**Lab sheet (1)**

**Food acidity**

**1-Determination of Milk Acidity (Titratable Acidity)**

**Method:**

1. Mix the milk sample thoroughly by avoiding incorporation of air.

2. Transfer 10 ml milk to conical flask or beaker.

3. Add equal quantity of distilled water.

4. Add 3-4 drops of phenolphthalein indicator and stir.

5. Rapidly titrate the contents with 0.1 N NaOH solution, continue to add alkali drop by the drop and stirring the content till first definite **change to pink color**.

6. Note down the final burette reading.

**Result and Calculation:**

Lactic acid %= (0.1M NaOH X vol. of NaOH (in liter)X **90.08**) x 100

 Weight of the sample

**\* 90.08 g/ mol** is the molecular weight of Lactate

Normal range = 0.12% - 0.16%

**2-Determination of total acidity in juice:**

**Method:**

1- Weight 10 gm juice conical flask.

2- Add 25 ml of distilled water.

3- Titrate with 0.1M NaOH, using 2 drops of phenolphthalein as an indicator.

**Result and calculations:**

Calculate percent acidity of fruit juice (citric acid):

1- **Wt. of citric acid =**$\frac{0.1M NaOH X vol. of NaOH  (in liter)X 192.43}{3}$

\*$192.43$ g/mol is the molecular weight of citric acid

2- **% of total acidity =** (wt. of acid / wt. of sample) X 100

Normal range for citric acid **=** 0.39 - 1.1 %

**3-Determination of total acidity in vinegars:**

**Method: (Determination of total acidity)**

1- Weight 1 gm vinegar.

2- Add 10 ml of distilled water.

3- Titrate with 0.1M NaOH, using 2 drops of phenolphthalein as an indicator.

**Result and calculations:**

Calculate percent acidity as acetic acid (MW=60.05)

1- Wt. of acetic acid= (0.1M NaOH X volume of NaOH in liter X MW)

2- % of total acidity= (wt. of acid / wt. of sample) X 100

Normal range = 4-6%

**4-Acid value :**

**Method:**

1. Mix the oil or melted fat thoroughly before weighting.

2. Weight accurately about 5 g of cooled oil sample in a conical flask.

3. Add 50 ml of freshly neutralized hot ethanol.

4. Add one ml of phenolphthalein indicator solution.

5. Boil the mixture (in water bath) for about 5 minutes and titrate while hot against standard alkali solution shaking vigorously during the titration.

**Result and calculations:**

Acid value = 40 X (V x N) / weight of sample

\*$40$ g/mol is the molecular weight of NaOH

Where V = Volume in ml of standard potassium hydroxide or sodium hydroxide used

N = Normality of the Sodium hydroxide solution = 0.1 N .

W = Weight in g of the sample

🡪 The maximum level allowed for *acid value* of edible fats and oils is 0.6 mg NaOH/g