DEPARTMENT OF BOTANY
SIKKIM GOVERNMENT COLLEGE, NAMCHI

OVERVIEW OF THE DEPARTMENT

The Department of Botany was established on 2nd July 2012 under the guidance of Miss Sushma Tamang, Assistant Professor and Ms. Rojyata Subba, lab attendant. Initially there was one teaching and one non-teaching faculty member appointed. The Department of Botany, Namchi Government College (now Sikkim Government College, Namchi). was among the first to offer undergraduate (Science) course in South district in Sikkim that was set-up in affiliation with the Sikkim University, 5th mile Samdur, Sikkim.

On 11th July 2012 the first session of B.Sc. Botany Honours course started at Namchi Government College. The first batch started with the enrollment of 19 students who graduated in the year 2015.

Introduction:

The B.Sc. - Botany honours programme is planned to provide students with indispensable knowledge and technical skills to study plants in a comprehensive manner. Students would be given knowledge in all areas of plant biology with the help of its curriculum, which encompass all the elementary knowledge of botany. Students would be exposed to both theoretically and practically in the study of plant life forms, their evolution and interactions with other organisms within the ecosystem. Students would also become aware of the social and environmental significance of plants and their relevance to the national economy. The B.Sc. - Botany programme is formed to gain knowledge and also learn technical skills to study plants.students would be using basic biological techniques to explore molecular biology of plants. The programme also has a strong interdisciplinary constituent. Emphasis would be given on experiential knowledge through hands-on laboratory exercises, field trips and assignments.

Aims of B.Sc. Botany:

1. Understanding of plant classification systematics, evolution, ecology, physiology, biochemistry, plant interactions with microbes and insects, morphology, anatomy, reproduction, genetics and molecular biology of various life-forms.
2. Understanding of a variety of analytical techniques of plant sciences, use of plants as industrial resources or as human livelihood support system and is well versed with the use of transgenic technologies for basic and applied research in plants.
3. Understanding of various life forms of plants, morphology, anatomy, reproduction, genetics, microbiology, molecular biology, recombinant DNA technology, transgenic technology and use of bioinformatics tools and databases and the application of statistics to biological data.
4. To enable the graduates prepare for national as well as international competitive examinations.

TOTAL STRENGTH OF STUDENTS

Session	2021-24	2020-23	2019-22	2018-21	2017-20	2016-19
Total Strength of Students	38	40	40	40	34	41

MALE/FEMALE RATIO

Session	2022-25	2021-24	2020-23	2019-22	2018-21	2017-20	2016-19
Total Strength of Students	28	38	40	40	40	34	41
Total Male	10	08	14	16	17	13	12
Total Female	18	30	26	24	23	21	29
Male/Female Ratio	0.5	0.3	0.5	0.6	0.7	0.6	0.4

LIST OF FORMER FACULTIES:

Sl. No.	Name of Faculties	Awarded	Joined
1	Ms. Sushma Tamang	M.Sc.	2012
2	Mrs. Ashika Pradhan	M.Sc. /B. Ed	2012
3	Mr. Ongyal Bhutia	M.Sc./SLET	2013
4	Dr. Robin Sharma	M.Sc./PhD	2014
5	Mr. Manoj Pradhan	M.Sc./SLET	2015
6	Mrs. Pratima Rai	M.Sc./B. Ed	2015

List of H.O.Ds. till date:

Sl. No.	Names	Years
1.	Ms. Sushma Tamang	2012-2013
2.	Mrs. Ashika Pradhan	2013-2015
3.	Mr. Ongyal Bhutia	2015-2017
4.	Dr. Robin Sharma	2017-2018
5.	Mr. Manoj Kumar Pradhan	2018-2019
6.	Dr. Bishnu Kumar Sharma	2019-2023
7.	Mrs. Yeden Bhutia	2023-2025

TOTAL STRENGTH OF FACULTIES

Session	2024-25	2023-24	2022-23	2021-22	2020-21	2019-20	2018-19
Total number of faculities	3	3	4	4	5	5	6

LIST OF PRESENT TEACHING FACULTY MEMBERS :

MRS. YEDEN BHUTIA (HOD) **ASSISTANT PROFESSOR** **M.Sc. BOTANY** **(MOLECULAR-BIOLOGY);** **NESLET** **CONTACT NO. 9775325908**	
DR. BISHNU KUMAR SHARMA **ASSISTANT PROFESSOR** **M.Sc BOTANY** **(PLANT REPORDUCTIVE BIOLOGY,** **ETHNOBOTANY);** **M.Phil;Ph.D.** **CONTACT NO. 9883416072**	
MR. CHUZING LEPCHA **ASSISTANT PROFESSOR** **M.Sc. BOTANY (PLANT PHYSIOLOGY);** **CSIR-NET** **CONTACT NO. 6297789623**	

LIST OF PRESENT NON-TEACHING FACULTY MEMBERS :

MRS. ROJYTA SUBBA **M.A (SOCIOLOGY)** **LAB ATTENDENT** **CONTACT NO. 9732072616**	
MS. SOVA KUMARI SUBBA **B.A (SOCIOLOGY)** **OFFICE ASSISTANT** **CONTACT NO. 7550923430**	

COURSE OFFERED: B. Sc. Botany (hons.)

B.Sc. Botany honors syllabus

SEMESTER I
B0T-UG-CT-101: BIOLOGY OF CRYPTOGAMS

Unit I: PHYCOLOGY

General characteristics; Outline of Fritsch's classification; Salient features of Cyanophyceae, Chlorophyceae, Baccilariophyceae, Phaeophyceae and Rhodophyceae. Evolution of sex in algae; Economic importance of algae. Important features of life cycles of *Nostoc*, *Oedogonium*, *Chara*, *Ectocarpus* and *Polysiphonia*.

Unit II: MYCOLOGY AND LICHENS

General characteristics; Outline of Gwyne Vaughan's & Ainsworth's classification; Salient features of different classes (Phycomycetes, Ascomycetes, Basidiomycetes and Deuteromycetes); Important features of life cycles of *Phytophthora*, *Puccinia*, *Agaricus* and *Alternaria*; Economic importance of fungi.

Lichens: General account of lichens with reference to economic importance and production.

Unit III: BRYOLOGY AND PTERIDOLOGY

General characteristics; Classification and salient features of different classes;; Evolution of sporophytes; Life cycle of *Marchantia*, *Anthoceros* and *Funaria*.

Pteridophytes: General characteristics; Classification and salient features of different classes; Evolution of stele; Heterospory and seed habit; Life cycles of *Rhynia*, *Lycopodium*, *Equisetum* and *Marsilea*.

Unit IV: PRACTICAL

1. Study of vegetative and reproductive parts with the help of temporary slide preparations of Oedogonium and Ectocarpus.
2. Study of vegetative and reproductive parts with the help of temporary slide preparations of

Pucinnia and Agaricus.

3. Study of vegetative and reproductive parts with the help of permanent slide preparations of Marchantia and Funaria.
4. Study of vegetative and reproductive parts with the help of permanent slide preparations of

Lycpodium, Equisetum.

Text Books

1. Vashishta, B.R., A.K. Singh and V.P. Singh: *Algae,* (S.C. Chand Co. Pvt. Ltd.)
2. Ganguly, H.C. & Kar, A.K.: *College Botany,* Vol. II, (New Central Book Agency).
3. Alexopoulous, C.J., Mims, C.G. and Blackwell: *Introductory Mycology,* (Wiley Eastern)
4. Agrios, G.M. : *Plant Pathology,* (Academic Press)
5. Vashishta, B.R. (2000) : *Fungi*, (S. Chand & Co), New Delhi.
6. Pelczar, M.J., Chan, P.C.S. and Krieg, N.R.: *Microbiology,* (McGraw Hill)
7. Dubey, R.C. & Maheshwari, D.K.: *A text book of Microbiology,* (S. Chand)
8. Vashishta, B.R.: *Bryophyta* (S.Chand)
9. Ganguly, H.C. & Kar, A.K. (1980): *College Botany,* Vol.II, (Tata McGrawHill, New Delhi)
10. Vashista, P.C. : *Pteriodophyta,* (S.C. Chand

SEMESTER -II
BOT-UG-CT-201
DIVERSITY AND DEVELOPMENT OF SEED PLANTS

Unit I: GYMNOSPERMS

Gymnosperms: Classification of gymnosperms, salient features of different classes. Structure, reproduction and life cycles of *Cycas*, *Pinus*, and *Gnetum*; Fossil formation and fossil types; Geological time scale; General account of dominant Jurassic flora.

