

6th SEMESTER
VETERINARY TECHNOLOGY
(DAIRY TECHNOLOGY)
SKILL ENHANCEMENT COURSE (SEC)

DTC620S DAIRY TECHNOLOGY-III (PROCESSING AND QUALITY CONTROL OF MILK PRODUCTS)

CREDITS: THEORY: 2, PRACTICAL: 2
MAX MARKS: THEORY: 30, PRACTICAL: 30
MIN MARKS: THEORY: 12, PRACTICAL: 12

Learning Objective: To impart knowledge and skill about milk product processing techniques and quality control of milk products

Learning Outcome: Skill up-gradation about milk product processing and their quality control

THEORY (2 CREDITS)

Unit 1: Processing of Milk Products

Processing of milk products like cream, butter, ice cream, evaporated milk, condensed milk, dried, dehydrated and fermented milk product like yoghurt. Processing of cheese cheddar, mozzarella, cottage and processed cheese. Processing of dairy by-products. Introduction to functional milk products. Effect of processing on the physico-chemical and nutritional quality of milk. Common defects of milk products and their remedial measures. Organic milk products. Manufacturing of indigenous milk products viz. paneer, channa, khoa, ghee, dahi, rasgulla, gulabjamun and shrikhand.

Unit 2: Quality control of Milk Products

Importance of quality control in dairy industry. Basic concepts of quality control: GMP, GHP, HACCP. PFA act, BIS and ISO standards for milk products. Total quality management. Sanitary and Phyto-sanitary measures. Microbial quality of milk and milk products. Hurdle technology and its application in dairy operations. New concepts of value addition and quality control during milk product processing.

PRACTICALS (2 CREDITS)

Preparation of cream, butter, paneer, channa, ghee, khoa, lassi, dahi, icecream, rasgulla, gulabjamun, shirkhand, cheese and dairy by-products. Production, selection and purification of microbial cultures. Application of starter cultures in milk products. Determination of pH, acidity, electrical conductivity, viscosity, phosphatase test, MBRT, Resazurin test, DMC, SPC of milk products. Analysis of milk products in reference to BIS/PFA standards.

BOOKS RECOMMENDED

1. Aneja RP, Mathur BN, Banerjee AK & Chandan RC. 2002. *Technology of Indian Milk Products*. Dairy' India publication.
2. Spreer E. 1998. *Milk and Dairy Products Technology*. Taylor & Francis group.
3. Shivashraya Singh. 2013. *Milk and Milk Processing*. NJPA Publication.
4. Achaya KT & Rangappa KS. 1975. *Indian Dairy Products*. 2nd Ed. Asia Publ. House.
5. Britz and Robinson 2008. *Advanced Dairy Science and Technology*. Blackwell Publishing.
6. Marth and Steele. 2001. *Applied Dairy Microbiology*. Second Edition. Marcel Dekker.
7. Gosta Bylund. 1995. *Dairy Processing Handbook*. Tetra Pak Processing Systems AB S-221 86 Lund, Sweden.
8. Mattila Sandholm and Saarela Maria. 2003. *Functional Dairy Products*. Woodhead Publishing Limited.
9. Kumar Vijay. *Byproduct Technology*. NDRI Kamal Publication.
10. Ranganadham, M; Sathish Kumar; Devraja HC and Garg FC 2016. *Traditional Dairy Products*. NDRI Kamal Publication.
11. David J. (2009). *Technological Advances in Indigenous Milk Products*. KitabMahal Publications.
12. Directorate General of Health Services, MoHFW, Govt, New Delhi. 2005. *Manual Methods of Analysis of Foods (Milk and Milk Products)*.
13. A.Y. Tamime. 2009. *Milk Processing and Quality Management*. Blackwell Publishing Ltd. ISBN: 978-1-405-14530-5.
14. Gerrit Smit. *Dairy Processing — Improving Quality*. CRC Press — Woodhead Publishing Limited, Cambridge England.
15. Milk India Foundation. *Analysis of Milk and Milk Products — A lab Manual*. 2nd ed. Biotech Books, Delhi — 110035.