



Folin & Wu's Alkaline Copper Solution

R006

It is used for determination of blood sugar by Folin Wu's method.

Composition**

Ingredients

Sodium carbonate	40.0gm
Tartaric acid	7.50gm
Copper sulphate	4.50gm
Distilled water	1000.0ml
Final pH (at 25°C)	9.9±0.5

**Formula adjusted, standardized to suit performance parameters

Directions

a) Deproteinisation:

- 1) Take 1 ml blood in a test tube.
- 2) Add 7 ml distilled water and 1 ml of 0.6 N H₂SO₄ and mix well. Allow it to react for 5-10 minutes.
- 3) Precipitate the proteins by adding 1 ml of 10% Sodium tungstate. Mix thoroughly and keep at room temperature for 10 minutes.
- 4) Centrifuge or filter through Whatman No. 1 filter paper.

b) Reduction and Colour Development:

- 1) Pipette out 2 ml of the above filtrate into a Folin-Wu tube labelled "Test".
- 2) Add 2 ml of standard glucose (100% in saturated benzoic acid) in to another Folin-Wu tube named "S".
- 3) Add 2.0ml Folin and WU's Alkaline Copper solution (R006) in each tube. Mix and keep in boiling water bath for 8 minutes.
- 4) Cool under running tap water.
- 5) Add 2.0 ml of Folin and WU's phosphate molybdate solution (R007) and dilute with distilled water to 25 ml mark. Mix well and keep for 5 minutes.
- 6) Read the colour of standards and test at 420 nm using distilled water as blank.

Blood glucose (mg/dl) = OD of T/OD of S x 100.

Principle And Interpretation

Glucose and other reducing substances under alkaline conditions reduce the cupric ions of the copper reagent to cuprous ions. Cuprous oxides reacts with phosphomolybdic acid to form molybdenum blue. Intensity of molybdenum blue is directly proportional to the reducing sugars present. It is measured at 420 nm and compared with a known standard.

Quality Control

Appearance

Sky blue coloured solution.

Clarity

Clear solution with no insoluble particles

Reaction

Reaction of the solution at 25°C.

pH

9.40-10.40

Test

Estimation of blood sugar is carried out by Folin and WU's method .

Results

The normal range for

- 1) Blood sugar fasting : 80-120 mg/dl.
- 2) Blood sugar P.P : Up to 140 mg/dl
(2 hours after lunch)

Storage and Shelf Life

Store below 30°C in tightly closed container and away from bright light. Use before expiry date on label.

Reference

- 1.) Text book of Medical Laboratory Technology; Praful B. Godkar

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