Unit II: SEED PLANTS AND ANGIOSPERM MORPHOLOGY

Angiosperms Morphology**:** Leaf: Morphology and phyllotaxy. Flower: Type and structure. Morphology of stamen and carpel; Pollination, Double fertilization; Inflorescence; Types and examples. Fruits and seeds: General concepts, type and dispersal. **Seed Plants**: Characteristics of seed plants with fruits (Angiosperm) and without fruits (Gymnosperms). Angiosperm: Origin and evolution. Some examples of primitive angiosperms

Unit III: PLANT ANATOMY

Tissue system; Meristem, Types and theories, permanent tissue; Structure of Monocot and Dicot stem, root and leaves; root-stem transition; Secondary growth – normal and anamolous.

Unit IV: PRACTICAL

1. Gymnosperms: Morphological identification of megasporophyll and microsporophyll of *Cycas*, male and female cone of *Pinus*. T.S. of *Cycas* leaflet and *Pinus* needle; L.S. lof ovule of *Gnetum*(from permanent slides).
2. Morphological study of essential and accessory floral parts: Aestivaion, Placentataion, Cohesion and Adhesion of floral parts.
3. Anatomy: Anatomical studies following double staining method of the following materials: Stem-cucurbit and maize; Root-gram and orchid; Leaf- *Nerium*.

Text Books

1. Ganguly, H.C. & Kar, A.K. : *College Botany,* Vol.II, (New Central Book Agency)
2. Vashishta, P.C. (1990): *Gymnosperm*, (S.C. Chand)
3. Karkar, R.K. and Karkar, R.: *The Gymnosperms*
4. Esau, K.(1990): *Plant Anatomy,* (Wiley Eastern, New Delhi)
5. Ganguly, H.C., Das, K.S. and Dutta, C.T.: *College Botany,* Vol.I, (New Central Book Agency)
6. Naik, V.N.: *Taxonomy of Angiosperms*, (Tata McGraw Hill, New Delhi)
7. Lawrance, G.H.M.: *Taxonomy of Vasclar Plants,*(Oxford & IBH)
8. Eames, A. J. : *Morphology of the Angiosperm*
9. Maheswari, P.(1999): *An Introduction to Embryology of Angiosperms,* (Tata McGraw Hill, New Delhi)
10. Raghavan, V.: *Embryogenesis in Angiosperms: A Developmental and experimental study.*

SEMESTER -III
BOT-UG-CT-301
SYSTEMATICS OF ANGIOSPERMS AND PHYTOGEOGRAPHY

Unit I: TAXONOMIC HIERARCHY AND ANGIOSPERM PHYLOGENY
Taxonomic category; taxonomic groups; concepts of species, genus and family. Botanical nomenclature: Principles and rules; ranks and names; type method; principle of priority and its limitations. Major contributions of cytology, phytochemistry, palynology, numerical taxonomy.

Unit II: ANGIOSPERMS SYSTEMATIC
Natural, Artificial and Phylogenetic; Salient feature of Bentham and Hooker's system, Engler and Prantl's system and Cronquist's system. Major contributions of cytology, phytochemistry, palynology, numerical taxonomy. diagnostic features and systematic position of: Ranunculaceae, Malvaceae, Apiaceae, Rubiaceae, Lamiaceae, Euphorbiaceae, Asteraceae, Commelinaceae, Araceae, Poaceae and Orchidaceae.

Unit III: PHYTOGEOGRAPHY
Phytogeoraphical regions of India. Characteristics of Sunderbans, Eastern and Western Himalayan regions. Endemism and Barriers to plant distribution. GIS and its application.

Unit IV: PRATICAL
1. Systematics of angiosperms: Study of the morphology of locally available plants of the following families included in theoretical syllabus including floral formula, floral diagram and their identification up to genus by following any published keys:
2. Spot Identification upto species, mentioning families of all locally available plants included under the theoretical syllabus
3. There should be one local and one outside Sikkim botanical excursion.
4. Submission of field reports with digital photographs and description of at least 20 wild angiosperms of Sikkim.

Text Books

1. Ganguly, H.C and Kar, A.K.: *College Botany,* Vol.II, (New Central Book Agency)
2. Naik, V.N.: *Taxonomy of Angiosperms*, (Tata McGraw Hill)
3. Lawrance, G.H.M.: *Taxonomy of Vasclar Plants,* (Oxford & IBH)
4. Jefferey, C.: *An Introduction to Plant Taxonomy*, (Allied Publishers Pvt. Ltd)
5. Radford, A.B. : *Fundamentals of Plant Systematics,* (Harper & Row)
6. Mani, M.S. : *Bio-geography of Indi,* (Springer Verlag)
7. Botkin and Keller : *Environmental Planet,* (John Wiley)

SEMESTER –IV
BOT-UG-CT-401
EMBRYOLOGY, ECONOMIC BOTANY, ETHNOBOTANY

Unit I: INTRODUCTION TO EMBRYOLOGY

Flower: Evolution, concept of flower as a modified determinate shoot. Pollen/spore morphology and its role in taxonomy. Microsporogenesis and microgametogenesis and megagametogenesis (monosporic, bisporic and tetrasporic types); pollen-pistil interaction; development, structure and function of endosperm; types of haustoria; embryogeny-different types, function of suspensor and synergid; polyembryony; apomixis.

Unit II: ECONOMIC BOTANY

Plants for man: cereals, pulses, fibres, and oils, spices, condiments, beverages, timber, fruit, aromatic and medicinal plants, ornamental plants (scientific names and families of at least three plants of each category and the parts used); origin of cultivated plants & domestication of crop plants with case studies (millets rice, finger millets, jute, mustard, potato..

Unit III: ETHNOBOTANY

Ethnobotany and its significance in Eastern Himalayass; wild edible plants consumed by the ethnic people of Sikkim Himalayas; folk-medicine of the Sikkim Himalayas. Indian system of medicine (Ayurveda, Unani, Siddha, Homeopathy); Ethnomedicine of Eastern Himalayan communities.

Unit IV: PRACTICAL

1. Dissection of dicot and monocot embryos.
2. Identification of economically important plant products- their binomials, families and morphology of the parts used.
3. Submission of digital photographs with description of 5 will medicinal plants and 5 wild edible plants of Sikkim Himalayas.
4. Qualitative chemical tests for:

a) Tannin (*Camellia sinensis*)

b) Alkaloid (*Catharanthus roseus*)

Text Books:

1. Maheswari, P.(1999): *An Introduction to Embryology of Angiosperms,* (Tata McGraw Hill, New Delhi)

2. Bhojwani, S.S. & Bhatnagar, S.D. (1996): *The Embryology of Angiosperms,* (Vikas publishing house)

3. Wallis, T.E.: *Text Book of Pharmacognosy,* (CBS Publishers & Distributors)

4. Ali, M: *Pharmacognosy*

5. Agner, H.H., & Hikino, & Farns worth, N: *Economic & Medicinal plant research,* Vol.1-3, (Academic Press)

6. Pandey, B.P. (1992). Economic Botany. (S. Chand and Sons Co., New Delhi).

7. Pal, D.C. and Jain, S.K. (1998). Tribal Medicine, NayaPrakash Publishers, Kolkata.

BOT-UG-CT-501
MICROBIOLOGY AND PLANT PATHOLOGY

Unit I: INTRODUCTION OF MICROORGANISM

History of microbiology; General characteristics of bacteria and viruses. Ultra-structure of bacterial; growth and reproduction. Classification of bacteria. Salient features of Actinomycetes, Mycoplasma and Archibacteria. Viruses: General account of viruses (TMV and T4 phages); replication, lytic and lysogenic cycles.

Unit II: APPLIED MICROBIOLOGY

Application of microorganism in Food, agriculture, industry and medicine. Industrial application of microorganisms: organic acids; alcohol; food processing; milk products; antibiotics; Biopesticides, Phyoremeidation, Industrial production, alchohol, vinegar and streptomycin.

