

**SECOND ALLIED COURSE – III  
FOOD STANDARDS AND QUALITY CONTROL**

**Objectives:**

To enable students to

- Gain knowledge about physio – chemical changes in foods.
- Gain knowledge on sources, uses, properties and changes in starches, sugars, proteins and browning reactions.
- Gain knowledge about proteins in foods, flavour and aroma, Common food adulterants and toxins and enzymes.

**UNIT – I**

Physio – Chemical changes in Foods in relation to Cookery – gel formation – denaturation of proteins – properties of colloids, emulsions, stabilizers – browning reactions – Enzymatic and non-enzymatic.

- i) Starch cookery – sources and uses of starch, gelatinisation, Retrogradation, dextrinisation, starch suspensions, factors affecting the viscosity of starch particles.
- ii) Sugar cookery: sources, uses, properties, crystallization, stages of sugar cookery, preparation of crystalline and non-crystalline candies with special reference to Indian preparation.

**UNIT – II**

- a) Meat – Structure, Post – mortem changes, ripening and factors affecting tenderness, colour of meat.
- b) Egg proteins – chemical composition, structure of egg proteins.
- c) Milk proteins – casein and whey proteins.
- d) Pigments and Polyphenol pigments in plants; Tannins and pectic substances, changes in pectic substances, changes in cellulose, production of volatile acids.

**UNIT – III**

- a) Flavour and aromas of foods.
  - (i) Sensation of flavour and taste
  - (ii) Measurement of Odor.
  - (iii) Flavour intensifiers
  - (iv) Synthetic flavouring substances.
- b) Evaluation of Food Quality
  1. Sensory evaluation, characteristics, Requirements for conducting tests, Types of tests.

2. Objectives evaluation – Basic guidelines, Tests for objective evaluation – Chemical, Physio-chemical and microscopic evaluation, Instruments used for texture evaluation.

#### **UNIT – IV**

- a) Food adulteration and Food standards; Adulteration – Definition, Common food adulterants; contamination with toxic metals, pesticides and insecticides; effects of food adulteration and contamination, measures to control food adulteration.

#### **Food Adulteration and Prevention Act**

- a) Food standards – Food laws – AGMARK and BIS – specification for different foods.
- b) Food Toxins – Mycotoxins – aflatoxins, aspergillus and penicillium species, mushroom poisoning, sea food toxins.
- c) Other toxins naturally occurring in foods – Lathyragens, haemagglutinins, goitrogens.
- d) Toxic minerals and other inorganic compounds in food and water; selenium, fluorine, nitrates and nitrites, oxalates and phytates.

#### **UNIT – V**

Enzymes in baking industry, dairy industry, enzymes in fruit products, wine industry and meat industry, miscellaneous applications; enzymatic and non enzymatic browning.

Role of water in foods and cookery: Structure and properties, water activity, types of water and role of water.

#### **References:**

##### **Basic Text**

1. M.Swaminathan – Hand Book of Food Science and Experimental Foods, BAPCO, 88 Mysore Road, Bangalore.
2. M.Swaminathan – Essentials of Food and Nutrition : Vol.II
3. Eillian H.Mayer, Food Chemistry, Affiliated East West Press Pvt.Ltd., New Delhi, 1973.

##### **Additional References**

Food Science by B.Srilashmi

##### **Related Experiences: Experiments On**

- a) Gelatinisation of starch
- b) Sugar cookery
- c) Effects of acids and alkalison plant pigments
- d) Preparation of custard
- e) Sensory evaluation