

# DEPARTMENT OF



The Word 'botany' comes from Ancient Greek "botane" which means "pasture" or "fodder". Theophrastus is known as "The Father of Botany".

Botany is a branch of Science (Biology) that deals with plant life. It is the study of the structure and the vital processes of plants including photosynthesis, respiration and plant nutrition.

## Nature of Botany

1. Botany is one of the world's oldest natural sciences.
2. Many of our early medicines come from plants extracts; aspirin developed as a result of the study of rotting tree bark and penicillin came from mould.
3. Botany is the scientific study of plants. A wide range of living organism from smallest bacteria to large living things. Some of these are fungi, bacteria, virus and algae. Now a days most of the algae, fungi and microbes are not considered to be the plant kingdom
4. It includes the study of the interior structure of living things; interaction of plants with other organisms and the environment; study of cells, including their function, structure and life history. Exterior form of plants: including the placement of stems and leaves on a stem and also the study of disease and the structural and functional changes that occur with disease. This can be important for range of fields including conservation biology, ecology, agriculture and horticulture.
5. There are various division of Botany: Plant Pathology, Plant Ecology, Palaeobotany, Archaeobotany, Forensic Botany

## Scope of Botany

- Botany is important to study or understand because it has many ecological and economic importance. For instance, plants are used as a source of food, fuel and have medicinal implications. Plants are fundamental part of life on earth. They generate the oxygen, food, fibers, fuel and medicine that allow higher life forms to exist. Plants also absorbed carbondioxide, a significantant greenhouse gas, through photosynthesis.
- A good understanding of plants is very important for the upcoming human societies. It allow us to feed the world. Most of the food we eat comes from plants either directly or indirectly..
- Plants not only organisms that can produce their own food-Cyanobacteria also perform photosynthesis, they might have been the first photosynthetic organism to evolve on earth. Also, these organisms are responsible for the current oxygen levels that we have in the atmosphere.

# **Mr Anil kulkarni**

**Dept. of BOTANY**

N V Degree College - Kalaburagi

**Mob.8147279800**

Email.:anilkulkarni@gmail.com

Year of dept established : 2018

Started by : Mr. Anil kulkarni

No of students when established : 21

Present total no. of students : 63

Passed result : 100%

Highest % : 90% Shryus

Adhar No : 398837568683

PAN : BTEPA13766

Qualification : MSc ,B.Ed

Date of Appointment : 1 /6/2018

Experience : 10 Yrs and Running

Present Address : S/O Digambar Kulkarni Alanga  
Gulbarga Karnataka Gulbarga  
585102

**SYLLABUS**

## B.Sc. BOTANY: Semester - I

Title of the Course: Microbial Diversity and Technology

Number of Theory Credits	Number of lecture hours/semester	Number of practical Credits	Number of practical hours / semester
4	56	2	56
Content of Theory Course I			56 Hrs
Unit -1			15
Chapter No. 1: Microbial diversity-Introduction to microbial diversity; Methods of estimation; Hierarchical organization and positions of microbes in the living world. Whittaker's five-kingdom system and Carl Richard Woese's three-domain system. Distribution of microbes in soil, air, food and water. Significance of microbial diversity in nature.			5
Chapter No. 2 History and developments of microbiology-Microbiologists and their contributions (Leeuwenhoek, Louis Pasteur, Robert Koch, Joseph Lister, Dmitri Iwanowski, Sergius Winogradsky and M W Beijerinck and Paul Ehrlich).			5
Chapter No. 3 Microscopy-Working principle and applications of light, dark field, phase contrast and electron microscopes (SEM and TEM). Microbiological stains (acidic, basic and special) and Principles of staining. Simple, Gram's and differential staining.			5

Unit - 2	15
✓ Chapter No. 4. Culture media for Microbes-Natural and synthetic media, Routine media -basal media, enriched media, selective media, indicator media, transport media, and storage media.	5
Chapter No. 5. Sterilization methods -Principle of disinfection, antiseptic, tyndallisation and Pasteurization, Sterilization-Sterilization by dry heat, moist heat, UV light, ionization radiation, filtration. Chemical methods of sterilization-phenolic compounds, anionic and cationic detergents.	5
Chapter No. 6. Microbial Growth-Microbial growth and measurement. Nutritional types of Microbes- autotrophs and heterotrophs, phototrophs and chemotrophs; lithotrophs and organotrophs.	5
Unit - 3	11
Chapter No. 7 Microbial cultures and preservation-Microbial cultures. Pure culture and axenic cultures, subculturing, Preservation methods-overlaying cultures with mineral oils, lyophilisation. Microbial culture collections and their importance. A brief account on ITCC, MTCC and ATCC.	5
Chapter No. 8. Viruses- General structure and classification of Viruses; ICTV system of classification. Structure and multiplication of TMV, SARS-COV-2, and Bacteriophage (T2). Cultivation of viruses. Vaccines and types. <i>J 2M</i>	4
Chapter No. 9. Viroids- general characteristics and structure of Potato Spindle	2