Unit III: PLANT PATHOLOGY

Terms and definitions of plant pathology. Symptoms, causal organisms, disease cycles and control measures of: brown spot, tungro and bacterial blight of rice, loose smut and rust of wheat; late blight of potato; early blight of potato and blister blight of tea. Host-defense mechanism. Genetic screening for disease resistance in plants. Plant disease management.

Unit IV: PRACTICAL

Preparation of media: Sterilization, inoculation.

1. Isolation and culture of microorganisms from: serial dilution, streaking on agar plates/pour plate method.
2. Enumeration of microbial population by using colony counter
3. Gram staining technique.
4. Isolation of bacteria from natural habitat – root nodules/curd/any other.
5. Histopathological study of important plant diseases.

Text Books

1. Agrios, G.M. : *Plant Pathology,* (Academic Press)
2. Mandahar, C.L. : *Introduction to plant viruses,* (S. Chand & Sons Co)
3. Ganguly, H.C. & Kar, A.K. (1980): *College Botany,* Vol.II, (Tata McGrow Hill, New Delhi)
4. Pelczar, M.J., Chan, P.C.S. and Krieg, N.R. (1993) :*Microbiology,* (Tata McGraw Hill, New Delhi)
5. Stanier, R.Y., Ingrahm, J.L., Wheelis, M.L. & Painter, P.R.: *General Microbiology,* (Macmillan Education Ltd.)
6. Dubey, R.C. & Maheshwari, D.K.: *A text book of Microbiology,* (S. Chand and Sons co)
7. Banerjee, A. & Banerjee, N.: *Introductory Microbiology*

SEMESTER –V

BOT-UG-CT-502: PHYSIOLOGY AND ECOLOGY

Unit I: INTRODUCTION TO PLANT PHYSIOLOGY

Absorption of water and minerals: Translocation of solutes, ion transport. Transpiration: Mechanism of stomatal transpiration; mineral nutrition, criterion of essentiality of mineral elements; beneficial elements; macro and micro nutrients. Growth regulators: Physiological roles and biosynthesis of auxins, cytokinins, gibberellins, ethylene and abscissic acid; Pytochrome: structure and function; Dormancy.

Unit II: PHOTOSYNTHESIS AND RESPIRATION

Photosynthesis: Dark and light reaction; cyclic and non-cyclic electron transport chain; Mechanism of photosynthesis in C3, C4 and CAM plants; Respiration: Glycolysis, Kreb's cycle; ATP synthesis; Photorespiration.

Unit III: ECOLOGY

Definitions: Ecological factors; ecological adaptations; community structure and development (succession). Energy flow in ecosystem; Population ecology: Growth curves and ecotypes

Unit VI: PRACTICAL

Principle and experiment of:

a. Measurement of leaf area and determination of rate of transpiration per unit area by weighing method.

b. Estimation of water absorption by fatty/proteinaceous seeds.

c. Determination of evolution of oxygen during photosynthesis.

d. Evolution of carbondioxide during aerobic respiration and measurement of volume.

Ecology:

a. Determination of minimum area of sampling unit (quadrat) for study of communities.

b. Study of local flora by quadrat and determination of frequency, density and IVI.

Text Books

1. Shukla, R.S. & Chandal, P.S. : *Plant Ecology,* (S. Chand & Co)
2. Odum, E.P.: *Fundamentals of Ecology,* (Rastogi Pub)
3. Taiz, L. and Zeiger, E. (2002): *Plant Physiology*, (Sunderland: Sinauer Association)
4. Mukherjee, S & Ghosh, A.: *Plant Physiology* (Tata McGraw Hill)
5. Hopkins, W.G.: *Introduction to Plant Physiology,* (John Wiely)
6. Voet, D and Voet, J.G.: *Biochemistry,* (John Wiley)
7. De Robertis, E.D.P. and De Robertis, E.M.M.: *Cell and Molecular Biology,* (Lee & Febrigas)
8. Stickberger, M.W.: *Genetics*,(McMillan)
9. Power, C.B.: *Cell Biology*, (Himalaya Publishing House)
10. Gupta, P.K.: *Genetics,* (Rastogi Publication)

8. Nelson, D.L., and Cox, M.N., *Lehniger's, Biochemistry*
9. Klug, W.S & Cummings, M.R.: *Concept of Genetics,* (Prentice Hall Int. Inc)

BOT-UG-CT-601: CELL BIOLGY, GENETICS AND EVOLUTION

Unit I: INTRODUCTION TO CELL BIOLOGY

Structure of prokaryotic and eukaryotic cells; cell wall, plasma membrane, cell organelles, chromosome organization; chromosomal aberrations (structural and numerical); Outline of mitosis and meiosis. Structure of Nucleic acids: DNA & RNA structure; DNA replication

Unit II: FUNDAMANTAL GENETICS

Mendelian laws of inheritance; Gene Interaction (Complimentary, supplementary and epistatic gene interactions); Multiple allelism with examples; Linkage & crossing over; Sex determination types; Mutation: types (structural, numerical and point), Induced mutations; Polyploidy; Extranuclear inheritance; Chromosomal structural aberrations in plants.

Unit III: EVOLUTION

Elementary knowledge of theories related to evolution of life ; types of evolution; speciation; population genetics, HW Equilibrium; Genetic drift.

Unit IV: PRACTICAL

1. Study of mitotic stages from squash preparation (root tip of onion);
2. Identification of following meiotic stages from permanent slides: diakinesis, metaphase I, anaphase I, metaphase II and anaphase II.
3. Study of Polytene and Lampbrush chromosomes (permanent slides)
4. Charts on chromosomal aberrations and diseases.

Text Books

1. Shukla, R.S. & Chandal, P.S.: Plant, (S. Chand & Co.)
2. Odum, E.P.: Fundamentals of Ecology, (Rastogi Pub)
3. Taiz, L. and Zeiger, E. (2002): Plant Physiology, (Sunderland and Sinauer Association)
4. Mukherjee, S & Ghosh, A.: Plant Physiology (Tata McGraw Hill)
5. Power, C.B.: Cell Biology, (Himalaya Publishing House)
6. Gupta, P.K.: Genetics, (Rastogi Publication)

SEMESTER –VI
BOT-UG-CT-602
GENETIC RESOURCES, PLANT BREEDING & BIOMETRY

Unit I: PLANT GENETIC RESOURCES

Introduction to genetic resources and categorization; importance of genetic resources/ germplasm; centers of origin and diversity; exchange of genetic resources; genetic resources management: collecting, maintenance, evaluation, storage and documentation; Biodiversity conservation: *In situ* and *Ex situ* Conservation.

Unit II: PLANT BREEDING

Importance of plant breeding; Principles of pure line, clonal and mass selection; Hybridization in self and cross pollinated crop-methods; Hybrid vigour, role of induced mutations in crop improvement. Deterioration of crops- reasons and preventive methods.

Unit III: BIMETRICS

Sampling methods, collection and presentation of data; Measures of central tendency, standard deviation and standard error; co-efficient of variation; probability; test of significance; t-test and chi-square test.

Unit IV: PRACTICAL

1. Emasculation and bagging of flowers (Demonstration).
2. Hybridization
3. Biostatistics: Measurement of central tendency: mean, median, and mode; Measurement of dispersion; standard deviation and standard error; Determination of goodness of fit; Students t-test. Probability.
4. Visit to the nearest Germplasm Centre, Herbal Garden, Biodiversity Park and Botanical gardens

Text Books

1. De Robertis, E.D.P. and De Robertis, E.M.M.: *Cell and Molecular Biology,* (Lee & Febrigas)
2. Power, C.B.: *Cell Biology*, (Himalaya Publishing House
3. Lodish, H. et. al.: *Molecular Cell Biology,* (Freeman publication)
4. Chawdhri, H.K.: *Elementary Principles of Plant Breeding*, (Oxford and IBH)
5. Allard, R.W.: *Principles of Plant Breeding,* (John Wiley)
6. Sigh, B.D.: Plant Breeding : *Principles and Methods,* (Kalyani Publishers)

BOT-UG-CT-603
BIOCHEMISTRY, MOLECULAR BIOLOGY & BIOTECHNOLOGY

Unit I: BIOCHEMISTRY

Molecules of life: Structure, characteristics and classification of carbohydrates, lipids and Proteins. Basic concepts in metabolism of carbohydrates, lipids and proteins (schematic representation only). Enzymes: Characteristic feature of active site, cofactors & co-enzymes, allosteric regulation of enzyme activity. Mechanism of enzyme action.

