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Mokshit Digital Hemoglobin Meter

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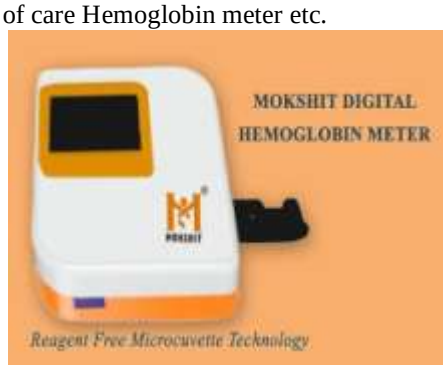
ABSTRACT:This research paper is about to comparison between "Mokshit Digital Hemoglobinometer" and Chanda 9904 Hemotology analyser for haemoglobin measurement.

KEYWORDS: Microcontroller, Optical ditactor Wide range sensor, optocoupler, LED,battery operated, Coglcd, mosfet, BLE, RTC, EE Prom.

I. INTRODUCTION

MOKSHIT DIGITAL HEMOGLOBINOMETER DESCRIPTION

Anemia is a major health concern in India since many decades and is continue to rise. Therefore, Hemoglobin measurement is performed in various Pathology labs, Hospitals, Blood Banks etc. to detect the Hemoglobin with **Reagent free Micro-cuvette Technology**. Different method are used for Hemoglobin measurement like Automated HematologyAnalyzer, copper sulphate gravimetric method, Hemoglobin colour scale, HICN method, point of care Hemoglobin meter etc.



It is direct hand-held battery operated device used for Hemoglobin testing in clinical setting/ population-based screening.The device is intended to be used for quantitative measurement of Hemoglobin in only capillary, venous or arterial whole blood samples taken from forearm, upper arm, hand, thigh, calf or fingers.

II. MATERIAL AND METHOD

A study has been conducted at District Hospital, Kawardha (C.G.) by Dr.S.R.Churendra (Pathologist & Head Incharge of Blood Bank,DH-Kawardha) . A total of 135 EDTA samples were run simultaneously on Chanda-9904 and Mokshit Digital Hemoglobinometer.

Parameters for analyzer –

HB of test = Absorbance of test X Actual HB of standard
Absorbance of standard

HB of Test = Absorbance of test X 15.4
0.672

Absorbance of test = 2 – log10 (% Transmission test)

Transmission Test (%) = Transmitted light (test)
Incident light (Blanking)

Transmission of standard (%) = Transmitted light (standard)
Incident light (Blanking)

Absorbance of standard = 2 – log10 (% Transimission of standard)

Correlation Coefficient : r = 0.9623

Sensitivity : More than 93%

Specificity : More than 94%

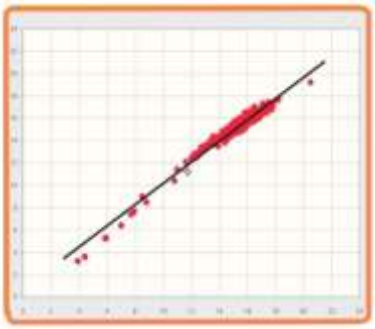
95% limit of agreement range : -0.7 to + 0.7

Result –

A lot of 135 samples run both on Mokshit Digital Hemoglobin Meter and Chanda 9904 HematologyAnalyzer.

III. RESULT AND DISCUSSION

The correlation coefficient r is 0.9623 which is very accurate and indicates a very good correlation between the results obtained from both, Mokshit Digital Hemoglobin meter and Chanda 9904 HematologyAnalyzer.



CHANDA 9904-HEMATOLOGY ANALYZER (g/dl)

Figure 3.1. Correlation between MokshitHemoglobin Meter and Chanda 9904-HematologyAnalyzer

There are many techniques used for detecting Hemoglobin in blood, but a process which is quick, easy to operate and gives accurate result is most effectively and widely used. MokshitHemoglobinmeter is very useful and easy to use device for detecting Hemoglobin in just 3 seconds. However, care must be taken while using it like sample must be taken properly through cuvette, the sample must not be touched by bare hands, the device and cuvette must be clean, first drop of sample is wiped out and the next drop is taken as sample.

IV. CONCLUSION

By comparing the results between Mokshit Digital Hemoglobin meter and Chanda 9904 HematologyAnalyzer, it is found that Mokshit Digital Hemoglobinometer iscomparatively more effective and useful as it is portable and single step process makes it very easy to use as stated by Dr.S.R.Churendra (Pathologist & Head Incharge of Blood Bank,DH-Kawardha) after testing of 135 samples and getting results in just 3 seconds. Therefore, Mokshit Digital Hemoglobin meter is very useful for detecting Hemoglobin.

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