*signification*  
*on*  
*briefly the*  
*tests.*

*D*  
Professor & Chairman  
Department of P.G. Studies  
& Research in Botany  
Gulbarga University Gulbarga-585104  
Karnataka

*Q*



## Semester-III

### CCBot- III: Plant Anatomy and Embryology

60 h

**Preamble:** The paper on Plant Anatomy and Embryology is a compulsory core course for the undergraduate students with Botany at 3<sup>rd</sup> Semester deals with different aspects of plant anatomy such as, tissue system, organs, secondary growth and adaptive and protective systems and Structural organization of flower, Pollination and fertilization, Embryo and endosperm and Apomixis and polyembryony in embryology. This exposure will make the students to understand the anatomical structures and development of reproductive structures in plants.

#### Unit 1:

##### Meristematic and permanent tissues

15h

Root and shoot apical meristems; Simple and complex tissues. Secretory tissues.

##### Organs

Structure of dicot and monocot root, stem and leaf.

#### Unit 2:

##### Secondary Growth

15 h

Vascular cambium – structure and function, seasonal activity. Secondary growth in root and stem, Wood (heartwood and sapwood). Anomalous secondary growth (*Amaranthus* & *Dracaena*)

##### Adaptive and protective systems

Epidermis, cuticle, stomata; General account of adaptations in xerophytes and hydrophytes.

#### Unit 3:

##### Structural organization of flower

15h

Structure of anther and pollen; Structure and types of ovules; Types of embryo sacs, organization and ultrastructure of mature embryo sac.

##### Pollination and fertilization

Pollination mechanisms and adaptations; Double fertilization; Seed - Structure (Dicot & Monocot) appendages and dispersal mechanisms.

#### Unit 4:

##### Embryo and endosperm

15h

Endosperm types, structure and functions; Dicot and monocot embryo; Embryo endosperm relationship.

##### Apomixis and polyembryony

Definition, types and practical applications.

#### Practical

1. Study of meristems through permanent slides and photographs.
2. Tissues (parenchyma, collenchyma and sclerenchyma); Macerated xylary elements, Phloem (Permanent slides, photographs)
3. Stem: Monocot: *Zea mays*; Dicot: *Helianthus*; Secondary: *Helianthus*..
4. Root: Monocot: *Zea mays*; Dicot: *Helianthus*; Secondary: *Helianthus*.
5. Leaf: Dicot and Monocot leaf.

## Semester-V

### DSE-1: Cytology, Genetics and Molecular Biology

60 h

**Preamble:** The paper on Cytology, Genetics and Molecular Biology is a discipline specific elective course for the undergraduate students with Botany at 5<sup>th</sup> Semester deals with cell theory, cell wall, cell membrane, cell organelles, cell cycle, mutations, chromosomal aberrations, mendalism, gene interactions, cytoplasmic inheritance, multiple alleles, polygenic inheritance sex determination, sex linked inheritance, linkage and crossing over, DNA replication, structure and functions of RNA, genetic code, protein synthesis. This course covers the basics in cytology and genetics and introduces the students to little advances in molecular biology.

#### Unit 1:

15h

The Cell Theory, Prokaryotic and eukaryotic cells, Ultra structure of Cell wall, cell membrane (Fluid mosaic model), Cell components. Structure and function of mitochondria, chloroplast, ER, Golgi Body and Nucleus. Cell cycle, Mitosis and Meiosis, Mutations and Chromosomal Aberration (Structural and numerical).

#### Unit 2:

15h

Genetics: Mendalian Genetics- Brief history of Pre- Mendalism and Mendalian genetics( Mono and di-hybrid crosses, Principle and terminology), Gene interaction-incomplete dominance, supplementary, complementary and epistatic interactions.

#### Unit3:

15h

Cytoplasmic inheritance (Leaf variegation in *Mirabilis jalapa*), Multiple allelism, pleiotropism and polygenic inheritance in plants; Sex determination in *Melandrium* and *Drosophila*, sex linked inheritance in drosophila; Linkage and Crossing over (*Zea Maize*).

#### Unit 4:

15h

Nucleic acid: DNA: Ultra structure, replication (Semi-conservative). Experimental evidences to prove DNA as genetic material. RNA-Types, structure and functions, Genetic code and protein synthesis.