Unit II: MOLECULAR BIOLOGY

Nucleic Acids: Composition of nucleic acids and synthesis of nucleotides; DNA structure; A, B and Z forms; Central Dogma; DNA replication, transcription and translation (schematic representation only); basic concepts in gene regulation - operon concept.

Unit III: BIOTECHNOLOGY

Role of biotechnology in crop improvement: Applications of Plant tissue culture (Micropropagation, virus free plantlet production, cell and protoplast culture); rDNA technology (transgenics production), Polymerase chain reaction (PCR), and molecular markers in genetic improvement of crop plants.

Unit IV: PRACTICAL

1. Calculation and preparation of different normal and molar solutions.
2. Preparation of buffers; determination of pH.
3. Estimation of soluble protein by Lowry's method.
4. Estimation of amino acids by Ninhydrin method.
5. Chemical tests to demonstrate the presence of starch, sugar, fat and protein in plant material.
6. Separation of amino acids by paper chromatography.
7. Colorimetric estimation of DNA using diphenyl amine.
8. Gel electrophoresis for detection of genomic DNA (demonstration).

Text Books:

1. Voet, D and Voet, J.G.: *Biochemistry,* (John Wiley)
2. Goodwin, T.W. & Mercer, E.I.: *Introduction to Plant Biochemistry,* (Oxford: Pergamom)
3. Buchanan, Gruissen and Jones: *Biochemistry and Molecular Biology of Plants*,
4. De Robertis, E.D.P. and De Robertis, E.M.M.: *Cell and Molecular Biology,* (Lee & Febrigas)
5. Lodish, H. et. al.: *Molecular Cell Biology,* (Freeman publication)
6. Balasubramanian, D. et al: *Concepts in Biotechnology,* (University Press)
7. Dubey, R.C. (1993): *Biotechnology,* (S. Chand and Son, New Delhi)

STUDENT DETAILS

Batch 2021-2024

Sl. No	ROLL No.	NAMES	
1	21NS0081	ALINA	GURUNG
2	21NS0083	SHANSILA	RAI
3	21NS0084	BEVA	RAI
4	21NS0085	RITA	CHETTRI
5	21NS0087	RIMJHIM	RAI
6	21NS0088	RINA	PRADHAN
7	21NS0089	TABBSUM PERWEEN	ANSARI
8	21NS0090	KUNSANG	TAMANG
9	21NS0091	PRASANNA	RAI
10	21NS0092	SOSONGMIT	LEPCHA
11	21NS0094	CHANDRA KALA	RAI
12	21NS0095	DIVYA	CHETTRI
13	21NS0096	NEETIKA	PRADHAN
14	21NS0097	JHARNA	DAHAL
15	21NS0099	NORZIM LHAMIT	LEPCHA
16	21NS0100	RENUKA	GURUNG
17	21NS0101	SHAHIL	DORJEE
18	21NS0102	JAMUNA	CHETTRI
19	21NS0103	GANGA	CHETTRI
20	21NS0105	PASSANG KIPU	LEPCHA
21	21NS0106	MARKIT	LEPCHA
22	21NS0107	SHREYA	RAI
23	21NS0108	DOMA	TAMANG
24	21NS0109	MEENA	LIMBOO
25	21NS0110	KHINA MAYA	CHETTRI
26	21NS0111	ALISHA	GURUNG
27	21NS0113	ROSHAN	NEPAL
28	21NS0114	DEEPESH	CHETTRI
29	21NS0115	FOBO HANG	SUBBA
30	21NS0116	ARPITA	CHETTRI
31	21NS0117	KSHITIJ	LIMBOO
32	21NS0118	ALISHA	TAMANG
33	21NS0120	THUPDEN CHODA	BHUTIA
34	21NS0121	SILPA	RAI
35	21NS0124	ABISHEK	SHARMA
36	21NS0125	ASWIN	KOIRALA
37	21NS0127	ABILASH	MANGER
38	21NS0128	SUNIL	SUBBA

Batch 2020 -2023

Sl. No	ROLL No.	NAMES	
1	20NS0101	JEEWAN PRASAD	DAHAL
2	20NS0102	MUSHKAN	LEPCHA
3	20NS0104	SHANTOSHI	TAMANG
4	20NS0105	SUNUMA	LIMBU
5	20NS0106	PUNDI	LEPCHA
6	20NS0107	SABINA	RAI
7	20NS0108	BABITA	LIMBOO
8	20NS0110	ANAMIKA	SHARMA
9	20NS0111	ARABET	LIMBOO
10	20NS0113	EDWIN	LIMBOO
11	20NS0114	UMESH	CHETTRI
12	20NS0116	RENZONG	LEPCHA
13	20NS0117	SHANTI KALA	REGMI
14	20NS0120	ANUMIKA	CHETTRI DAHAL
15	20NS0122	PRENA	RAI
16	20NS0123	SUBARNA	CHETTRI
17	20NS0125	UDEN	SHERPA
18	20NS0129	EKLA	LIMBOO
19	20NS0130	THENDUP NAMGYAL	BHUTIA
20	20NS0132	ARBIND	BASNET
21	20NS0134	SAGAR	CHETTRI
22	20NS0135	SMARAN	RAI
23	20NS0136	ANUP	CHETTRI
24	20NS0140	HEMA DEVI	CHETTRI
25	20NS0141	RIKISHTA	PRADHAN
26	20NS0142	TAPASHYA	CHETTRI
27	20NS0143	KIRAN	KHARGA
28	20NS0144	NIMKIT	LEPCHA
29	20NS0145	GURMEE WANGAL	BHUTIA
30	20NS0146	PRANISHA	RAI
31	20NS0147	KARMA CHODEN	BHUTIA
32	20NS0148	REWAS	PRADHAN
33	20NS0152	AKANSHA	MANGER
34	20NS0153	BIJAYA	ADHIKARI
35	20NS0155	GOLU	THAKUR
36	20NS0156	BINITA	KAMI
37	20NS0157	JANUKI	LOHAR
38	20NS0158	PURNA KALA	PRADHAN
39	20NS0159	SUBIR	MANGER
40	20NS0161	BANDANA	CHHETRI

Batch 2019 -2022

Sl. No	ROLL No.	NAMES	
1	19NS0241	SMITA	RAI
2	19NS0243	ROHIT	RAI
3	19NS0245	NIKITA	THAPA
4	19NS0248	KUSUM	RAI
5	19NS0249	DIVYA JYOTI	PRADHAN
6	19NS0250	RANJAN KUMAR	PRASAD
7	19NS0251	PHORA HANG	LIMBOO
8	19NS0252	PUJA	BISTA
9	19NS0253	NEHA	RAI
10	19NS0254	SUILIN	LEPCHA
11	19NS0255	ANIL	CHETTRI
12	19NS0256	ANUPA	GURUNG
13	19NS0257	MELODY	SUNWAR
14	19NS0259	NIM TSHERING	BHUTIA
15	19NS0261	JUNITA	GURUNG
16	19NS0262	DIPBIYA	GURUNG
17	19NS0266	BHANU	SHARMA
18	19NS0268	JOHN TSHERING	SHERPA
19	19NS0270	PRABHA	NEOPANEY
20	19NS0271	SAROJ	TIWARI
21	19NS0272	ALISHA	BHUJEL
22	19NS0273	PERNITA	CHETTRI
23	19NS0275	GANGA MAYA	LIMBOO
24	19NS0276	BIMLA	CHETTRI
25	19NS0277	PASSANG NORBU	SHERPA
26	19NS0278	ZANGMOO	LEPCHA
27	19NS0279	ANISH	BAGDAS
28	19NS0280	ASHWIMN	CHETTRI
29	19NS0281	DENIKA	RAI
30	19NS0282	ALLENA	LEPCHA
31	19NS0283	PRADEEP	LUWAGUN
32	19NS0284	PREETI	CHETTRI
33	19NS0285	BABILA	RAI
34	19NS0286	MONISHA	RAI
35	19NS0287	ROMAN	TAMANG
36	19NS0288	ISSAC	SHILAL
37	19NS0289	DUPCHEN	TAMANG
38	19NS0290	THSERING LHAMU	BHUTIA
39	19NS0292	UJAL	GURUNG
40	19NS0293	RUPESH	SUBBA

