

derivatives encountered in clinical practice are converted to SLS-hemichrome complex using this method. Therefore, unlike others, this method does not need oxidative reagents and does not generate toxic wastes such as KCN and NaN₃ which cause environmental pollution^[11]. Therefore, the aim of this study was to evaluate sodium lauryl sulfate method for determination of haemoglobin in routine blood specimens.

Materials and Methods

This study was conducted at AL-Kadhimya General Hospital, during the period from 4th of June 2002 till December 2002.

Spectrophotometric measurement of Hb as HiCN was carried out by the ICSH recommended reference method and by cyanide-free (sodium lauryl sulfate) reagent.

Measurements were carried out on 347 venous blood collected into K2EDTA anticoagulant (1.5mg/ml blood). Normal samples were obtained from volunteers and other samples were obtained from patients specimens in the routine diagnostic service. The latter included:

- 1- Leukaemias with high leukocyte counts (12 samples).
- 2- Lipaemias (15 samples).
- 3- Cord blood (35 samples).
- 4- Methaemoglobin (35 samples), was produced by exposing normal blood to sodium nitrate (2ml of blood to 0.1ml of sodium nitrate)^[12].

The Hb value then determined by using two sets of reagents:

1. Drabkins (cyanide-ferricyanid solution) by using haemoglobincyanid (HiCN) method
2. New cyanide-free (sodium lauryl sulfate SLS) reagent (2g of SLS, 2.5g of disodium EDTA and one liter deionized distilled water).

Two types of Drabkins solution were used one supplied by Randox and other by Iraqi manufacturer; Hb value was determined by these reagents and means value then calculated.

1. Reagents and instruments:

- 1- Drabkins (cyanide-ferricyanid) solution one supplied by Randox and the other by Iraqi manufacturer.
- 2- HiCN standard so recommended by ICSH.
- 3- HiCN standard (Iraqi manufacturer).
- 4- SLS reagent (2 g of SLS, 2.5g of EDTA in one liter deionized distilled water).
- 5- Spectrophotometer.
- 6- Automated pipette.
- 7- Glass tube.

2. Methods:

A) HICN method^[5]

Twenty microliter of EDTA blood were added to 5 ml of diluent (Drabkins solution), stopper the tube containing the solution & invert it several times, allow to stand at room temperature for about 5–15 minutes to ensure the completion of the reaction, the solution of HiCN is compared with reagent blank in spectrophotometer at 540 nm wave length in which the absorbance is read and the results obtained from stander curve, in which the stander curve prepared by measurement of HiCN reference solution (standard) by the same spectrophotometer as is to be used for the subsequent hemoglobinometry. The absorbance of the solution (standard) against blank of cyanide-ferricyanide reagent. We make reading with the same standard solution diluted with the reagent (Drabkins) 1 in 2, 1 in 3, 1 in 4,...etc. translate the Hb value of the solution into terms of g/l. Plot the reading on linear graph paper using arithmetical scales, with absorbance as ordinates (vertical scale). The point should fit a straight line that passes through the origin; this provides a check that the calibration of spectrophotometer is linear (assuming that the standard has been correctly diluted). We make two standard curve one for randox reagent & other for Iraqi manufactured reagent in which each one has it standard^[14].

We taken the mean of duplicated measurement of each sample and tabulated