#### Practical

1. To study prokaryotic cells (bacteria), viruses, eukaryotic cells with the help of light and electron micrographs.
2. Study of the photomicrographs of cell organelles
3. To study the structure of plant cell through temporary mounts.
4. Study of mitosis and meiosis (temporary mounts and permanent slides).
5. Measure the cell size (either length or breadth/diameter) by micrometry.
6. Study the structure of nuclear pore complex by photograph (from Genald Karp)

11

  
Professor & Chairman  
Department of P.G. Studies  
& Research in Botany  
Gulbarga University Gulbarga-585106  
Karnataka

## Semester-V

### SEC-1: Biofertilizers

15 h

#### Unit 1:

7 h

General account about the microbes used as biofertilizer: Isolation and Identification of Rhizobium, *Azospirillum*, *Azotobacter*, Cyanobacteria (blue green algae), *Azolla* and *Anabaena*, Nitrogen Fixation by Rhizobium, factors affecting growth of blue green algae and *Azolla* in rice cultivation.

13

  
Professor & Chairman  
Department of P.G. Studies  
& Research in Botany  
Gulbarga University Gulbarga-585106  
Karnataka



## ACHIEVEMENTS



ರಾಜ್ಯ ವಿಜ್ಞಾನ ಪರಿಷತ್, ನೂತನ ವಿದ್ಯಾಲಯ ಸಂಸ್ಥೆ ಆಶ್ರಯದಲ್ಲಿ ಎನ್‌ವಿ ಸಂಸ್ಥೆಯ ಅನಂತರಾವ ದೇಶಮುಖ ಸಭಾಂಗಣದಲ್ಲಿ ಶುಕ್ರವಾರ ಆಯೋಜಿಸಿದ್ದ ವಿಜ್ಞಾನ ವಸ್ತು ಪ್ರದರ್ಶನವನ್ನು ಗುಲ್ಬರ್ಗ ವಿವಿ ಕುಲಪತಿ ಪ್ರೊ. ದಯಾನಂದ ಅಗಸರ ವೀಕ್ಷಿಸಿದರು. ಸಂಸ್ಥೆ ಅಧ್ಯಕ್ಷ ಡಾ.ಗೌತಮ್ ಜಾಗಿರದಾರ, ಕಾರ್ಯದರ್ಶಿ ಅಭಿಜೀತ್ ದೇಶಮುಖ ಇದ್ದರು.