Batch 2018 -2021

Sl. No	ROLL No.	NAMES	
1	18NS0152	SANJAY	RAI
2	18NS0153	INDIRA	SHARMA
3	18NS0154	KIDEN	SHERPA
4	18NS0156	SRISTI	SUBEDI
5	18NS0157	TEK NATH	POUDREL
6	18NS0158	RADHIKA	RAI
7	18NS0159	SHARINA	RAI
8	18NS0160	JERINA	RAI
9	18NS0161	ALIZA	THAPA (MANGER)
10	18NS0162	BIMAL	ADHIKARI
11	18NS0163	KUSSUM	CHETTRI
12	18NS0164	DEWAKAR	SHARMA
13	18NS0165	NAMA HANGMA	LIMBOO
14	18NS0167	NIMESH	CHETTRI
15	18NS0168	ROJA	CHETTRI
16	18NS0169	BIMALA	POKHRL
17	18NS0170	PRANITA	TAMANG
18	18NS0171	NAYAN TSHERING	LEPCHA
19	18NS0173	SUNITA	RAI
20	18NS0174	PRIYA	PRADHAN
21	18NS0175	SAJAN	GURUNG
22	18NS0177	JHARNA	SHARMA
23	18NS0178	KARISHMA	SUBBA
24	18NS0180	KUSUM	GURUNG
25	18NS0181	PASSANG TSHERING	LEPCHA
26	18NS0182	SARITA	GURUNG
27	18NS0184	PUJAN	SUBBA
28	18NS0185	SEDEN	LECHA
29	18NS0187	GANGA MAYA	SHARMA
30	18NS0189	MANOJ	CHHETRI
31	18NS0191	AVISHAK	DHITAL
32	18NS0192	SUSMITA	SUBBA
33	18NS0193	BIVEK	NEPAL
34	18NS0194	SANGAY ONGMU	BHUTIA
35	18NS0195	SWORNA	MANGER
36	18NS0196	SUNIL	KAMI
37	18NS0197	DIYA KUMARI	PRASAD
38	18NS0198	RAJANI KUMARI	PRASAD
39	18NS0199	JANUKA DEVI	CHETTRI
40	18NS0200	ANIKETH	POUDYAL

Batch 2017 -2020

Sl. No	ROLL No.	NAMES	
1	17NS0151	ANJU	SHARMA
2	17NS0153	BISHAL	SUBBA
3	17NS0154	PRERNAMIT	LEPCHA
4	17NS0156	ABHISHEK	KHATIWARA
5	17NS0157	PURAN KR	GURUNG
6	17NS0159	SANJEEV	LIMBOO SUBBA
7	17NS0161	BIBEK	LEPCHA
8	17NS0162	SRIJANA	RAI
9	17NS0163	GANDUP	LEPCHA
10	17NS0164	BIKRAM	CHETTRI
11	17NS0166	PRITIKA	GURUNG
12	17NS0168	SANJAY	GURUNG
13	17NS0169	SUJEETA	TAMANG
14	17NS0171	PADEN	BHUTIA
15	17NS0175	UMESH	GURUNG
16	17NS0176	DIIPEEKA	RAI
17	17NS0178	YOUMA H	SUBBA
18	17NS0180	DEEPIKA	RAI
19	17NS0181	NIRAJ	SHARMA
20	17NS0182	TENZING	SHERPA
21	17NS0184	NIKITA	RAI
22	17NS0186	CLEOPAS	LOHAR
23	17NS0187	SUJANA	SIKTEL CHHETRI
24	17NS0188	AJBIN	RAI
25	17NS0190	ONGDUP	LEPCHA
26	17NS0191	SUSHMITA	RAI
27	17NS0193	PHURBA K	SHERPA
28	17NS0194	NIM LHAMU	BHUTIA
29	17NS0195	ISHA	RAI
30	17NS0196	RAHIMA	GURUNG
31	17NS0197	NEEHA K	GUPTA
32	17NS0199	REEMA K	GUPTA
33	17NS0200	POONAM	SARKAR
34	17NS0271	BINDYA	LUKSOM

Batch 2016-2019

Sl. No	ROLL No.	NAMES	
1	16NS0051	MICHEAL	RAI
2	16NS0052	SANCHA H	SUBBA
3	16NS0054	BISHAL	TAMANG
4	16NS0055	KINGCHUM	LEPCHA
5	16NS0056	DIKILA	TAMANG
6	16NS0057	BISHAN	LIMBOO
7	16NS0058	ROYAL	LIMBOO
8	16NS0059	ARMAN	CHETTRI
9	16NS0060	BIDHAN	SUBBA
10	16NS0062	RASHIK	POKHREL
11	16NS0063	YONAM TSH	LEPCHA
12	16NS0064	NEELAM	RAI
13	16NS0065	PRAMESH	GURUNG
14	16NS0066	DEJELA	LEPCHA
15	16NS0067	ROMELA	LEPCHA
16	16NS0068	ALISHA	THAPA
17	16NS0069	KUSBOO	SHARMA
18	16NS0070	SANDHYA	LUKSUM
19	16NS0071	KAMAL	GURUNG
20	16NS0072	DIPIKA	PRADHAN
21	16NS0073	SUK MOTI	RAI
22	16NS0075	ASMITA	TAMANG
23	16NS0076	ARJUN	CHETTRI
24	16NS0077	MANISHA	LIMBOO
25	16NS0078	SANTOSHI	CHHETRI
26	16NS0079	KALPANA	TAMANG
27	16NS0081	PURAN	SAPKOTA
28	16NS0083	DEEPA	CHETTRI
29	16NS0084	SANGAY T	SHERPA
30	16NS0085	TARA K	RAI
31	16NS0087	RAKSHA	SHARMA
32	16NS0090	UPASHNA	RAI
33	16NS0091	ZEENA	TAMANG
34	16NS0092	ANISHA	TAMANG
35	16NS0094	ANGEL	RAI
36	16NS0095	HEERA	REGMI
37	16NS0096	SMRITI	CHETTRI
38	16NS0097	PRIYANKA	RAI
39	16NS0098	PRIYANKA	GURUNG
40	16NS0099	BANDANA	CHETTRI
41	16NS0110	TASHI DOMA	SHERPA

STUDENT PROGRESSION

List of all the students who are pursuing higher education

S. No.	Batch of	Name of the Student	Name of the Institution joined	Name of the Programme Joined
1	2020	Poonam Sarkar	Dolphin Institute of Biomedical and Natural Sciences, Dehradun	M.Sc. Botany
2	2021	Sangay Rinchen Menla Moktan	S.R.M University, Gangtok	M.Sc. Botany
3	2021	Mikham Pundi Lepcha	S.R.M University, Gangtok	M.Sc. Botany
4	2021	Kamala Subba	S.R.M University, Gangtok	M.Sc. Botany
5	2021	Sapna Thapa	S.R.M University, Gangtok	M.Sc. Botany
6	2021	Susmita Subba	Sikkim University, 5th Mile, Samdur, Tadong	M.Sc. Botany
7	2021	Abishek Rai	Sikkim Alpine University, Namchi	M.Sc. Botany
8	2021	Mon Kumar Chettri	Sikkim University, 5th Mile, Samdur, Tadong	M.Sc. Botany
9	2021	Januka Devi Chettri	Sikkim Alpine University, Namchi	M.Sc. Botany
10	2021	Sujata Rai	Sikkim Alpine University, Namchi	M.Sc. Botany
11	2021	Sunita Rai	Sikkim Alpine University, Namchi	M.Sc. Botany
12	2022	Bimla Chettri	Sikkim Alpine University, Namchi	M.Sc. Botany
13	2022	Allena Lepcha	Sikkim Alpine University, Namchi	M.Sc. Botany
14	2022	Issac Shilal	Sikkim Alpine University, Namchi	M.Sc. Botany
15	2022	Saroj Tiwari	Nar Bahadur Bhandari Govt. College, Tadong	M.Sc. Botany
16	2022	Ashwin Chettri	Nar Bahadur Bhandari Govt. College, Tadong	M.Sc. Botany
17	2022	Prabha Neopaney	Nar Bahadur Bhandari Govt. College, Tadong	M.Sc. Botany
18	2022	Dupchen Tamang	Nar Bahadur Bhandari Govt. College, Tadong	M.Sc. Botany

