

BOT 401: Lower Cryptogams

Unit - I Phytoplankton and Algae

- General characters, structure and importance of Phytoplankton
- Occurrence, general characters, thallus structure, economic importance of Algae
- Outline of algal classification given by G.M. Smith

Unit - II Life history of Algae

- Classification, occurrence, thallus & cell structure and reproduction of following algal genera:
 - (i) Oscillatoria
 - (ii) Oodogonium
 - (iii) Ectocarpus
 - (iv) Batrachospermum

Unit - III Fungi

- Occurrence, general characters, vegetative structure, economic importance of Fungi.
- Outline of fungal classification given by C.J. Alexopoulos.

Unit - IV Life history of Fungi

- Classification, occurrence, vegetative structure and reproduction of following fungal genera:
 - (i) Pythium
 - (ii) Aspergillus
 - (iii) Peziza
 - (iv) Puccinia



BOT 402 : Higher Cryptogams

Unit - I Bryophytes

- General characters
- Classification
- General account of Hepaticopsida, Anthocerotopsida and Bryopsida
- Amphibian adaptation of Bryophytes
- Economic importance of Bryophytes
- Ecological aspects of Bryophyta

Unit - II Life history of following Bryophytes

- Classification and life history of following types.(except development)
 - (i) Riccia
 - (ii) Anthoceros

Unit - III Pteridophytes

- Habit and Habitate
- General characters
- Classification
- General account of Lycopsida, Sphenopsida, Pteropsida

Unit - IV Life history of following Pteridophytes

- Classification and life history of following types.(except development)
 - (i) Equisetum
 - (ii) Marsellia
 - (iii) Sellaginella



BOT 403: Plant Geography, Economic Botany, Seed Plants and Plant Pathology

Unit - I Plant Geography

- Minor forest products of gujarat
- Cultivation of the following crops in relation to their origin, distribution, climate, soil, propagation, method of cultivation and uses.
(i) Wheat (ii) Lady's finger (iii) Chilly (iv) Rose

Unit - II Economic Botany

- Scientific name, family, parts used and medicinal uses of the following plants.
 - i.) Tylophora indica (Dam vel)
 - ii.) Hemidesmus indicus (Anant mool)
 - iii.) Achyranthes aspera (Aghedo)
 - iv.) Mucuna pruriens (Kavach)
 - v.) Aloe barbedense (Kuarpathu)
 - vi.) Terminalia belerica (Behda)
 - vii.) Embelica officinalis (Ambla)
 - viii.) Centella asiatica (Bhrami)
 - ix.) Helicteres isora (Marda singh)
 - x.) Santalum album (Chandan)
- Rubber and its products :
Chemical properties, tapping, grading, packing, marketing and uses

Unit - III Seed plants

- Classification with reasons (according to Bentham and Hooker system), general and distinguishing characters and examples (scientific name) of important plants of the following families.
 1. Anonaceae
 2. Rosaceae
 3. Combretaceae
 4. Myrtaceae
 5. Asteraceae
 6. Loranthaceae
 7. Liliaceae
 8. Arecaceae

Unit - IV Plant pathology

- Pathogen (Scientific name) and symptoms of following diseases
- (a) Late blight of potato
 - (b) Tikka disease of ground nut
 - (c) White rust of Crucifer
 - (d) Red stripe of Sugarcane
 - (e) Soft rot of apple
 - (f) Tobacco Mosaic Virus (TMV)



BOT - 404 :

- 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 thallus structure and hormogonia of algae *Oscillatoria*.
(Permanent slides of *Oscillatoria* thallus W.M.)
- Practical : 2 To study thallus structure, oogonium and antheridium of algae *Oodogonium*.
(Permanent slides of *Oodogonium* thallus W.M.; oogonium and antheridium.)
- Practical : 3 To study thallus structure, unilocular and plurilocular sporangium of algae *Ecocarpus*.
(permanent slides of *Ectocarpus* thallus W.M.; Unilocular sporangium, Plurilocular sporangium.)
- Practical : 4 To study thallus structure and cystocarp of algae *Batrachospermum*.
(Permanent slides of *Batrachospermum* thallus structure; cystocarp)
- Practical : 5 To study vegetative structure of fungi *Pythium*.
(Permanent slide of *Pythium* W.M.)
- Practical : 6 To study vegetative structure of fungi *Aspergillus*.
(Permanent slide of *Aspergillus* W.M.; Conidia)
- Practical : 7 To study structure of *Peziza*.
(Permanent slide of *Peziza* Apothecia V.M.)
- Practical : 8 To study the stages on wheat leaf (Uredospore and Teleuto spore)
(Permanent slide of Uredospore, Teleuto spore, Pycnidiospores, Aecidiospores)
- Practical : 9 To study external features of gametophytes, anatomy of thallus and sporophytes of *Anthoceros*.
(Permanent slides of *Anthoceros* thallus T.S., *Anthoceros* antheridia, *Anthoceros* archegonia, *Anthoceros* sporophyte)
- Practical : 10 To study external features of gametophytes, anatomy of thallus and sporophytes of *Riccia*.
(Permanent slides of *Riccia* thallus T.S., *Riccia* sporophyte).
- Practical : 11 To study external morphology, anatomy of internode of aerial stem and cone



Practical : 13 To study external morphology of *Selaginella* and anatomical characters of stem, leaf and strobilus.

(Permanent slides of Root T.S., Leaf T.S., Stem T. S. Strobilus L.S., Microsporangium L.S. and Megasporangium L.S.)

Practical : 14 To study following minor forest products.

- i. Gum (*Acacia gum*)
- ii. Bidee wrappers (*Diospyros sp.*)
- iii. Fiber (Jute)
- iv. Match box
- v. Paper
- vi. Dye (*Bixa orellana*)
- vii. Baj (*Butea monosperma*)

Practical : 15 To study Botanical name, family, origin and distribution of the following.

- i. Wheat
- ii. Lady's finger
- iii. Chilly
- iv. Rose

Practical : 16 To study Scientific name, family, parts used and medicinal uses of the following plants.

- i.) *Tylophora indica* (Dam vel)
- ii.) *Hemidesmus indicus* (Anant mool)
- iii.) *Achyranthes aspera* (Aghedo)
- iv.) *Mucuna pruriens* (Kavach)
- v.) *Aloe barbedense* (Kuvvarpathu)
- vi.) *Terminalia belerica* (Behda)
- vii.) *Embelica officinalis* (Ambla)
- viii.) *Centella asiatica* (Bhrami)
- ix.) *Helicteres isora* (Marda singh)
- x.) *Santalum album* (Chandan)

Practical : 17 To Study Morphological characters, floral dissection, T.S. of Ovary and floral formulae of following families (any local plants of these family)

1. To study family Anonaceae
2. To study family Rosaceae
3. To study family Combretaceae
4. To study family Myrtaceae
5. To study family Asteraceae
6. To study family Loranthaceae
7. To study family Liliaceae



- (c) White rust of Crucifer
- (d) Red stripe of Sugarcane
- (e) Soft rot of apple
- (f) Tobacco Mosaic Virus (TMV)

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