FNH 552 FOOD PRESERVATION

52 Hr (13×4 units)

Course outcome:

At the end of this course students will be able to-

- Describe different processing and food preservation techniques based on different food materials like low temperature processing, high temperature processing, irradiation, preservation by chemicals and high concentration.
- List different food processing techniques, various methods used to preserve foods and factors influencing the shelf-life of the food products.
- Know the different packaging techniques used for food packaging and also effects of different processing techniques on palatability and nutritive value of food.
- Understand the basic principles of different preservation methods.
- List down the chemicals used in food preservation and its limitations.

Unit I: Low temperature processing and storage - Chilling, cryogenic chilling, chill storage, freezing, cryogenic freezing, frozen food storage, freeze drying, changes in food during freezing, various types of freezers (tunnel types, fluidized bed, airblast etc.)

Unit II: High temperature processing - Drying , dehydration, solar drying, mechanical driers, heat processing using hot oil (frying, shallow frying, deep fat frying), heat sterilization, pasteurization and its types and advantages, heat processing using hot air, baking, effect of heat on foods (texture, flavor, aroma, colour and nutritive value).

Unit III: Irradiation - Irradiation of foods, types and sources of irradiation, effects or impacts of radiation on foods constituents, hurdle technology, irradiation of packaging material, methods of application of irradiation on foods, dosimetry, health consequence of irradiated food.

Unit IV: Preservation by chemicals and high concentration - Types and mode of action of organic and inorganic preservatives, antibiotics, antioxidants, anti-browning, cleaning, sanitizing and fungicidal agents. Sugar concentrates- general principles and methods of preparation of jam, jellies and marmalade, crystallized and glazed fruits, preserves, squashes and syrups. Theory of gel formation. Salt concentrates- general principle, role of ingredients, preparation of sauerkraut, dill and common Indian pickles.

REFERENCES

- Fenema Principles of Food preservation Vol I and II,
- Desrosier N W & JN Desrosier, The Technology of Food Preservation, AVI Publication
- Potty VH. & B M J Mulki Food Processing, Oxford & IBH Publications
- Swaminathan MS Food Science & Experimental Foods, Ganesh &Co
- Srilakshmi B, Food Science, New Age International publication
- Modern Processing, PACKAGING & Distribution System for Food, AP Frank, AVI Van nonstand Reinhold.co.