B.Sc. II Year

Semester – IV

BIM -C401
DSC-4 INDUSTRIAL MICROBIOLOGY

MM : 100
Time : 3 hrs
L Credit
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Sessional : 30
ESE : 70
Pass Marks : 40

Total Hours: 60

Learning objectives:

- To understand the scope and applications of industrial microbiology.
- To understand fermentation technologies used for the production of industrially important products.
- To understand how different fermentation product are produced, purified and recovered.

Learning outcomes:

At the end of course student will be able to

- Screen and isolate industrially important microorganisms.
- Make use of fermentor to produce alcoholic beverages and other fermentation products.
- Explain the different method of disinfection used in industry and also how to maintain quality of product.

UNIT - I

Metabolite: Primary and secondary, principal of exploitation of microorganism and their products, screening of microorganism, primary and secondary screening, strain development strategies, downstream processing: filtration, centrifugation, coagulation and flocculation

(14 Lectures)

UNIT – II

Alcoholic products: production and recovery of industrial alcohol, beer, wine, whiskey, rum, and brandy; commercial production of vinegar; Yeast and Baker's yeast

(10 Lectures)

UNIT – III

Antibiotics: Fermentation and recovery process of penicillin, streptomycin and tetracycline. **(10 Lectures)**

UNIT - IV

Enzymes and Amino acids: Microbial production and applications of amylases, lipase and protease; Amino acids: production of L-glutamic acid and L-lysine.

(14 Lectures)

UNIT - V

Vitamin B-12; Vitamin B2 (riboflavin), Vitamin C;Organic acids: Lactic acid and citric acid (fermentation and recovery).

(08 Lectures)

Suggested Reading

1. Dubey, R.C. *Advanced Biotechnology*. S. Chand & Co. P Ltd, New Delhi, p. 1161; ISBN: 81:219-4290-X.
2. Casida, L.E.J.R. Industrial Microbiology, New Age International Publisher,
3. A.H.Patel, Industrial Microbiology, Laxmi Publication, ISBN-10: 9385750267
4. Prescott and Dunns.Industrial Microbiology, CBS Publishers and Distributers, ISBN-10: 8123910010

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