19	2022	Pradeep Luwagun	Nar Bahadur Bhandari Govt. College, Tadong	M.Sc. Botany
20	2022	Ranjan K. Prasad	Sikkim Alpine University, Namchi	M.Sc. Botany
21	2022	Denika Rai	Sikkim University, 5th Mile, Samdur, Tadong	M.Sc. Botany
22	2022	Anish Bagdas	Sikkim University, 5th Mile, Samdur, Tadong	M.Sc. Botany
23	2022	Rupesh Subba	Sikkim University, 5th Mile, Samdur, Tadong	M.Sc. Botany
24	2023	Anupa Gurung	Sikkim Alpine University, Namchi	M.Sc. Botany
25	2023	Benita Kami	Sikkim University, 5th Mile, Samdur, Tadong	M.Sc. Botany
26	2023	Anup Chettri	Sikkim University, 5th Mile, Samdur, Tadong	M.Sc. Botany
27	2023	Thendup Namgyal Bhutia	Sikkim University, 5th Mile, Samdur, Tadong	M.Sc. Botany
28	2023	Subir Manger	Nar Bahadur Bhandari Govt. College	M.Sc. Botany
29	2023	Tshering uden Sherpa	Nar Bahadur Bhandari Govt. College	M.Sc. Botany
30	2023	Sunuma Limbu	Nar Bahadur Bhandari Govt. College	M.Sc. Botany
31	2023	Babita Limbu	Nar Bahadur Bhandari Govt. College	M.Sc. Botany
32	2023	Anumika Chettri Dahal	Nar Bahadur Bhandari Govt. College	M.Sc. Botany
33	2023	Arabet Limboo	Abhilashi University, Himachal Pradesh	M.Sc. Botany
34	2023	Jeewan Prasad Dahal	Nar Bahadur Bhandari Govt. College	M.Sc. Botany(2024)
35	2024	Rimjhim Rai	Sikkim University, 5th Mile, Samdur, Tadong	M.Sc. Botany
36	2024	Beva Rai	Sikkim University, 5th Mile, Samdur, Tadong	M.Sc. Botany
37	2024	Shansila Rai	Sikkim University, 5th Mile, Samdur, Tadong	M.Sc. Botany
38	2024	Sosongmit Lepcha	Sikkim University, 5th Mile, Samdur, Tadong	M.Sc. Botany
39	2024	Sahil Darjee	Sikkim University, 5th Mile, Samdur, Tadong	M.Sc. Botany
40	2024	Sabina Rai	Sikkim University, 5th Mile, Samdur, Tadong	M.Sc. Botany
41	2024	Rita Chettri	Sikkim University, 5th Mile, Samdur, Tadong	M.Sc. Botany
42	2024	Alina Gurung	Sikkim University, 5th Mile, Samdur, Tadong	M.Sc. Env. Sci.

43	2024	Aswin Koirala	Sikkim University, 5th Mile, Samdur, Tadong	M.Sc. Env. Sci.
44	2024	Jharna Dahal	Nar Bahadur Bhandari Govt. College	M.Sc. Botany
45	2024	Alisha Gurung	Nar Bahadur Bhandari Govt. College	M.Sc. Botany
46	2024	Roshan Nepal	Nar Bahadur Bhandari Govt. College	M.Sc. Botany
47	2024	Doma TAmang	Nar Bahadur Bhandari Govt. College	M.Sc. Botany
48	2024	Neetika Pradhan	Nar Bahadur Bhandari Govt. College	M.Sc. Botany
49	2024	Chandra Kala Rai	Nar Bahadur Bhandari Govt. College	M.Sc. Botany
50	2024	Arpita Chettri	Nar Bahadur Bhandari Govt. College	M.Sc. Botany

List of all the students who are pursuing professional courses

S. No.	**Batch of**	**Name of the Student**	**Name of the Institution joined**	**Name of the Programme Joined**
1	2021	Ajbin Rai	Loyala College of Education, Namchi	B. Ed.
2	2021	Gandup Lepcha	Sikkim B. Ed. College, Soreng	B. Ed.
3	2021	Michael Rai	D.I.E.T, West Sikkim	D.I.E. T
4	2022	Neha Rai	DPMI, Siliguri	D.M.L.T
5	2023	Monisha Rai	DPMI, Siliguri	D.M.L.T
6	2023	Prena Rai	Jettwings City Campus, Guwahati	Airline Cabin Crew
7	2023	Smaran Rai	Loyola College of Education	B. Ed.
8	2024	Dew Maya Sharma	Sikkim Government B.Ed. College, Soreng	B. Ed.

DEPARTMENTAL ACTIVITIES

SI.NO	SEMESTER	NAME OF THE EVENT	YEAR	DATE & DURATION OF THE EVENT.	STRENGTH OF STUDENTS
1	VI SEM	'A three day 'Advance Hands On DNA Workshop	2019	27th – 29th March	83
2	II SEM	Field Trip to Barsey Rhododendron Sanctuary	2019	10th – 11th May	60
3	III SEM	Field trip to Tendong Hill	2021	12th May	93
4	IV & VI SEM	Plantation on World Environment Day in the surroundings of College.	2022	5th June	80
5	IV SEM	Field Trip Perbing and its surrounding, South Sikkim	2022	1ST July	31
6	VI SEM	Plantation of Sapling In and around Namchi Government college in collaboration with Blooming Sikkim	2022	15th July	80
7	III SEM	Educational trip to Tendong Forest Reserve, Damthang	2022	4th November	90
8	V SEM	Educational visit Botanical Survey Of India, Gangtok & Plant Conservatory, Bulbuley, Gangtok	2023	6th February	39
9	IV SEM	Educational Visit to Karfacter, South Sikkim	2023	1st June	40
10	II,IV,VI SEM	Plantation on the Departmental Herbal Garden on World Environment Day	2023	5th June	166

11	II,IV,VI SEM	Seminar talk on The Traditional Agricultural Practices In Sikkim and Biodiversity Conservation.	2023	16th June	166
12	VI SEM	Educational trip to Acharya Jagdish Chandra Bose Indian Botanical Garden & Central National Herbarium	2023	19th – 22rd June	40
13	VI SEM	Educational trip to Acharya Jagdish Chandra Bose Indian Botanical Garden & Central National Herbarium	2024	23rd –27th June	38

Three Day Workshop on 'The Insights of Molecular Biology Techniques'

4^{th} – 6^{th} April, 2019

The Department of Botany and Zoology, Sikkim Govt. College, Namchi In association with Escherichia Genomics P. Ltd., New Delhi- India organized a the day workshop on 4^{th} -6^{th} April 2019. A total of 83 students (40 Botany & 43 Zoology) and 10 teachers took part in the workshop. Mr V.K. Singh, Director & Training Manager, Escherichia Genomics Pvt. Ltd., New Delhi was the Resource person for the workshop.
The workshop helped students to get acquainted to basic DNA & Molecular biology experiment, thereby triggering their interest in the field and also enhanced their research abilities.

Workshop Schedule

[illegible]	Particulars	Venue
	Day 1 – 4^{th} April, 2019	
[illegible]	Inaugural Session	Common for all participants (Room No. E7)
[illegible]	Hands on Experiments for Students & Faculties [illegible] Coordinators: [illegible]	Botany Lab / Zoology Lab
	Day 2 – 5^{th} April, 2019	
[illegible]	Hands on Experiments for Students & Faculties [illegible] Coordinators: [illegible]	Botany Lab / Zoology Lab
	Day 3 – 6^{th} April, 2019	
[illegible]	Hands on Experiments for Students & Faculties [illegible] Coordinators: [illegible]	Botany Lab / Zoology Lab
[illegible]	Theoretical Dry Lab Experiments	Common for all participants (Room No. E7)

FIELD TRIP TO BARSHEY RHODODENDRON SANCTUARY

10^{th} -11^{th} May 2019

The Department of Botany organized a two day field trip to Barsey Rhododendron Sanctuary for VIth semester students. The main aim of the excursion was to familiarize them with the flora of the Barshey Rhododendron Sanctuary. The trip was led and guided by Dr. Bishnu Kr Sharma. A total of 60 students took part in the trip.

