

BIOFERTILIZER PRODUCTION

Semester	Subject Code	Category	Lecture		Theory		Practical	Credits
			Hrs/ week	Total Hours/ Semester	Hrs/ week	Total Hours/ Semester		
IV	21SZO4A	Skill Based Subject - II	2	30	2	30	Nil	2

COURSE OBJECTIVES:

- To impart awareness on Bio fertilizer technology
- To gain knowledge on organic farming

COURSE OUTCOMES (CO)

On the successful completion of the course, students will be able to:

CO Number	CO Statement	Knowledge Level (K1-K4)
CO1	Students gain knowledge in enhancing soil fertility.	K2
CO2	Students will be able to understand the use of bacteria for production of biofertilizer	K2, K3
CO3	Students can isolate and identify the bacteria involved in nitrogen fixation.	K2, K3
CO4	Students will be able to determine the role of VAM fungi as a biofertilizer to increase the soil fertility.	K3, K4
CO5	To gain hands on practice in Azolla cultivation as an alternative for chemical fertilizer.	K3, K4

Knowledge Level: K1- Remember; K2 – Understand; K3 – Apply; K4 – Analyze.

MAPPING WITH PROGRAMME OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	S
CO2	S	S	S	M	M
CO3	M	M	S	S	S
CO4	S	S	M	S	S
CO5	S	S	S	S	S

S- Strong; M – Medium; L- Low

Distribution of Marks: Theory 100% and Problems Nil %

UNIT- I

SOIL ECOLOGY

(6 Hours)

Introduction to biofertilizer production- Scope and importance of Biofertilizers. Types of Soil (Based on Texture, Structure and porosity)- Physical and Chemical Composition of Soil. Types of Microorganisms in Soil. Methods for Enhancing Soil Fertility.

UNIT-II

BACTERIAL BIOFERTILIZERS

(6 Hours)

Mass Production and Utilization of Different Strains of Blue Green Algae- Nostoc-anabaena. Mass Cultivation of Azolla and its application

UNIT-III

ISOLATION and IDENTIFICATION OF NITRIFYING BACTERIA

(6 Hours)

Study of Soil Bacteria-Endophytic Nitrogen Fixer. Rhizobium and Legume root Nodulation and Nitrification Process- Gaseous cycle- Nitrogen cycle.

UNIT-IV

PRODUCTION OF MICORRHIZAL BIOFERTILIZERS

(6 Hours)

Phosphate Solubilizing Microorganisms- Vesicular Arbuscular Mycorrhizal (VAM) Fungi and its Applications as Biofertilizers.

UNIT-V

PRACTICAL

(6 Hours)

Azolla cultivation in small scale/Comparative study of physical parameters in plant growth using conventional chemical fertilizer and organic fertilizer, biofertilizer/Visit to Organic farm

TEXT BOOKS AND REFERENCE BOOKS

S. No.	Authors	Title of the Book	Publishers	Year of Publication
1.	Singh, T. and Purohit, S.S	Biofertilizer Technology	Agrobios-India	2008
2.	Sharma, A.K.	Biofertilizer for Sustainable Agriculture	Agrobios-India	2007
3.	Pandiyarajan,P	Techniques in Agricultural Microbiology	Agrobios-India	2008
4.	Purohit, S.S.	Microbiology-Fundamentals and Applications (6 th edition) Student Edition	Jodhpur-India	2005:

5.	Dubey, R.C. and Maheswari, D.K.	A Text Book of Microbiology	S.Chand and Co. New Delhi, India	2007
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WEB SOURCES:

www.sciencedirect.co.

www.pebmed.com

www.khansacademy.com

www.epatsala.com

www.swayam.com

TEACHING METHODOLOGY

- Class room teaching
- Charts/ Models
- Power point Presentations
- Discussions
- Assignments
- Home test

SYLLABUS DESIGNERS

- Dr. D. Sasikala, Assistant Professor and HOD
- Dr. V. Kiruthiga, Assistant Professor
- Dr. V. Rekha, Assistant Professor
- Dr. A. Vinodhini, Assistant Professor
- Dr. G. Vidhya, Assistant Professor