

AMLT04 BIOTECHNOLOGY OF LEATHER MANUFACTURE

UNIT-1 HISTOLOGICAL CHARACTERISTICS OF DIFFERENT HIDES AND SKINS

- 1.1 Buffalo, Cow, Goat and Sheep. Histological characteristics of Hair Histological processes for preparation of hides and Skins for observation under microscope.
- 1.2 Photomicrography and its utility in leather science.

UNIT-2 MICROBIOLOG AND BACTERIA

- 2.1 Morphology & fine structure of bacteria
- 2.2 The size, shape & arrangement of bacterial cells,
- 2.3 Bacterial structures- structures external to the cell wall- flagella & motility, pili, capsules, sheaths, prosthecae & stalks.

UNIT-3 THE CELL WALL

- 3.1 Structure & chemical composition, Structures internal to the cell wall-
- 3.2 The cytoplasmic membrans, protoplasts, spheroplasts, membranous intrusions & intracellular membrane system,
- 3.3 The cytoplasmic inclusion & vacuoles, nuclear material, spores & cysts.

UNIT-4 THE CULTIVATION, REPRODUCTION & GROWTH

- 4.1 Nutritional requirments, nutritional types of bacteria
- 4.2 Phototrophs, chemotrophs autotrophs & hetrotrophs, obligate parasites.

UNIT-5 BACTERIOLOGICAL MEDIA

- 5.1 Types of media, preparation of media.
- 5.2 Physical conditions required for growth.
- 5.3 Reproduction- modes of cell division, new cell formation.

UNIT-6 GROWTH

- 6.1 Normal growth cycle (growth curve)
- 6.2 Transitional periods between growth phases,
- 6.3 Synchronous growth, continuous culture.

UNIT-7 QUANTITATIVE MEASUREMENT OF BACTERIAL GROWTH

- 7.1 Direct microscopic count, electronic enumeration of cell numbers,
- 7.2 The plate count method, membrane filter count, turbid metric methods,
- 7.3 Determination of nitrogen content, determination of dry weight of cells,
- 7.4 Measurements of a specific chemical change produced on a constituent of a medium.
- 7.5 Importance of quantitative measurement of growth.

UNIT-8 METHODS OF ISOLATING PURE CULTURES

- 5.1 The streak plate technique, the pour plate and spread techniques, micro manipulator techniques, the maintence & preservation of pure cultures.

- 5.2 Culture collections, cultural characteristics, colony characteristics, characteristics of broth culture.
- 5.3 Characteristics, classification of Mold. 9 Role of bacteria & mold in leather.
- 5.4 Uses of Bactericides and Fungicides in Leather.
- 5.5 Role of enzymes in different stages of leather processing (with a regular provision of up gradation).

Reference Books:

1. Microbiologys- Michel J. Pelczar, JR, E.C.S. Chan, Noel R. Krieg (Fifth Edition)
2. Molecular Biology of the gene-walson, Hopkins, Roberts, Steitz Weiner (Fourth Edition)
3. Standard Methods- Examination of water and wastewater-20th Edition Lenove S. Clesceri, Arnold E. Greenberg, Andrew D. Eaton

