



AL-Mustaqbal University College

Medical laboratory Techniques Department

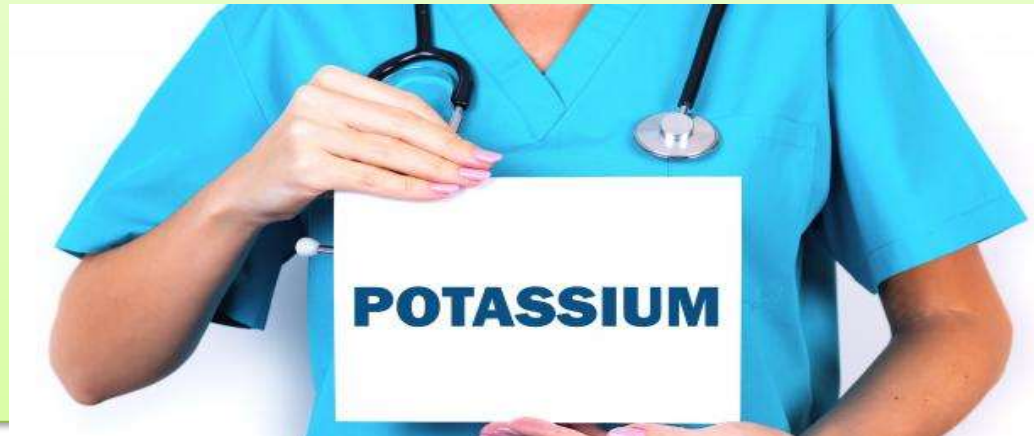
Clinical Biochemistry
(Potassium Test)



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Potassium

- Potassium is one of the body's electrolytes, which are minerals that carry an electrical charge when dissolved in body fluids such as blood. The body needs potassium in order for nerve and muscle cells to function.



Potassium test



❑ The potassium test is used to measure the amount of potassium in the blood. It is a mineral that is necessary for muscle and nerve function. Even small increases or decreases in the amount of potassium in the blood can lead to serious health problems.

❑ It plays an important role in maintaining electrical homeostasis at the cell surface. Potassium is of great importance in the process of communication between the different cells of the nervous system and the communication between nerves and muscles to ensure their proper contraction and relaxation. It is also important in the process of transmitting signals and nutrients from outside the cell to inside it.

Maintain potassium naturally

The credit for maintaining a constant potassium level is mainly due to the hormone **aldosterone**, which leads to the excretion of potassium in the urine when its level rises, and maintains it when its level decreases.

Hyperkalemia

Hyperkalemia is caused by:

- Destruction of body tissues.
- Hemolysis.
- Inability of the kidneys to excrete potassium, such as:
 - renal failure.
 - Hyperacidity of the blood.
 - Addison's disease.

Hypokalemia

The main causes of hypokalemia are as follows:

- A. Loss of potassium in the urine as a result of taking diuretic drugs.
- B. diarrhea.
- C. Vomiting.
- D. Secretions from a tumor in the gastrointestinal tract.
- E. High level of aldosterone. Cushing's syndrome.

