EXPERIMENT 1 ESTIMATION OF MOISTURE

Structure

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1.0 OBJECTIVES

After going through this experiment, you will be able to:

● to assess the moisture content of any type of meat and meat product; and

● plan the meat product formulation depending upon moisture content of meat.

1.1 INTRODUCTION

Water is a major constituent of almost everything of world. Whether it's a plant or animal cell it contains about 3/4th water and the rest comprising of protein, fat, carbohydrates, minerals etc. Estimation of moisture is a measurement of water content. You have studied in the theory part of this course how the composition of meat varies from one animal to another and even one muscle portion to another in same animal. The water content of meat has great importance as it decides the sensory attributes of meat products. The estimation of moisture content is very simple.

1.2 EXPERIMENT

1.2.1 Principle

Moisture content of any biological sample is determined to assess its dry matter. Moisture is estimated by heating the fresh sample at high temperature (100-110°C) to constant weight. Concentrations of macromolecules like protein, lipid, carbohydrate etc. are expressed on dry weight basis.

1.2.2 Requirements

● Hot air oven

● Spatula

● Desiccator

● Aluminum dishes

● Weighing Balance

1.2.3 Procedure

1. Weigh the clean, dry aluminum dish.

2. Weigh the aluminum dish and meat sample (approx. one gram).

3. Keep it in a hot air oven for 24 hours at 72°C till the weight becomes constant.

4. Cool the hot aluminium dish along with meat sample in desiccator with moisture absorbent.

5. Weigh the sample with aluminum dish.

1.2.4 Observation

Weight of empty aluminum dish = Ag

Weight of dish and sample = Bg

Weight of dish and sample after cooling in desiccator = Cg

1.2.5 Calculation

Weight of sample = (B - A)g = Xg

Weight of sample before heating = (B- A)g = Xg

Weight of sample after cooling = (C - A)g = Yg

Loss in weight= X-Y g

$$\text{Percent moisture content} = \frac{\text{Loss in Weight}}{\text{Weight of Sample}} \times 100$$

$$= \frac{X - Y}{X} \times 100$$

1.2.6 Result

Moisture content of the given meat sample is.....................%

1.3 PRECAUTIONS

● The aluminium dishes should be properly cleaned and dried.

● Conduct the experiment in duplicate. Higher the number of duplicates, higher the accuracy of results.

● The heating should be continued unless a constant weight is achieved.

● It's better to use lower temperature for higher time because at higher temperature volatile fatty acids escape out giving a false estimation.

● Always cool the dishes or sample in desiccator with moisture absorbant otherwise they absorb same moisture from surroundings.