SODIUM (Phosphonazo III) CHEMPAK

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INTENDED USE:

(Phosphonazo III Method)

Reagent kit for quantitative estimation of sodium in human serum.

BACKGROUND AND SYNOPSIS:

Sodium is the major cation of extracellular fluid. It plays a central role in the maintenance of the normal distribution of water and the osmotic pressure in the various fluid compartments. The main source of body sodium is sodium chloride contained in ingested foods. Only about one-third of the total body's sodium is contained in the skeleton since most of it is contained in the extracellular body fluids.

Hyponatremia (low serum sodium level) is found in a variety of conditions including the following: severe polyuria, metabolic acidosis, Addison's disease, diarrhea, and renal tubular disease. Hypernatremia (increased serum sodium level) is found in the following conditions: hyperadrenalism, severe dehydration, diabetic coma after therapy within insulin, excess treatment with sodium salts.

PRINCIPLE:

The present method is based on reaction of sodium with a selective chromogen producing a chromophore whose absorbance varies directly as the concentration of sodium in the test specimen.

PRESENTATION :

	No. of Bottles
Reagents to be stored at 2-30^0 C	5 Test
Sodium (Liquid Reagent)	5
Sodium Standard (150 mmol/L)	1

PRECAUTIONS:

1. Materials intended to be used for this test will be perfectly clean since traces of detergent can be interfere with assay.
2. Contamination of glassware usually from detergents, result in falsely elevated concentrations. Therefore, glassware should be washed with Nitric Acid rinsed with high purity deionized water before use.
3. Sodium assay is an inverse reaction, hence blank is higher than the standard and test.

REAGENT STORAGE & STABILITY:

Reagents are stored at 2-30^{0}C. The reagents are stable until expiration date indicated on the package label.

SPECIMEN COLLECTION:

Serum (Hemolysed sera should not be used)

1. Serum should be separated from the clotted blood without delay to prevent any leakage of sodium from the RBC, which contains 23 times higher concentration of Sodium than the serum.
2. Lipemic samples should be avoided. Turbid or icteric samples produces falsely elevated sodium results.

REACTION PARAMETERS :

- Wavelength : 630 nm
- Cuvette Path Length : 1 cm
- Reaction Temperature R.T. : R.T.
- Measurement : Against Reagent Blank
- Sample/Reagent Ratio : 1:100
- Incubation : 5 minutes
- Blank absorbance limit : 1.2
- Low Normal : 135 mmol/L
- High Normal : 155 mmol/L
- Linearity : 200 mmol/L

PROCEDURE :

Sodium Assay

Pipette into test tubes labelled as standard(S) and Test(T)

	BLANK	STANDARD	TEST
Color Reagent	1 ml	1 ml	1 ml
Standard	-	10 µl	-
Serum	-	-	10 µl

CALCULATIONS:

$$\text{Sodium in mmol/L} = \frac{\text{Absorbance of Blank – Test}}{\text{Absorbance of Blank - Standard}} \times 150$$

NORMAL RANGE :

135 - 155 mmol/L.

It is strongly recommended that each laboratory establish its own normal range.

LINEARITY :

The method is linear between 200 mmol/L.

REFERENCES :

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