On the morning of 10 may at 6 AM all the students gathered in the central park namchi and by 6.30 AM we headed towards Hillay which is about 90 Km from Namchi. Two bus were provided by the college. At around 10.30 AM we reached Hillay and then we headed towards Barshey Rhododendron Sanctuary.

After trekking for almost 3 and half hours we reached the main spot.many plants were shown to the students and many photograph was taken by the students for the documentation. Then we returned back to Hillay and then we headed towards Okhrey.

At Okhrey we rested and stayed for the night. Next morning after breakfast we returned back to Namchi and reached Namchi by 11 AM and we ended our trip.The entire trek to Barshey Rhodedendron Sanctuary was fruitful and very educational helping us in overall understanding of the subject.

Trekking from Sikkim Government College Namchi to Tendong Hill

12th May 2021

An excursion of 3rd Semester B.Sc. was organized by teachers of our department of our college on the 12th May 2021. The main aim of the excursion was to familiarize us with the flora of the Tendong region and gain infield knowledge.

The entire trek of Tendong was fruitful exercise. We came across numerous plants. It is felt by all of us that more educational tour will greatly help in identification and the overall understanding of the subject.

PLANTATION ON WORLD ENVIRONMENT DAY IN COLLEGE

5th June 2022

World Environment Day was observed by the Department of Botany. A total of 80 students of Botany Honours IV and VI semester took part in the event. The plantation was done in and around the surrounding of the College campus.

Field Visit to Perbing and its surrounding
1ST July 2022

As a part of B.Sc Botany Curriculum one day field trip was organized by Department of Botany, Sikkim Government College, Namchi on 1 May 2022, for IV Semester Botany Honours students. The trip started from Central Park, Namchi To Perbing and its surrounding to South Sikkim for their floral exploration of different plant species. Field study is an essential part of Botany.The natural environment i.e., the surrounding where we interact, the plants in their natural habitat is one of the most interesting thing that is needed to be studied by the students of Botany. Studying plants in their natural habitat enhances our knowledge that is learnt from the classroom discussions and laboratory experiments. A group of 40 students were accompanied by Dr. Bishnu K Sharma, Assiostant Professor,SGC, Namchi. An apprehensive knowledge of things are always required for students to start a particular study of a particular site in their natural environment. So classroom study and the field study are complementary to each other and we cannot ignore any one of them. Hence keeping these two things in view, this study tour was organized by the Department of Botany, Sikkim Government College, Namchi as per syllabus prescribed by the Sikkim University.

गान्तोक, शनिवार, ०२ जुलाई, २०२२

स्पति विज्ञान विभागका विद्यार्थीहरूको
एक दिवसीय फील्ड भ्रमण

TREE PLANTATION DRIVE IN COLLABORATION WITH BLOOMING SIKKIM.

15th JULY 2022

A mass tree plantation drive by the students of botany department in collaboration with Blooming Sikkim (BS) was done on 15 July 2022. A total of 80 students along with the blooming Sikkim members and students participated in the drive. We are very much grateful to our Principal for his support and to the officials of Forest and Environment department Namchi for the saplings. A total of 150 saplings were planted during the plantation drive.

Field trip to 'Tendong Lho' South Sikkim,
A Reserve forest and Biodiversity Park of Sikkim.
4th November 2022

Tendong State biodiversity park is located in South Sikkim lies to the 14 km north of Namchi. It has a total area of 255 ha and the altitude varies from 1400 m to 2050 m above sea level. The park comprises of middle and upper hill forest.

Since the field trip is compulsory as it is in the syllabus we chose Tendong Lho as a field for the trip. We have a total of 90 students in third semester but a total of 86 student as few coudnt attend because of some medical reasons. The students gathered at college at 6.30 am and half of the students gathered at the petrolpump jorthang road and at 7 am the trip started and we headed towards theDamthang. We reached Damthang at 7. 50 am and after giving a brief to the students about the trip we started the hike at 8.07 am. The trip was escorted by me, two Assistant professor from Sikkim Government College Mr Sonam Wangchuk Lepcha and Phurba Lepcha of chemistry and economics department and we had a special guest Ms Minto Sherpa a taxonomist from Sikkim Government College, Tadong for guiding students during the trip. We reached the destination at 11.30 am after about 3.30 hour walk from Damthang.

The hike was very interactive, informative and encouraging for the students, many plants were shown to the students , helped them to identify gave them the importance about the plants. At 11.30 am we reached the destination and we rested and had a lunch and at around 1 pm we started to return towards Damthang and reached there at around 2.30 pm and then we headed towards Kangchendzonga Biodiversity Park. After reaching park we showed the students the plant that were planted out there, the nursery for planting saplings of *Rhododendron*, *Azalea* etc and from there we completed our trip by returning to Namchi.

The Department of BotanyNamchi is very grateful to Ms Minto Sherpa from Sikkim Government College, Tadong who gave us her valuable time, effort, knowledge to our students. We are also thankful to our colleague Mr Sonam Wangchuk Lepcha and Mr Phurba Lepcha from chemistry and economics department in helping us to guide our students during our field trip.

EDUCATIONAL TRIP TO BSI, GANGTOK AND PLANT CONSERVATORY BULBULEY.

6th February 2023

Destination 1- Botanical Survey of India, Regional Centre Gangtok: Botanical survey of India (BSI) is an organization governed by Ministry of environment, Forest and Climate change, Government of India. An educational visit for Vth Semester Botany Honors students to The Botanical Survey Of India, Gangtok was scheduled On 16 February with the permission of the Head of BSI, Dr Rajib Gogoi. A total of 39 students under the guidance of Dr. Bishnu Kr. Sharma and Mr. Chuzing Lepcha visited BSI. On the morning of 16 february at 6.30 Am we departed from Namchi and reached BSI, Gangtok at 10 AM.

Introduction to the Botanical Survey Of India. The introduction started at the reception room by Mr Norbu Sherpa, the reception room had many important charts, pictures and posters regarding the species of specific types that are found in Sikkim like Balsams, Rhododendrons,Orchids, Gesneriads and Zingibers. After the introduction the students were guided to Herberium section by Mr Norbu.

Herbarium section: the session in the herbarium was also given by Mr Norbu, starting by explaining about the herbarium how it is prepared and how it is stored in the order(following Bentham and Hooker's Classification) how the herbarium is arranged. Due to the overcrowding of the students the session was done by dividing the students in two group by covering the session one after the other. He explained in depth about herbarium and showed many preserved herbarium to the students. He explained in details about specimen, tags, labels, accession number, bar codes and about the number of herbarium holdings in the centre(Angiosperm: 52000, Cryptogams: 4000, Lichens: 1757, Macro- fungi: 170, Type collection : 22).

Museum section: The museum has 120 exhibits and 122 specimens are displayed and preserved under different heads like ethnomedicines, lichens, cereals & Beverages, traditional sacred use of plants, plant genetic resources, timber value woods, germplasm etc. Mr. Norbu guided our students through the museum explaining about the specimen preserved their labelling in the stored container and also about maintaining the humidity in the museum which is necessary for the preservation

Destination- 2: Plant conservatory, Bulbuley, Gangtok. The plant conservatory is a very well organized and designed structure with many preserved plant species. The conservatory has a well maintained clean park like design with waterfall, many trees of different ornamental and nonornamental trees, many small ponds and a glass house with various perennial, annual, medicinal, flowering plants. The educational excursion trip to BSI and Conservatory has proved to be a very fruitful and a successful programme for the students organized by Sikkim Government College, Namchi and in the upcoming days we will make more educational, fruitful, knowledgeable and experience gaining exposure trips for the students.

EDUCATIONAL TRIP TO KARFACTER, SOUTH SIKKIM

01 JUNE 2023

On 1 June 2023 the Department Of Botany arrange a Botanical Educational trip to Karfectar, South Sikkim for IV semester Students. The trip to Karfectar was based on the processing of Milk and their products which in related to their syllabus Milk processing and Diary products. The trip started at 11 AM from the college and reached the destination at 12 PM. The Assistant director showed all the important units of the Diary and explained the functions of the units and different sections of the diary. The diary mainly consists of input (collection) and processing into products(cheese, paneer, curd) and output (packaging and supply of products). The trip was escorted by Dr. Bishnu K.r Sharma and Mr. Chuzing Lepcha. A total of 40 students attended the trip. The trip was very informative and educational to he students. At around 2 PM we finished Diary tour and we returned and reached Namchi by 3 PM.

