

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

SYLLABUS FOR B.Sc. SEMESTER - I

BOTANY PAPER - 101

(Effective from June 2018)

BOT - 101 : PLANT DIVERSITY

Unit - I **Introduction to Plant Diversity**

- Concept, Plant Kingdom (Eichler system)- cryptogams and phanerogams, diversity in plant kingdom, position of plants in five kingdom system.
- Prokaryotic and Eukaryotic cell structure

Unit - II **Microbes**

- Bacteria : Discovery, general character, structure and importance
- Virus: Discovery, general character, structure and importance

Unit - III **Algal diversity**

- Occurrence, classification, thallus, cell structure, pigments, reserve food material and reproduction of *Nostoc* and *Spirogyra*

Unit - IV **Fungal diversity**

- Occurrence, classification, thallus, cell structure, nutrition and reproduction of *Mucor* and *Agaricus*

Unit - V **Lichen**

- Classification, general characters, external and internal characters, reproduction and economic importance of *Lichen*



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SYLLABUS FOR B.Sc. SEMESTER - I

BOTANY PAPER - 102

(Effective from June 2018)

BOT - 102 : PLANT DIVERSITY, NURSERY MANAGEMENT AND UTILIZATION

Unit - I **Bryophytes**

- Study of life history, occurrence, thallus structure, reproduction and sporophyte diversity (external and internal) of *Funaria*.

Unit - II **Pteridophytes**

- Study of life history, sporophyte, gametophyte (external and internal) and reproduction of *Nephrolepis*.

Unit - III **Nursery Management**

- Introduction, types of nurseries
- Plant propagation- cutting, budding, grafting and layering
- Fertilizer and pesticides
- Methods of irrigation: drip and sprinkler,

Unit - IV **Plant Morphology**

- **Root:** Definition, parts of root, types of root, functions and modification of root.
- **Stem:** Definition, characters of stem, shape and surface of stem, types of stem, functions & modification of stem,
- **Leaf:** Definition, characters & parts of leaf, types of stipules, venation, types of leaf, functions and modification of leaf.
- **Flower:** Definition, structure of typical flower, arrangement of floral leaf, types of flower.

Unit - V **Food plants**

- Cultivation of the following crops in relation to their origin, distribution, climate, soil, propagation, method of cultivation and uses.
- Sugar cane, Paddy, Mango, Brinjal



BOT - 103 : PLANT DIVERSITY, NURSERY MANAGEMENT AND UTILIZATION

- The candidates should study the typical vegetation in natural condition and should record their observation in journals. Excursion should be arranged during the year to local places.
- Every candidate shall complete laboratory course in accordance with the regulations issued from time to time by Academic Council on the recommendation of the Board of Studies.
- Every candidate shall record observation directly in the laboratory journal. Every journal shall be signed periodically. At the end of the semester candidate shall produce certified journal during the practical examination.

- Practical :1 **To** study microscopic examination of curd.
Permanent slides of Bacteria
Chart/Specimen of different types of Virus.
- Practical :2 **Nostoc:**
To study thallus structure and akinets in Nostoc.
- Practical :3 **Spirogyra:**
To study the thallus structure, Scalariform conjugation and Lateral conjugation in Spirogyra.
(Permanent slides of thallus W.M, Scalariform conjugation, Lateral Conjugation.)
- Practical :4 **Mucor :**
To study the thallus structure and reproductive structure.
Permanent slides of Mucor vegetative W.M., Mucor sporangia, Mucor Zygosporangium.
- Practical :5 **Agaricus:**
To study the vegetative structure, basidiocarp, gills, basidia and basidiospores.
Permanent slides : Stipe T.S.; Pileus T.S.
- Practical :6 **Lichen:**
To study external features and internal structures of Usnea
(Permanent slides of Lichen thallus T.S., Lichen apothecium V.S., Lichen soredia)
- Practical :7 **Moss (Funaria):**
To study the external features of gametophyte and sporophyte.
(Permanent slides of Funaria antheridia W.M.; Funaria archegonia W.M.)
- Practical :8 **Nephrolepis :**
Preparation of slides from the fresh material of T.S of Stolon & T.S. of Rachis by the students.
(Permanent slides: T.S. of Stolon, T.S. of Rachis, T.S. of leaflet passing through sori, Nephrolepis prothallus, Fern sori W.M., prothallus with antheridia, prothallus with archegonia, prothallus with sporophyte.)



- i) Study of methods of propagation with the help of suitable materials - tubers, bulbs, rhizomes, corms, suckers and runners.
- ii) Propagation of horticultural plants by stem cuttings, air layering, grafting and 'T' budding.

Practical :10 Roots:

- To study different types of roots:
 - ❖ Tap root- *Vinca*
 - ❖ Fibrous- *Grass*
 - ❖ Adventitious- *Sugarcane*
- To study modification of root:
 - ❖ Prop root- *Banyan tree*
 - ❖ Stilt root- *Maize*
 - ❖ Pneumatophores- *Avicennia*
 - ❖ Storage root- *Carrot, sweet potato*

Practical :11 To study different types of stem

- To study Aerial stem
 - ❖ Cudex- *Palms*,
 - ❖ Clum- *Bamboo*,
 - ❖ Scape- *Canna and Onion*
 - ❖ Excurrent- *Polyalthialongifolia, Casurina*
 - ❖ Deliquescent- *Mango*
 - ❖ Weak stem: *Ipomoea*
- To study underground stem
 - ❖ Rhizome- *Ginger, Turmeric*
 - ❖ Tuber- *Potato*
 - ❖ Bulb- *Onion*
 - ❖ Corm- *Amorphophollus*
- To study Specialized stem
 - ❖ Phylloclade- *Opuntia*
 - ❖ Cladode- *Asparagus*

Practical :12 Leaf:

- To study different types of leaf:
 - ❖ Simple leaf: *Banyan, Mango*
 - ❖ Pinnate Compound Leaf:
 - ✓ Unipinnate: *Cassia, Rose*
 - ✓ Bipinnate: *Mimosa, Caesalpinia*
 - ✓ Tripinnate: *Moringa*
 - ✓ Decompound: *Coriander*
 - ❖ Palmately Compound Leaf
 - ✓ Unifoliote: *Citrus*
 - ✓ Bifoliate: *Balanites, Bauhinia*
 - ✓ Trifoliate: *Crotalaria, Oxalis*
 - ✓ Quadrifoliate: *Marsilea*
 - ✓ Multifoliate: *Bombax*

Practical :13 Flower:

- To study different types of flower:
 - ❖ Regular flower: *Ipomoea*
 - ❖ Irregular flower: *Clitoria, Caesalpinia*
 - ❖ Unisexual flower: *Coccinia*
 - ❖ Bisexual flower: *Hibiscus*



- *Sugarcane*
- *Paddy*
- *Mango*
- *Sapota(Chikoo)*
- *Brinjal*
- *Tomato*

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