

OBJECTIVES: To enable the students to –

- Understand the position, classification and structure of prokaryotes
- Understand the position of Thallophyta in the plant kingdom and know the classification of the different groups namely Viruses, Bacteria, Algae, Fungi & Lichens.
- Identify the morphological and reproductive features of different algae and fungi through the study of representative types of various classes.
- Realize the economic importance of Algae and fungi and Bacteria.
- Understand the symbiotic association of Algae & fungi by study of lichens and their economic importance.
- Identify and understand disease cycle of some of the important plant disease and their control measures.

COURSE:

UNIT I: MICROBIAL DIVERSITY-INTRODUCTION & VIRUSES

1. Introduction to microorganisms-Occurrence and distribution
2. Classification of microorganisms– R.H. Whittaker’s five kingdom concept, Carl Woese’s- Domains system.
3. **Viruses:** General characters of Viruses, Classification, Morphology and Structure of TMV, Bacteriophage

UNIT II: Bacteria & Cyanobacteria

1. **Bacteria** : General characters, Classification, Types, Ultra structure, Nutritional types, Reproduction- Asexual, Sexual- Transformation, Conjugation, Transduction,
2. Economic importance of Bacteria
3. Special groups of bacteria: Brief account of Archaeobacteria, Mycoplasma, Chlamydia, Actinomycetes, Rickettsias
4. **Cyanobacteria:** General characters (Brief account), Structure and Life history of Nostoc, Scytonema.

UNIT III: ALGAE:

1. General characters, Thallus organization, Reproduction of Algae.
2. Classification of Algae according to Fritsch system.
3. Structure, reproduction and Life History of following types :
 - Chlorophyceae : Oedogonium
 - Phaeophyceae : Ectocarpus
 - Rhodophyceae : Polysiphonia
4. Economic importance of Algae including Biofertilizers and SCP.

UNIT IV: FUNGI

1. General characters.
2. Classification of Fungi (Ainsworth system)
3. Structure, Reproduction, Life History and Systematic position of the following types :
 - Zygomycotina : Rhizopus
 - Ascomycotina : Penicillium
 - Basidiomycetes : Puccinia
4. Economic importance of Fungi including VAM.

UNIT V: LICHENS & PLANT PATHOLOGY

1. **Lichens:** Structure, Reproduction, Economic & Ecological importance.
2. **Plant Pathology:** Major symptoms of Fungal, Bacterial and Viral plant diseases. Transmission of plant viruses
3. General Control Measures of Plant diseases.
4. Symptoms, Propagation and Control measures of following diseases.
 - Fungal** : Green ear of Bajra, Tikka disease of Ground nut, Red rot of Sugar cane.
 - Bacterial** : Leaf Blight of Rice, Citrus canker
 - Viral** : Bendi vein clearing, Leaf curl of Papaya.

ST.JOSEPH'S COLLEGE FOR WOMEN (AUTONOMOUS), VISAKHAPATNAM
I SEMESTER **BOTANY** TIME: 3Hrs/Week
B 1153 (2) **PLANT DIVERSITY- I** Max. Marks: 50
w.e.f:2016-2019 ('16AD' Batch) (**MICROBIAL DIVERSITY, ALGAE, FUNGI & PLANT PATHOLOGY**)
PRACTICAL SYLLABUS

OBJECTIVES: To enable the students to –

- Acquire the laboratory techniques of preparation of slides for study of algal and fungal forms.
- Identify and distinguish between the different algal types, fungal types & prokaryotes included in the syllabus.
- Identify some importance plant diseases through the symptoms.

COURSE:

1. Study of Bacteria, Virus using electron micro Photographs / slides.
2. A. **Cynobacteria** – Oscillatoria, Nostoc, Anabaena and Scytonema
B. Vegetative and reproductive structure of the following with the help of micro preparation by students, Specimens & Permanent slides.
Algae : Oedogonium, Chara, Ectocarpus & Polysiphonia.
Fungi : Rhizopus, Albugo, Pencillium, Puccinia.
3. Section cutting of diseased material infected by Fungi and identification of Pathogens per theory syllabus.
4. **Lichens** : Different types of thalli, Anatomy, and Reproductive structure.
5. **Plant Pathology** : Drawings and identification of Pathological Specimens.
Fungal : Green ear of Bajra, Tikka disease of Ground nut, Red rot of Sugar cane.
Bacterial : Leaf Blight of Rice, Citrus Canker
Viral : Bendi vein clearing, Leaf curl of Papaya.

REFERENCES:

1. Practical Botany- Vol.I H.N.Srivastava (1991) – Pradeep Publications, Jalandhar.
2. A Text Book of Practical Botany – Vol.I (227) – Bendre & Kumar – Rastogi Publications, Delhi.

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