

## FSAT 5108 3(2-1)

### INTRODUCTION TO FOOD SCIENCE AND TECHNOLOGY

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#### **Lecture # 7**

#### **FOOD INDUSTRIES IN PAKISTAN**

In terms of labor, food industry rank 2<sup>nd</sup> in Pakistan after the textile industry

##### **1. Fruits and vegetable industry**

This industry obtains its raw material from farms. Main products are ketch up, juices and juice based beverages, jams, jellies, marmalades, dried fruits and vegetables, dehydrated spices frozen vegetables like spinach, peas etc.

Prominent industries include Mitchell's (Renala Khurd), Shezan International (Lahore), Ahmed foods (Karachi), Tops (Hattar), National (Karachi) and many others.

##### **2. Beverage industry**

More than 20 large units are set up in the country. Prominent industries include Coca Cola, Fanta, Sprite, 7up, Pepsi Cola, Gourmet etc.

##### **3. Wheat and grain milling industry**

Raw material used for this industry includes wheat, rice, corn and other cereals. Presently 400 different units are working around the country. Main products include whole wheat flour (atta), maida, suji and bran.

Prominent industries are CPC Rafhan (Faisalabad), Fauji Cereals (Rawalpindi) and Paradise trading Co (Karachi).

##### **4. Baking Industry**

60 baking industries are working around the country. Main products are bread, buns, rusks, cakes and cookies. Prominent names are Vita, Dawn, Bunny's, wonder, Marygold.

200 biscuit industries are operating e.g. English biscuits, Mehtab industries, Sufi foods, Big mark, Diamonds, Kims etc.

#### **5. Snack food industry**

Include salted, fried or roasted foods. Important products are fried nuts, potato chips, popcorns, fried noodles, fried daals etc. Prominent names are Gulam Ali & sons, Bunny's, Mr Chips, Standard foods and Pepsico etc.

#### **6. Vegetable oil and ghee industry**

Vanaspatti ghee was introduced by lever brothers with the brand name of Dalda. 200 units are operating all around the country. CPC Refhan (Faisalabad), Habib oils (Karachi), Wazir Ali (Hyderabad) etc.

#### **7. Sugar industry**

78 sugar mills working around the country. Main product is sugar

#### **8. Confectionary industry**

More than 200 units have been established. Main products are sweets, toffees, chewing gums, chocolates etc. prominent names are Asian foods (Lahore), Big Mak (Lahore), Mitchell's (Renala Khurd), English sweets (Karachi), Candyland (Karachi) etc.

#### **9. Dairy Industry**

Numerous plants have been established especially in Punjab. Main products are long life milk packed in tetra pack, ghee, yoghurt, cheese, powdered milk and evaporated milk. Important industries are Nestle milkpak, Millac, Premier dairies, Engro foods and Noon dairies

#### **10. Ice cream industry**

Kulfi/ kulfa available at small scale (hand carts/shops). Walls, yummy, rocco, igloo, gourmet and paradise etc.

**11. Meat and poultry industry**

Frozen whole chicken, cuts, nuggets, sausages, kababs, koftas etc. K&Ns (Lahore), Menu (Lahore), Shezan, Mitchells etc.

**12. Fish processing industry**

Present in Karachi and coastal areas of Baluchistan and Sindh provinces. Total 29 fish processing plants. Main products are canned and frozen fish as well as dried and salted fish.

## **Lecture # 8**

### **SIGNIFICANCE OF FOOD SCIENCE AND TECHNOLOGY**

#### **1. Regulating the market price**

For example, supply and demand, if supply is more and demand is less then price will decrease. If supply is less and demand is more, then price will increase.

#### **2. Provision of food during off season**

For example, every fruit and vegetable have definite season. But they are also available during off season. Tomato preserved in the form of tomato ketchup and paste.

#### **3. Provision of food to non-food producing area and far off places**

#### **4. Convenience in life**

- Ready to eat foods
- Processed food
- Frozen food (chicken, mutton, fish, samoosa, pizza)
- Semi processed food (Haleem, kheer mix, ras malai etc.)
- Can store bulk amount at home

#### **5. Scientific expedition and travels**

Space travels, air lines travels, long sea voyages are possible now because food scientist have preserved food to carry with them.

#### **6. Waste utilization and reduction in environmental pollution**

Pretreatments like peeling, pitting, trimming generate waste and when they degraded produce environmental pollution. This waste can be collected and used to make valuable products like:

- From citrus waste (pectin and citrus peel oil can be produced)
- Through fermentation valuable products obtained and utilized parts used as cattle food

## **7. Economic gain**

Food industry ranks at 2<sup>nd</sup> number in term of employment. It helps to reduce unemployment in the country.

- Lots of revenue in the form of taxes paid to government
- Foreign exchange is earned from the export of fresh and value added commodities.
- Allied industries have been established.
- Transporters busy in transport and supply of raw material and food.

## **Lecture # 9**

### **Experiment # 1**

#### **DETERMINATION OF MOISTURE CONTENT OF A FOOD SAMPLE**

##### **Preparation of sample:**

The objective of preparation of a sample is to obtain a representative sample. (**Representative Sample** is the portion of food that represents the whole lot/batch). Only edible portions from fruit, vegetables, meat, poultry, fish and nuts are taken for sample. These are normally crushed, macerated or minced into fine and homogeneous powder. All liquid foods such as milk, juices, oils etc. are mixed well before taking the representative sample. Similarly cereal grains and legumes are ground to powder form. Foods such as butter are taken as such for sample.

##### **Procedure:**

- Weigh an empty, clean and dry petri dish.
- Place the sample in weighed petri dish and weigh it again.
- Place the dish in a Hot Air Oven at 100°C for 4 hours.
- Remove the petri dish after 4 hours and cool in desiccator.
- Place the dish again in Hot air oven for another two hours and weigh it again.
- Repeat the procedure till constant reading is obtained.

##### **Calculations:**

$$\text{Moisture (\%)} = \frac{\text{Wt. of fresh sample} - \text{Wt. of dried sample}}{\text{Wt. of sample}} \times 100$$



**Hot Air Oven**



**Desiccator**