Laboratory devices and tools

1- *Spectrophotometer*

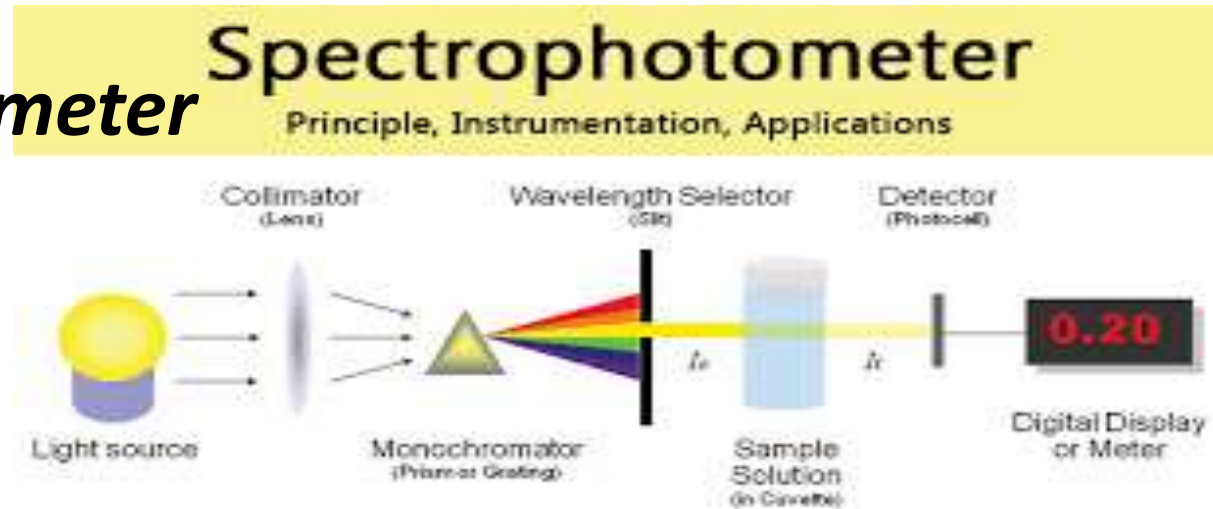
2- *Centrifuges*

3- *Water bath*

4- *Micropipettes*

5- *Tubes, cups, cuvettes, tourniquet, syringes, cotton, plain tubes, yellow and blue tip s*

6- *kit K+*



R1



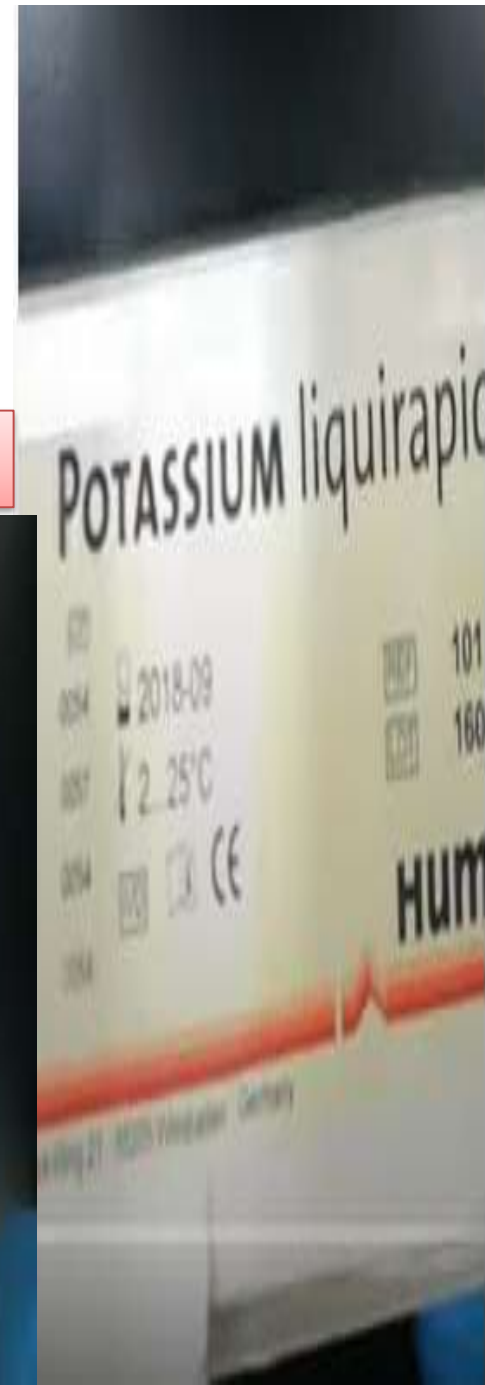
R2



R3



R4(STD)



Procedure:-

- 1- Take the blood from the person.
- 2- Centrifuge the blood to gets the serum.
- 3-The additions as in the shown Table(1,2):

To be prepared Supernatant	
Specimen	100 μ L
Reagent (R1)	1000 μ L

- 4- Centrifuge the Mix for 5-10 min.

	Blank	Standard	Test
Working reagent	2000 μ L	2000 μ L	2000 μ L
Standard (R4)	-----	200 μ L	-----
Supernatant	-----	-----	200 μ L
Distill water	200 μ L	-----	-----

Procedure:-

4-Mix well and let for 5 minutes 37C.

5- Read the absorbance for standard and test against the blank at wave length 578 nm.

Calculations:-

- $\text{Con. of test} = \frac{(A) \text{ of test}}{(A) \text{ of standard}} * \text{Con. Of Stad. (2 mg per 100 ml)}$

Normal Serum Range of Potassium

- Normal serum potassium levels are

Adult: 3.5 – 5.2 mEq/L

Children (1 – 18 years): 3.4 – 4.7 mEq/L

Infants (7 days – year): 4.1 – 5.3 mEq/L

Neonates (0 – 7 days): 3.7 – 5.9 mEq/L

**Thanks for your
attention**