Students in the Pasturization unit.

Students in the collection unit.

Plantation at Herbal Garden of Department of Botany on

World Environment Day

5th June 2023

Department of botany organised the 1 Day plantation for IIst IVth VIth Semester Botany Honours student. A total of 166 students took part in the plantation. The plantation was guided by Dr. Bishnu K. Sharma, Ms. Yeden Bhutia and Mr Chuzing Lepcha. Plants that were planted were mostly medicinal, plant with aromatic value and fruit bearing trees. Other shade trees were also planted.

SEMINAR TALK ON TRADITIONAL AGRICULTURAL PRACTICES IN SIKKIM AND BIODIVERSITY CONSERVATION

16th June 2023

Department of botany organized a departmental talk on the topic "Traditional Agricultural practices and Biodiversity Conservation" on 16th June 2023 at the Seminar Hall, Science Block, Sikkim Government College, Namchi.

Dr. Bharat Kumar Pradhan, Scientific Associate, Sikkim Biodiversity Board, Forest and Wildlife Department, Government of Sikkim was the resource person for the talk. A total of 167 Botany students comprising of II, IV and VI Semester attended the talk.

The one day lecture/talk on Traditional Agriculture Practices in Sikkim & Bio-Diversity Conservation commenced at 10:00 am with the arrival of Resource Person/Speaker Dr. Bharat Kumar Pradhan, Scientific Associate, Sikkim Bio-Diversity Board. He was welcomed by the offering of khadas and flower bouquet. The welcome speech was delivered by Mrs. Yeden Bhutia, H.O.D, Botany Department.

The one day lecture was delivered by the Resource Person, Dr. Bharat Kumar Pradhan. The first session was conducted on Traditional Agriculture Practices in Sikkim & Bio-Diversity Conservation followed by the second session which was on Role of Youth in Safeguarding the Environment. The lecture was delivered with great knowledge and emphasized on the importance of the topic. The students also actively participated in the talk and a lot of questions and doubts were cleared. The talk was fruitful and the students really did participate and gain a lot of knowledge.

After the second session, Dr. Bharat Kumar Pradhan was presented the token of appreciation by Mrs. Diki Ongmu Lepcha, Vice-Principal. The vote of thanks was delivered by Miss. Rimjhim Rai, IV Semester student. The host for the program was Miss. Karma Choden Bhutia, VI Semester student. The program concluded successfully followed by lunch.

EDUCATIONAL TRIP TO

INDIAN BOTANICAL GARDEN KOLKATA

As per the syllabus of B.Sc botany honours 4 day educational trip to the Indian Botanical Garden, Kolkata (Acharya Jagdish Chandra Bose Indian Botanical Garden).

The trip was organized by the Department of Botany, Namchi Government College for the 6th Semester Botany Honours student. A total of 40 students was escorted by Dr. Bishnu Kumar Sharma and Chuzing Lepcha. The trip was from 19th June to 22rd June 2023. The educational trip to the Botanical Garden proved to be of very importance to our students giving them a chance to explore and widen their knowledge.

Departmental Publications

Title	Name of the author	Name of the teacher	Name of the Journal	Year of Publication	ISSN number	Link of the journal
Diversity, distribution pattern and utilization of bamboo in Sikkim.	Bishnu K Sharma, Musadiq H Bhat, Mufida F, A Kumar & A K Jain	Bishnu K Sharma	An int. j of environ. & biodiversity	2018	2278-2281	https://www.researchgate.net/profile/Musadiq-Bhat/publication/327237517_Diversity_distribution_pattern_and_utilization_of_bamboos_in_Sikkim/links/5b8443a1299bf1d5a72b729f/Diversity-distribution-pattern-and-utilization-of-bamboos-in-Sikkim.pdf
Diversity of pollinators/visitors in Namchi, South Sikkim, India.	Bishnu K Sharma & John Bhutia	Bishnu K Sharma	The Journal of Ecology	2020	6853-3275	https://sites.google.com/site/photonfoundationorganization/home/the-journal-of-ecology
Some general-social, economic, history, geo-political & cultural aspects of Sikkim (India): a review	Bishnu K Sharma & L Chettri	Bishnu K Sharma	Int. J. of Arts & Soc. Sci.	2020	2581-7922	https://www.ijassjournal.com/2020/V3I5/4146575951.pdf
An overview study of birds in South Sikkim (India).	P Chettri, J Bhutia & B K Sharma	Bishnu K Sharma	International J. of Zoology studies	2021	2455-7269	https://www.researchgate.net/publication/350017679_International_Journal_of_Zoology_Studies_An_overview_study_of_birds_in_south_Sikkim_India

Diversity of Ficus L. (Moraceae) & its uses in Sikkim Himalayas (India).	Chuzing Lepcha & Bishnu K Sharma	C Lepcha & Bishnu K Sharma	Int. J. of Botany and Res.	2021	2277-4815	http://www.tjprc.org/publishpapers/2-46-1636366514-abs6IJBRDEC20216.pdf
Ethnobotanical studies of Sikkim: a review.	Bishnu K Sharma & A K Jain	Bishnu K Sharma	Int. Res. J. of Biog. Sci.	2021	2278-3202	http://www.isca.in/IJBS/Archive/v10/i4/6.ISCA-IRJBS-2021-014.php
Trichoderma cornu-damae (syn. Podostroma cornu-damae)- the first report of a rare mushroom with an anamorphic stage	Chuzing Lepcha & L P Bhutia	Chuzing Lepcha	J. Mycopathol. Res.	2023	0971-3719	https://www.researchgate.net/publication/371846549_Trichoderma_cornu-damae_syn_Podostroma_cornu-damae-_the_first_report_of_a_rare_mushroom_with_an_anamorphic_stage_occurence_from_Sikkim_India

Departmental Achievements:

Sl. No.	Name	Year	Achievement	Gallery
1.	YEDEN BHUTIA Assistant Professor	2019	GOLD MEDAL M.SC (BOTANY), SIKKIM UNIVERSITY	
2.	YEDEN BHUTIA Assistant Professor	2019	NESLET	
3.	CHUZING LEPCHA Assistant Professor	2019	CSIR-NET	
4.	CHUZING LEPCHA Assistant Professor	2023	FIRST REPORT OF A RARE MUSHROOM WITH AN ANAMORPHIC STAGE OCCURRENCE FROM SIKKIM, INDIA.	

5.	DR. BISHNU K SHARMA Assistant Professor	2023	BOOK: FLORAL BIOLOGY OF SOME SELECTED PLANT SPECIES.	
6 .	DR. BISHNU K SHARMA Assistant Professor	2024	BOOK: NOTABLE AYUVEDIC PLANTS OF INDIAN HIMALAYAS.	
7.	MEETHELESH SUBBA Roll No: 12NSH624	2021	STET 2021	
8.	PRAVESH RAI Roll No: 13NSH221	2021	STET 2021	
9.	SASHI HANG SUBBA Roll No 13NSH113	2022	STET 2022	

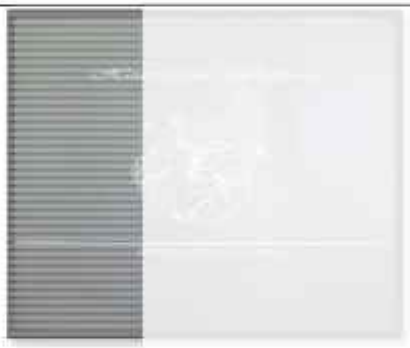
10.	**SUPENDER SUBBA** **Roll No: 13NSH073**	**2022**	**STET 2022**	
11.	**KARMA CHODEN BHUTIA** **Roll No: 20NS0147**	**2023**	**GOVERNOR'S MEDAL 2023**	
	TABBSUM PERWEEN ANSARI **Roll No: 21NS0089**	**2023**	**BOOK PUBLISHED** **(HEART LIKE WILDFLOWERS)**	

PHOTO GALLERY:


GPS Map Camera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