TECHNOLOGY OF MEAT, MILK, FISH AND EGG

THEORY

Paper No.	**:**	**6**
Maximum Marks	**:**	**150**
Credits	**:**	**4**
Teaching Period	**:**	**4 Theory + 1 Student's Presentation**
Teaching Load	**:**	**48 Theory Periods + 12 Student's Presentation**

Objectives

- To know the need and importance of meat, egg, dairy and fishery industry
- To know abattoir operations, the compositional and technological aspects of meat, poultry, egg, milk and fish.

CONTENT

UNIT I - MEAT AND POULTRY TECHNOLOGY

(1 Lecture)

Livestock and poultry population in India, Status of meat industry in India.

(4 Lectures)

Effects of feed, breed and environment on production of meat animals and their quality, Meat Quality - color, flavor, texture, Water-Holding Capacity(WHC), Emulsification capacity of meat, Grading and Inspection of Meat.(**Chapter 13,14 Shai Barbut)**

(8 lectures)

Slaughter, Abattoir, Antemortem examination of meat animals, slaughter of buffalo, sheep/goat, poultry, pig, dressing of carcasses, post-mortem examination of meat, Generic HACCP model of Poultry slaughter (**Chapter 4,12 Shai Barbut)**

UNIT 2 - FISH TECHNOLOGY

(1 lecture)

Status of fishery industry in India.

(2 lectures)

Relationship between chilling and storage life, MAP, general aspects of freezing, changes in quality during chilled and frozen storage **(Chapter 4, Hall)**

(8 lectures)

Drying and salting of fish, water activity and shelf-life , salting process, salting methods (brining, pickling, kench curing, gaspe curing), types of salts, dried and salted fish products- pindang, fishwood, dried shrimp. Preservation by smoking, smoke production, smoke components, quality, safety and nutritive value of smoked fish, processing and equipment, pre-smoking processes, smoking process control. Traditional chimney kiln, modern mechanical fish smoking kiln .**(Chapter 2, Hall)**

UNIT 3 – EGG SCIENCE AND TECHNOLOGY

(1 lecture)

Status of egg industry in India.

(2 lectures)

Structure and composition of egg, Nutritive value of Egg, Egg formation **(Chapter 3,6,7 Stadelman)**

(5 lectures)

Factors affecting egg quality and measures of egg quality**. (Chapter 3, Stadelman)**

(4 lectures)

Functional properties of eggs in foods-Coagulation, Foaming, Emulsification, Crystallization control, Color, Flavor. **(Chapter16, Stadelman)**

UNIT 4 – TECHNOLOGY OF MILK

Status of Milk Industry in India

(1 lecture)

Color, taste, pH and buffering capacity, refractive index, viscosity, surface tension, freezing, boiling point, specific heat, OR, electrical conductivity. **(Chapter 1, Sukumar De) (2 lectures)**

Lactose, alpha and beta forms and their differences, Significances of lactose in dairy industry. **(Chapter 6, Webb & Johnson) (1 lecture)**

Composition and structure of Milk Fat, Factors affecting melting point, boiling point, solubility and Refractive Index. **(Chapter 4, Webb & Johnson) (2 lectures)**

Milk protein-General structure, amphoteric nature, difference between casein and serum protein, different types of casein (acid and rennet), uses of casein, fractionation of protein, Enzymes-

catalase, alkaline phosphatase, lipases and proteases **(Chapter 3 , Webb & Johnson)** . **(4 lectures)**

Systems of collection of milk, Reception, Platform testing, Various stages of processing. **(Chapter 1, Sukumar De)** **(2 Lectures)**

Recommended Readings

1. De Sukumar, Outlines of Dairy Technology, Oxford University Press, Oxford. 2007
2. Shahidi F and Botta JR, Seafoods: Chemistry, Processing, Technology and Quality, Blackie Academic & Professional,London,1994
3. Webb and Johnson, Fundamentals of Dairy Chemistry,Jain publications, second edition, 2005
4. Lawrie R A, Lawrie's Meat Science, 5th Ed, Woodhead Publisher, England, 1998
5. Parkhurst & Mountney, Poultry Meat and Egg Production, CBS Publication, New Delhi, 1997
6. Shai Barbut,Poultry Products Processing,CRC Press 2005.
7. Stadelman WJ, Owen J Cotterill Egg Science and Technology, 4th Ed. CBS Publication New Delhi, 2002
8. Hall GM, Fish Processing Technology, VCH Publishers Inc., NY, 1992

PRACTICALS IN MEAT, MILK, FISH AND EGG

Maximum Marks : 50
Credits : 4
Teaching Period : 4 / Week
Teaching Load : 48/Semester

CONTENTS

1. Subjective evaluation of Fresh Fish.
2. To perform platform tests in milk.(Acidity, COB, MBRT, specific gravity, SNF)
3. To estimate milk fat by Gerber method.
4. To estimate milk protein by Folin method.
5. Estimation of moisture content of meat.
6. Estimation of moisture content of Milk.
7. Estimation of protein content of meat by kjeldahl method.
8. Evaluation of eggs for quality parameters(market eggs, branded eggs)

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1. De S. (2007). Outlines of Dairy Technology, Oxford University Press, Oxford.
2. Shahidi F and Botta JR (1994). Seafoods: Chemistry, Processing, Technology and Quality, Blackie Academic & Professional,London.
3. Webb and Johnson,(1988). Fundamentals of Dairy Chemistry,3rd Ed.CBS publisher and distributors,New Delhi
4. Lawrie R A, (1998). Lawrie's Meat Science, 5th Ed, Woodhead Publisher, England.
5. Parkhurst & Mountney, (1997). Poultry Meat and Egg Production, CBS Publication, New Delhi.
6. Shai Barbut, (2005). Poultry Products Processing,CRC Press.
7. Stadelman WJ, Owen J Cotterill (2002). Egg Science and Technology, 4th Ed. CBS Publication New Delhi.
8. Hall GM, (1992). Fish Processing Technology, VCH Publishers Inc., NY.