### ಬಾಲ ಗೌರವ ಪ್ರಶಸ್ತಿಗೆ ಅರ್ಜಿ ಆಹ್ವಾನ

ಕಲಬುರಗಿ: ರಾಜ್ಯ ಬಾಲವಿಕಾಸ ಅಕಾಡೆಮಿಯಿಂದ ರಾಜ್ಯ ಮತ್ತು ರಾಷ್ಟ್ರಮಟ್ಟದಲ್ಲಿ ವಿಶೇಷ ಸಾಧನೆಗೈದ 18 ವರ್ಷದೊಳಗಿನ ಮಕ್ಕಳಿಗೆ ಬಾಲಗೌರವ ಪ್ರಶಸ್ತಿ ನೀಡಲಾಗುತ್ತಿದೆ. ಇದಕ್ಕಾಗಿ ವಿಶೇಷ ಸಾಧನೆಗೈದ 18 ವರ್ಷದೊಳಗಿನ ಮಕ್ಕಳಿಂದ ಅರ್ಜಿ ಆಹ್ವಾನಿಸಲಾಗಿದೆ ಎಂದು ಧಾರವಾಡದ ಕರ್ನಾಟಕ ಬಾಲ ವಿಕಾಸ ಅಕಾಡೆಮಿ ಅಧ್ಯಕ್ಷ ಈರಣ್ಣ ಜಡಿ ತಿಳಿಸಿದ್ದಾರೆ. ಸಂಗೀತ, ನೃತ್ಯ, ನಟನೆ, ಕ್ರೀಡೆ ಮತ್ತು ಚಿತ್ರಕಲೆ, ಕರಕುಶಲ, ಬರವಣಿಗೆ ಹಾಗೂ ಸಂಶೋಧನೆ (ಹೊಸ ಆವಿಷ್ಕಾರ) ಈ ಕ್ಷೇತ್ರಗಳಲ್ಲಿ ಅಸಾಧಾರಣ ಸಾಧನೆಯನ್ನು ರಾಜ್ಯ ಮತ್ತು ರಾಷ್ಟ್ರಮಟ್ಟದಲ್ಲಿ ಪ್ರಶಸ್ತಿ ಪುರಸ್ಕೃತ ಮಗುವಾಗಿರಬೇಕು. ಇಂತಹ ಮಕ್ಕಳು ಅಕಾಡೆಮಿ ಬಾಲ ಗೌರವ ಪ್ರಶಸ್ತಿಗಾಗಿ ತಮ್ಮ ಸ್ವಯಂ ದೃಢೀಕೃತ ನಕಲು ದಾಖಲೆಗಳು ಹಾಗೂ ಸ್ವ-ವಿವರಣೆಗಳೊಂದಿಗೆ ಮನವಿಯೊಂದಿಗೆ ಅರ್ಜಿಯನ್ನು ಯೋಜನಾಧಿಕಾರಿಗಳು, ಕರ್ನಾಟಕ ಬಾಲವಿಕಾಸ ಅಕಾಡೆಮಿ, ಚಂದ್ರಿಕಾ ಲೇಔಟ್ ಹಿಂಭಾಗ, ಕೆ.ಎಚ್.ಬಿ. ಕಾಲನಿ, ಲಕಮನಹಳ್ಳಿ ಧಾರವಾಡ-580004 ಈ ವಿಳಾಸಕ್ಕೆ 20ರೊಳಗಾಗಿ ಕಳಿಸಬೇಕು. ಕೊನೆಯ ದಿನಾಂಕದ ನಂತರ ಬರುವ ಅರ್ಜಿಗಳನ್ನು ಪರಿಗಣಿಸುವುದಿಲ್ಲ. ಲಕೋಟೆ ಮೇಲೆ ಅಕಾಡೆಮಿ ಬಾಲಗೌರವ ಪ್ರಶಸ್ತಿಗಾಗಿ ಅರ್ಜಿ ಎಂದು ನಮೂದಿಸಿ ಕಳುಹಿಸಬೇಕು. ಮಾಹಿತಿಗಾಗಿ ಅಕಾಡೆಮಿಯ ಕಚೇರಿ ಸಂಖ್ಯೆ 0836-2461666 ಗೆ ಸಂಪರ್ಕಿಸಬಹುದು.

STUDENT OF BSC 6 SEM PARTICIPATED IN  
EXHIBITION BAGGED 1 PLACE.



**PARTICIPATED IN INTER COLLEGE ESSAY COMPETITION  
AND BAGGED I PLACE WITH A CASH PRIZE OF 1000.**





**STUDENTS PARTICIPATED IN INTER COLLEGE SPORTS  
COMPETITION BAGGED  
1 GOLD MEDAL IN SHOT PUT  
1 GOLD MEDAL IN CRICKET  
AND PARTICIPATION CERTIFICATE IN VOLLY BALL.**



**6 SEM STUDENTS PARTICIPATED IN SCIENCE EXHIBITION HELD AT S.B COLLEGE OF SCIENCE AND BAGGED 4<sup>TH</sup> PRIZE.**





**PARTICIPATED IN DIST SCIENCE CENTRE  
KALABURAGI FOR THE EVENT OF SCIENCE  
EXHIBITION .**



**STUDENT OF 5<sup>TH</sup> SEMESTER PARTICIPATED IN  
NATIONAL SPORTS DAY AND BAGGED 3<sup>RD</sup> PRIZE**



# SEMINARS CONDUCTED BY I, III AND IV STUDENTS













# FIELD VISIT

## 1. SURVEYING AND NAMING THE SCIENTIFIC NAMES OF TREES IN OUR COLLEGE

Plants are all around us and are an integral part of our lives; they fill our fields and hedgerows with greenery, our woodlands and verges with bright colour and the air with their fragrance. Norfolk has more than 1,000 species of wild flowering plants; these include grasses, sedges and rushes as well as trees and shrubs, which are simply large flowering plants. In addition there are many species of non-flowering plants, ranging from tiny mosses and liverworts to the larger more obvious ferns. Wild plants were once commonly gathered for food and to provide natural remedies. Nowadays, apart from blackberry picking and the autumn gathering of conkers and sweet chestnuts, people are less aware of the diversity of their local wild plants and where particular species grow. This means there are gaps in our knowledge of the distribution of many plants and surveying your local area can help to remedy this.







REDMI NOTE 8  
AI QUAD CAMERA

2021/12/13 10:41

1.





● ○ REDMI NOTE 8  
○ ○ AI QUAD CAMERA

2021/12/13 10:10





REDMI NOTE 8  
AI QUAD CAMERA

2021/12/13 10:35



## 2. VISIT TO MEDISCAN DIAGNOSTIC CENTRE KALABURAGI.















