



LAB#7

IRON

Determination of iron in plasma

Daheeya Alenazi
QCA kit (CHS264)

INTRODUCTION

- Iron (Fe^{+2}) is an essential component of hemoglobin allowing it to bind reversely with oxygen in the lung and release it in the tissue.
- There is about 3-5g of iron in the human body.
- 2- 2.5 of iron is in hemoglobin in the RBCs.
- Iron is stored as ferritin and hemosiderin in bone marrow, liver and spleen.
- ***Nutritional sources:***
The richest sources of iron in the diet include meat and seafood.

CLINICAL SIGNIFICANCE

- *Iron deficiency*

Increased blood loss, decreased dietary iron intake, or decreased release of ferritin may result in iron deficiency (Anemia).

- *Iron overload*

Abnormal excess absorption of iron from a normal diet (Hemochromatosis).

DETERMINATION OF IRON

■ *Principle:*

Iron reacts with Chromazurol B and Cetyltrimethyl-ammonium bromide (CTMA) to form a colored complex. The color intensity is directly proportional to the concentration of iron in the sample.

■ *Procedure:*

	Standard / μ l	Test / μ l
Sample	-	50
Standard	50	-
Reagent	1000	1000

mix and incubate 10 min. at RT, read A at 620 nm

CALCULATION

$$\frac{\text{A.Test}}{\text{A.STD}} \times 200 = \mu\text{g/dl}$$

■ *Normal ranges:*

Men: 59 - 158 $\mu\text{g/dl}$

Women: 37 - 145 $\mu\text{g/dl}$