):

at 20-25 °C: 14 days
at 2-8 °C: 30 days

If the absorbance of working reagent is higher than 0.1 at 492 nm the reagent can not be used.

Assay conditions

Wavelength: 505 (490-520) nm
Temperature: 37 °C
Cuvette: 1 cm light path
Method: endpoint (increasing)
Read against: reagent blank

Pipette into cuvette

	Blank	Standard	Sample
Working reagent	1 ml	1 ml	1 ml
Distilled water	10µl		
Standard		10µl	
Sample			10µl

Mix and measure the absorbance (A) after a five-minute incubation at 37°C or after a ten-minute incubation at room temperature.

Calibration (37°C, GOD/PAP test)

S1: Distilled water

S2: Glucose standard found in the kit or

Roche C.F.A.S. (Calibrator for automated system) or

Randox Calibration Serum Level I or

Randox Calibration Serum Level II

Calibration frequency:

Two point calibration is recommended

- after reagent lot change,

- as required following quality control procedures.

Calculation using calibration

$$\frac{A_{\text{sample}}}{A_{\text{standard}}} \times C_{\text{standard}} = C_{\text{sample}}$$

A = Absorbance, C = Concentration

Quality control

A quality control program is recommended for all clinical laboratories. The analysis of control material in both the normal and abnormal ranges with each assay is recommended for monitoring the performance of the procedure. Each laboratory should establish corrective measures to be taken if values fall outside the limits.

PERFORMANCES DATA

The following data were obtained using the Olympus 600 analyzer (37°C).

Linearity

The test is linear up to 40 mmol/l (720 mg/dl).

Sensitivity

It is recommended that each laboratory establishes its own range of sensitivity as this is limited by the sensitivity of the spectrophotometer used. Under manual conditions however, a change of 0.001 Abs is equivalent to 0.022 mmol/l (0.4 mg/dl) Glucose concentration at 492 nm.

Precision

	Reproducibility		
	Average concentration (mmol/l)	SD	CV%
Sample I.	5.9	0.095	1.62
Sample II.	13.6	0.340	2.50

	Repeatability		
	Average concentration (mmol/l)	SD	CV%
Sample I.	4.4	0.14	3.17
Sample II.	16.1	0.42	2.62

Correlation

Comparative studies were done to compare our reagent with our Glucose HK assay, on 57 human samples.

The results from these studies are detailed below.

Correlation coefficient: r=0.9950

Linear regression: y (mmol/l)= 0.962x+0.447

(x= glucose HK reagent , y= glucose powder reagent)

Specificity

Bilirubin 855 µmol/l (50 mg/dl), lipid 1000 mg/dl and ascorbic acid 2.84 mmol/l (50 mg/dl) don't interfere with the assay up to the given levels.

Note

With this assay the determination of glucose concentration in urine is not acceptable, because ascorbic acid influences the measurement. The reference method of glucose determination is the hexokinase and the glucose-6-phosphate-dehydrogenase (HK/G-6-PDH) UV test (It is also suitable for the determination of glucose concentration in urine).

Do not use reagents after the expiry date stated on each reagent container label. Do not use products, test solutions and reagents described above for any purpose other than described herein.

For in vitro diagnostic use only.

The following symbols are used on labels

For in vitro diagnostic use

Use by (last day of the month)

Temperature limitation

Batch Code

Code

Bibliography

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

Dingeon B. Ann. Biol. Clin. 33, 3(1975)

Lott J.A. Clin. Chem. 21, 1754 (1975)