

Aim: Estimation of haemoglobin content

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

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

Principle: The acid haematin or Sahli-Hellige method is a colorimetric approach for determining hemoglobin levels. Blood is mixed with a strong acid, causing hemoglobin to break down into brown acid haematin. After dilution, the brown color matches a standard, and the hemoglobin value is read directly from the scale.

The Sahli-Hellige Haemoglobinometer is an apparatus for estimating hemoglobin content. It features a central graduated glass tube for comparing solution color with standard color strips. The tube is marked in milliliters and grams of hemoglobin per 100 ml of blood. The accompanying hemoglobin pipette has a rubber-sucking assembly and is graduated in micromilliliters.

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 up to 20 μ l maximum and mixed with the acid in the graduated tube.
5. The blood and the acid mixture are mixed properly with the stirrer provided and kept undisturbed for 2-5 minutes.
6. Then, distilled water is added drop by drop to dilute the quantity in the graduated tube.

7. The dilution is continued till the color of the solution becomes the same as the color of the comparator.

8. When the color matches, the graduated tube is removed 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 -----

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