Semester IV
ANCC4: SPOILAGE ,PRESERVATION AND SAFETY OF FOODS
(CREDITS: THEORY-4, PRACTICAL-2)

Contents:-

Unit: 1 Food Spoilage

- Causes of spoilage: Microbial & chemical.
- Bacteria, mould and yeast-types, characteristics and occurrence.
- Mechanism of food spoilage by micro-organism.
- Sources of micro-organisms-soil, water, air.
- Rancidity, fermentation, enzymatic changes leading to spoilage (Enzymatic browning).

Unit: 2 Control of micro-organisms

- **Control of micro-organisms by following methods:**
  - By Asepsis- air, water, equipments, use of Sanitizing agents, personnel.
  - By removal-washing, centrifugation ,and filtration
  - By retarding growth-low temperature storage (Refrigeration and freezing)
  - By drying and use of chemical preservatives.
  - By irradiation and bio-preservation.

Unit: 3 Quality Control

- Definition of quality, quality control and quality assurance.
- Concept of Total quality management
- Food quality attributes- Appearance, colour, flavor and texture.
- Factors affecting food quality-extrinsic and intrinsic
- Sensory and objective evaluation of food quality.

Unit : 4 Food Safety

- Food borne illness-Bacterial and fungal, outline of etiological agents, symptoms, foods involved and control.
- Food adulteration-Common adulterants in spices, milk and milk products, oils.
- Physical ,chemical and biological hazards in foods
- Consumers' role and safe food practices-buying, storage, preparation, cooking and serving.
- Introduction and principles of HACCP, GMP, GHP. Food safety and standards act-2006.

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PRACTICAL

1. Identification of bacterial, yeast and mold spoilage in foods.
2. Sensory methods for measuring food quality attributes.
3. Detection of adulterant in vanaspati, mashed potato in food article, ghee or butter by simple method of using hydro-choloric acid and iodine.
4. Detection of water adulteration in milk by using lacto meter reading
5. Detection of adulterant argemone oil in edible oils by using concentrated nitric acid.
6. Detection of adulterant metanil yellow in turmeric by using concentrating hydro choloric acid.
7. Detection of adulterant brick powder, soap stones in chillie powder.
8. Detection of adulterant white stone powder and chalk in common salt.
9. Analysis (labeling) of processed and finished food products sold in the market.

RECOMMENDED READINGS

1. Early, R. (latest edition): Guide to Quality Management Systems for the food Industry, Blackie, Academic and professional, London.
2. Gould, W. A., and Gould, R. W (latest edition): Total quality Assurance for the Food Industries, CTI Publication Inc, Baltimore.
3. Pomeranz, Y. and Meloan, C.E., (latest edition): Food Analysis: theory and practice, CBS publishers and distributor New Delhi.
4. Ranganna, S. (latest edition): Handbook of analysis and quality control for Fruit and vegetables products Tata, McGraw Hill Publishing co, Ltd, New Delhi.
5. Atlas, M. Ronald (latest edition): Principles of Microbiology, Mosby - Year Book, Inc, Missouri, U. S.A.
6. Frazier, W.C. (latest edition): Food Microbiology Me Graw Hill Inc.
7. Jay, Janes, M. (latest edition): Modern Food Microbiology, Aspen Publishers Inc. Maryland.