

MAJOR BASED ELECTIVE – I MICROBIAL BIOTECHNOLOGY

Unit 1:

Biotechnology – definition – concepts– history and achievements.

Unit 2:

Enzyme production technology through microbes. Problems and applications enzyme immobilization and its applications.

Unit 3:

Microalgal technology industrial cultivation methods of Spirulina- biotechnology potentials of microalgae – food – feed –fuel production – pharma – ceutically valuable compounds from microalgae.

Unit 4:

Principles and applications of recombinant DNA technology and strain improvement (mutational, r-DNA technologies)

Unit 5:

Production of biotechnological products. Food – SPC (Algae, yeast. Mushroom) Bio fertilizer (Cyanobacteria, Rhizobia, Azospirillum, Azotobacter, Frankia, VAM). Bioinsecticide (Bacillus thuringiensis) Fuel-ethanol. Pharmaceuticals – antigens, interferons, vaccines, insulin, hormones, gene therapy methods. Hybridomas and monoclonal antibodies.

References:

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2. Cresswell Rc, Ress, TAV and Shah, N.1989. Algal and Cyanobacterial Biotechnology. Longman scientific and Technical New york.,
3. Prave, P.Paust, V.sittig, W.and sukatasch, D.1987-Fundamentals of Biotechnology. Glick B.R.and Pasternak, JJ.1994. Molecular biotechnology. ASM press. Washington Dc.
4. Watson,J.D.Gilman, M.Witkowski, J.Zoller, M.1992. Recombinant DNA. 2ND Ed, Scientific American Books.
5. Lewin, B(2000). Genes VIII. Oxford University Press. Oxford.
6. Balasubramanian. D., Bryce, C.Dharmalingam, K.Green, J.and Jayaraman K.(1996)concepts in Biotechnology, University press, India.
7. Trevan, MD, Boffey, S.Coulding KH & standury, P.1990. Biotechnology. The basic principles Tata MC Graw Hill edition.