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# EXPERIMENT 15 PREPARATION OF FISH FLAKES/WAFERS

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## Structure

### 15.1 Introduction

Objective

### 15.2 Experiment

15.2.1 Principle

15.2.2 Requirements

15.2.3 Procedure

15.2.4 Observations

15.2.5 Results

### 15.3 Precautions

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## 15.1 INTRODUCTION

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Fish flakes/ wafers, are starch based products into which fish meat has been incorporated in order to enhance its nutritional value. In addition, the typical fish flavour makes it a more acceptable product. These are snack-type products that swell and become crisp upon frying in oil.

### Objective

After performing this experiment, you will be able to:

- prepare flakes from fish meat.

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## 15.2 EXPERIMENT

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### 15.2.1 Principle

A paste formed of cooked fish meat, starch, salt, etc., with water is heated in thin layers. The starch gets gelatinized and the paste gets converted to a gel with water and other ingredients trapped inside. This upon drying becomes thin, hard pieces.

### 15.2.2 Requirements

- Any lean (low fat) fish
- Ingredients as per composition given in procedure
- Frying pan and other utensils
- Plastic bags
- Thermometer
- Grinder
- Balance
- Stove
- Steam chamber
- Drier
- Heat sealer

### 15.2.3 Procedure

- 1) Dress fish- i.e. remove head, scales, fins and entrails and then wash.
- 2) Cook in steam or in boiling water for a period of 30 minutes.
- 3) Collect meat manually by separating it from bones and skin.
- 4) Grind meat into fine particles using a wet grinder.
- 5) Weigh ingredients as per the following composition:

<b>Ingredient</b>	<b>Weight in kg</b>
Cooked fish meat	2.00
Corn flour	1.00
Tapioca flour	2.00
Table salt	0.05
Water	3.50

(If desired, spices like cumin may also be added)

- 6) Mix all ingredients to get a homogeneous mixture and grind to a fine paste.
- 7) Spread in flat-bottomed trays as a thin layer of uniform thickness (2 mm).
- 8) Place in a steam chamber and cook until the paste becomes a gel.
- 9) Cut the gel into square pieces by drawing using a knife.
- 10) Dry at a temperature of about 60°C in a tray drier until the pieces become hard dried (moisture content below 10%).
- 11) Weigh and pack flakes in plastic bags.
- 12) Test flakes for quality. For this, fry flakes in refined vegetable oil at around 170°C. They swell up and become crisp within a few seconds.
- 13) Immediately take out pieces and drain. Evaluate taste and texture.

### 15.2.4 Observations

Weights of various ingredients used:

Cooked fish meat	=
Corn flour	=
Tapioca flour	=
Table salt	=
Water	=
Weight of final product	=

*Evaluation of quality:*

Taste	:
Texture	:

### 15.2.5 Results

The overall quality of the product is \_\_\_\_\_.

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## 15.3 PRECAUTIONS

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- Do not exceed the recommended level of fish meat as swelling and taste of the product are adversely affected.
- The drying temperature must not exceed 60°C; the product may not swell up properly if it is excessive.