SRI A.S.N.M.GOVERNMENT COLLEGE (A)
PALAKOL

I B.Sc - (CBCS) BOTANY SYLLABUS

PAPER-I; SEMESTER- I

(W.e.f. 2018-19 Admitted Batch)

Paper-I: Microbial Diversity, Algae and Fungi

Total hours of teaching 60 hrs @ 4 hrs per week

UNIT-I: MICROBIAL WORLD (Origin and Evolution of Life, Microbial diversity (12hrs)

1. Discovery of microorganisms, origin of life, spontaneous, biogenesis, Pasteur experiments, germ theory of disease.
2. Classification of microorganisms – R.H. Whittaker's five kingdom concept.
3. Brief account of special groups of bacteria- Archaebacteria, Mycoplasma, Chlamydia, Actinomycetes and Cyanobacteria.

UNIT- II: VIRUSES (12hrs)

1. Viruses- Discovery, general account, structure& replication of –T4 Phage (Lytic, Lysogenic) and TMV, Viroids.
2. Plant diseases caused by viruses – Symptoms, transmission and control measures (Briefaccount only).
3. Study of Tobacco Mosaic, Bhendi Vein clearing and Papaya leaf curl diseases.

UNIT III: BACTERIA (12hrs)

1. Bacteria: Discovery, General characteristics, cell structure and nutrition
2. Reproduction- Asexual and bacterial recombination (Conjugation, Transformation, Transduction).
3. Economic importance of Bacteria.

UNIT –IV Algae (12hrs)

1. General account - thallus organization and reproduction in Algae.
2. Fritsch classification of Algae (up to classes only) and economic importance.
3. Structure, reproduction and life history of *Oedogonium, Ectocarpus* and *Polysiphonia.*

UNIT V: FUNGI (12hrs)

1. General characteristics and outline classification (Ainsworth).
2. Structure, reproduction and life history of *Rhizopus* (Zygomycota), *Pencillium* (Ascomycota), and *Puccinia* (Basidiomycota).
3. Lichens-Structure and reproduction; ecological and economic importance.

Additional Input: Plant diseases caused by Fungi and their control.

Suggested activity: Seminar, Quiz, debate, collection of diseased plant parts – studying symptoms and identification of pathogen, collection and study of fresh and marine Algae available in local area.

Books for Reference:

1. Oladele Ogunseitan (2008) Microbial Diversity: Form and Function in Prokaryotes Wiley – Blackwell.

2. Pelczar, M.J. (2001) Microbiology, 5th edition, Tata Mc Graw-Hill Co, New Delhi.

3. Presscott, L. Harley, J. and Klein, D. (2005) Microbiology, 6th edition, Tata Mc Graw – Hill Co. New Delhi.

4. Fritsch F.E. (1935 The Structure & Reproduction of Algae 1945): Cambridge University Press Cambridge, U.K. Vol. I, Vol. II.

5. Smith, G.M (1955) : Cryptogamic Botany (Vol.I Algae, Fungi & Lichens) Mc Graw-Hill Book Co., New York.

6. Ian Morris (1967): An Introduction to the Algae, Hutchinson, London.

7. Alexopoulos, C.J.., Mims, C.W. & Blackwell, M. (1996): Introductory Mycology John Wiley & Sons, Inc., N.Y., Chicester, Berisbane, Toronto, Singapore.

8. Webster, J (1999): Introduction to Fungi (2nd edition) Cambridge University Press.

**Student Activities like Seminars, Assignments, Fieldwork, Study Projects, Models etc. are Part of Curriculum for all units in all papers.

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I B. Sc – BOTANY

PRACTICAL SYLLABUS: PAPER I SEMESTER –I

(W.e.f. 2018-19 Admitted Batch)

Paper-I: Microbial Diversity, Algae and Fungi

Total hours of laboratory Exercises 48 hrs @ 3 per week

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1. Knowledge of Equipment used in Microbiology: Spirit lamp, Inoculation loop, Hot-air oven, Autoclave/Pressure cooker, laminar air flow chamber and Incubator.
2. Preparation of liquid and solid media for culturing of microbes (Demonstration).
3. Study of viruses and bacteria using electron photo micrographs (TMV, Bacteriophage, HIV, Cocci, Bacillus, Spirillum bacteria).
4. Gram staining technique.
5. Study of Plant disease symptoms caused by Bacteria (Citrus canker, leaf blight of rice, Angular leaf spot of Cotton) and viruses (TMV, Bhendi vein clearing and Leaf curl of Papaya),Fungi (Late blight of potato, Red rot of Sugarcane and Paddy blast).
6. Study of vegetative and reproductive structures of the following :
   a) **Cyanobacteria:** *Nostoc and Scytonema.*
   b) Algae: *Oedogonium, Ectocarpus, Polysiphonia*,
   c) Fungi: *Rhizopus, Penicillium and Puccinia* .
7. Study of plant materialinfected by Fungi (Rot of tomatoes,blue and greenmoulds of Ciitrus fruits and wheat rust(Section cutting of diseased parts of Wheat and Barberry - identification of different spores).
8. Lichens: Morphology and of anatomy of different thalli.
9. Field Visit.