Practical Exercise 17

Determination of titratable acidity in milk

Objective: *In this chapter we learn how to measure titratable acidity of milk by titration method. It helps us to decide whether the milk is suitable for further processing.*

Material required

- Milk sample.
- N/10 NaOH solution.
- Phenolphthalein indicator.

Apparatus

- 10 ml capacity pipette.
- 100 ml conical flask or porcelain dish.
- 50 ml capacity burette with stand.
- Porcelain tile.
- Glass rod.

Procedure

- Fill the burette with N/10 NaOH solution.

- Mix the milk sample thoroughly by avoiding incorporation of air.
- Transfer 10 ml milk with the pipette in porcelain dish/conical flask.
- Add equal quantity of glass distilled water.
- Add 3-4 drops of phenolphthalein indicator and stir with glass rod.
- Take the initially reading of the alkali in the burette at the lowest point of meniscus.
- Rapidly titrate the contents with N/10 NaOH solution continue to add alkali drop by the drop and stirring the content with glass rod till first definite change to pink colour which remains constant for 10 to 15 seconds.
- Complete the titration within 20 seconds.
- Note down the final burette reading.

Calculation

$$\% \text{ Lactic acid} = \frac{\text{No of ml. of 0.1 N NaOH solutions required for neutralization x 0.009}}{\text{Weight of sample}} \times 100$$

(Weight of sample = Volume of milk x specific gravity)

Precaution

Use fresh N/10 NaOH solution or determine the strength of stock NaOH whenever have to be used

STUDY QUESTIONS

1. What is normal acidity of milk?
2. What is role of NaOH?
3. Which components of milk contribute to the acidity of milk?
4. Which colour can be seen at the end of titration method?
5. What is the acidity of cow milk?