



Fig 11: Sahli's Hemoglobinometer

Practical - 11

Date: / /

Aim: To determine the hemoglobin content of blood by Sahli's method.

Reference:.....
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Requirements: Hemometer, Single mark pipette, Distilled water, Needle, Spirit, Cotton, HCl.

Theory:

Hemoglobin, abbreviated Hb or Hgb, is the iron-containing oxygen-transport metalloprotein present in red blood cells. Hemoglobin in blood carries oxygen from the respiratory organs to the rest of the body. A hemoprotein composed of globin and heme that gives red blood cells their characteristic color; function primarily to transport oxygen from the lungs to the body tissues. The red blood cells are broken down with hydrochloric acid to get the hemoglobin into a solution. The free hemoglobin is exposed for a while to form hemin crystals. The molecular weight of hemoglobin is 68,000.

Principle:

Sahli's hemoglobinometer is a manual device that contains a hemoglobin tube, pipette, and stirrer, as well as a comparator. Hydrochloric acid converts hemoglobin to acid hematin, which in dilution is golden brown in color. The intensity of colour depends on the concentration of acid hematin. The color of the solution matches that of the comparator block.

Procedure:

1. Take 1/10 HCl in the Hb tube upto the lowest mark '2'.
2. Prick the finger with needle and collect 20µl of blood sample with single mark pipette.
3. Place the Hb tube on working table for five minutes for the formation of hemin crystals.
4. Place the Hb tube in the comparator/hemometer and add drop by drop of distilled water into it until the colour of the solution in the Hb tube coincides with the glass plates of the comparator.
5. If the colour coincides with the glass plates of the comparator, observe the reading in the Hb tube. The percentage of Hb can be calculated from the reading.

DATA ANALYSIS: Hb content in grams X 100 / 14.5

NORMAL VALUES:

Males	=	14 to 16 g/dL
Females	=	13 to 14 g/dL
Children	=	15 to 17 g/dL

RESULT: The hemoglobin content present in 20µl of blood sample is _____

Questions Bank

1. What is the Hemoglobin?
2. What is the role of Hemoglobin in human body?
3. Sahli's hemoglobinometer consist of
4. Hydrochloric acid converts hemoglobin to
5. A hemoprotein composed ofandthat gives red blood cells their characteristic color.
6. Draw the diagram of Hb tube.
7. Which metal containing metalloprotein present in red blood cells?
8. Write the normal value of hemoglobin in female.
9. What is the hemometer?
10. What is the abbreviation of hemoglobin?