***ESTIMATION OF CHLORIDE %IN MILK***

***INTRODUCTION***

 In case of mastitis the chloride comes outs from the blood plasma and in this case its percentage increases more than that in the normal limits also in case diminishing of lactose the chloride percentage increases to maintain the osmotic pressure inside the udder. The normal chloride percentage in cow milk is 0.063%-0.13% with an average of 0.097%.Any percentage greater than the maximum limit indicate a case of mastitis.

***PROCEDURE***

1- Transfer 10 ml of milk sample into porcelain dish

2- Add 5ml of 25% Nitric acid and mix well by glass rod.

3- Add 5ml of 0.1N silver nitrate and mix well by glass rod.

4- Add 1ml of Iron alum solution or ferric ammonium citrate **as indicator** and mix well by using glass rod. (Appearance of Brown color as indicator to the reaction)

5- Titrate the excess of silver nitrate against0.1N ammonium thiocyanate till brown color remains for about 2minutes.

 **Silver nitrate AgNo3 AgNo3+Ammoniumthiocyanat**

 **AgCl2 AgNo3+CL**

***Note***

1. The function of nitric acid is coagulate the milk protein especially

 the casein and separate the chloride solution .

2. Part of silver nitrate combined with whole chloride in milk sample and the thiocyanate solution combines with the remaining part of silver nitrate.

***6. Calculation***

As 1ml of 0.1N Silver nitrate solution =0.003546 gm chloride

R=quantity of thiocynate used in the titration (ml).

5=quantity of silver nitrate solution added (5ml)

5-R=Part of Silver nitrate combined with chloride

 **Chloride %= (5-R) x0.03546x10**

|  |  |  |
| --- | --- | --- |
| **Average** | **Chloride %** | **Milk Type** |
| **0.097** | **0.063-0.13** | **Cow Milk Normal** |
| **0.13** | **0.093-0.17** | **Mastitic Cow Milk** |

***Koestler Number***

Chloride%

Lactose%

**Koestler** **number = x 100**

**Normal milk=** **2** or

**Abnormal milk**= **3** or

**Suspected milk = 2-3**