

ESTIMATION OF HAEMOGLOBIN CONTENT

Background ^[1]

Haemoglobin is a blood protein abbreviated as Hb. The haemoglobin molecule is made up of haem and globin. Haem is a pigment which contains iron which constitutes 4% of the haemoglobin molecule, while globin is a colourless protein constituting about 96% of total haemoglobin molecule. The functions of haemoglobin is to carry oxygen from the lungs to the tissues and to assist in the transport of carbon dioxide from the tissues to the lungs.

Principle: It is known as acid haematin method. It is also known as Sahli-Hellige method. It is a type of visual method (colorimetric method) of haemoglobin determination. In this method, blood is mixed with a strong acid. The haemoglobin breaks down and is converted to brown colour acid haematin. This is then diluted with water till the brown colour matches that of the brown glass standard. The haemoglobin value is read directly from the scale

The apparatus used for estimation of haemoglobin content is called Sahli-Hellige Haemoglobinometer. It is a cabinet with centrally situated graduated glass tube. It has got arrangement of comparison of colour of the solution from graduated glass tube with that of standard colour strips situated on the visual part of it. The glass tube is graduated in millilitres and also in terms of grams of haemoglobin per 100 ml of blood. The haemoglobin pipette is a glass tube pipette with rubber sucking assembly. The tubular part of the pipette is graduated in terms of micro millilitres.

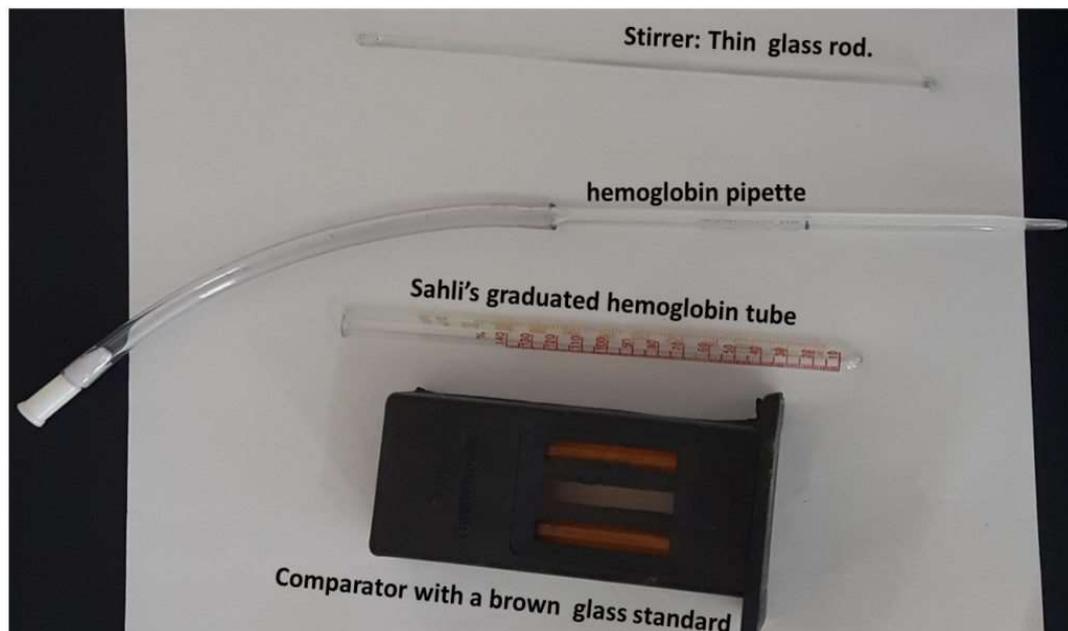


Figure: Showing Components Of a Sahli- Hellige Haemoglobinometer

The aim of the experiment is to measure the amount of haemoglobin in the given sample of blood.

APPARATUS REQUIRED:

Spirit, cotton, needle, Sahli-Hellige haemoglobinometer, 0.1N HCl, Distilled water

PROCEDURE:

1. The graduated tube is filled with 0.1N HCl to the lowest point.
2. The finger is sterilized with 70% alcohol and a bold prick is done with the help of a 23 size needle.
3. The blood is sucked into the pipette.
4. Blood is collected upto 20 μ l maximum and then the blood is mixed with the acid in the graduated tube.
5. The blood and the acid mixture is mixed properly with the stirrer provided and it is kept undisturbed for 2-5 minutes.
6. After that distilled water is added drop by drop to dilute the quantity in the graduated tube.
7. The dilution is continued till the colour of the solution became same as the colour of the comparator.
8. When the colour matches, the graduated tube is taken out from the stand and the amount of solution in the tube is recorded. This gave us the amount of haemoglobin present in the blood.

RESULT:

The amount of haemoglobin present in the sample was found to be -----

INFERENCE:

The haemoglobin level was found to be in ----- range.

REFERENCE:

1. Haematology, Practical Human Anatomy And Physiology, S.R. Kale et al., Nirali Prakashan, Eight Edition, 2002, pp. 5-9