

ADIKAVI NANNAYA UNIVERSITY RAJAHMUNDRY

Department of Botany, Pre – Ph.D. Syllabus

Paper I Recent Advances in plant sciences and Research Methodology

(Mrs Y.Baby)

UNIT – I

Thallus organization and life histories in algae, economic importance of algae.

Fungi as partners of plants, microbes – nitrogen fixation, transmission of plant viruses.

UNIT – II

Ultra structure and biochemical aspects of pollen and embryo sac, modern concepts on fertilization in angiosperms, comparative morphology and taxonomy, application of tissue culture in agriculture and forestry,

UNIT -III

Ecology and human welfare , conservation and management of natural resources ,water and air pollution

Growth hormones, their role in plant systems. Minerals and their role in growth and development of plant

UNIT- IV

Concept of genome, nucleosome types and structure and organization of chloroplast and mitochondria, biology of cell cycle – determination of mitotic and meiotic cycles

Somatic cell hybridization : protoplast culture ,transformation , fusion ,somatic hybrids and transgenic plants

Genetic Engineering : General concept of Recombinant DNA technology and applications

UNIT- V

Biophysical techniques : Working Principles microscopy ,chromatography and centrifugation

spectroscopic techniques : principles and applications of UV- visible ,ESR NMR

Padmarath
15/10/22
**CONVENER, PG BOS
BOTANY, ANUR.**

J. Suneetha
**Prof. J. Suneetha, M.Sc., Ph.D.
Research Supervisor
Government College (A)
RAJAHMUNDRY-533 105.**

O.S.
Dr. K. SAMUEL KUMAR
Course Co-Ordinator
Department of Botany
ADIKAVI NANNAYA UNIVERSITY
15/10/2022

ADIKAVI NANNAYA UNIVERSITY, RAJAMAHENDRAVARAM

Department OF Botany, Pre – Ph.D. Model Question Paper

Paper – I **Recent Advances in Plant sciences**

Time : 3hrs

Max marks – 100

Note: Answer All the question, All questions carry equal marks.

5x20 = 100

1. A) Write about thallus organization in Algae.

(Or)

B) Write an essay on Nitrogen fixation.

2. A) write a detailed account on pollen and embryo sac

(Or)

B) Discuss about fertilization in angiosperms.

3. A) Explain on conservation and management of natural resources.

(Or)

B) Write about the growth hormones and their role in plant system.

4. A) Write an essay on protoplast culture and fusion.

(Or)

B) Write a detailed account on Recombination DNA.

5. A) Write a note on working principles of microscopy.

(Or)

B) Discuss about spectroscopic techniques applications.

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J. Suneetha
15/10/2022
Prof. J. Suneetha, M.Sc., M.Phil. Ph.D.
Research Supervisor
Government College (A)
RAJAHMUNDRY-533105.

S. Kumar
Dr. K. SAMUEL KUMAR
Course Co-Ordinator
Department of Botany
ADIKAVI NANNAYA UNIVERSITY
RAJAHMUNDRY-533 296.

ADIKAVI NANNAYA UNIVERSITY RAJAHMUNDRY

Department of Botany, Pre – Ph.D. Syllabus

Paper II Ethanobotany and its Research Methodology (Mrs Y.Baby)

UNIT – I

Ethnobotany definition history scope interdisciplinary approaches ,ethanobotany in India ethnic communities of India ,Andhra Pradesh and East Godavari

Different categories of Ethnobotanical plants: Food, Medicine, shelter, Fodder, Timber, fuel wood etc.

UNIT – II

Significance of medicinal and aromatic plants in the world and India

Applications of natural products to certain disease – Jaundice, infertility, diabetics, blood pressure, skin disease etc.

Role of research institutes on medicinal and aromatic plants (CDRI,CIMAP,NBRI,NBPGR,IUCN)

UNIT -III

Methods of extraction: Pooling extraction, solvent extraction and hydro distillation extraction and Microwave extraction

Quality control of herbal drugs : Identification and characterization of main phytochemical groups like alkaloids, terpenoids, steroids, flavonoids and tannis

UNIT- IV

Separation techniques : centrifugation , distillation and crystallization

Chromatography techniques: Thin layer chromatography, Analytical method of chromatography HPLC, GC etc.

UNIT- V

Ethics in ethnobotanical research : Intellectual Property rights (IPR) International agreements and best practices

Anthropological methods : Documenting knowledge and practice of medicinal plants use in a socio-ecological context

Botanical methods : Collecting specimens, Managing collection and assessing the Conservation status of plants

Padmavathi
15/10/22.
CONVENER, PG BOS
BOTANY, ANUR.

Prof. J. Suneeha, M.Sc., M.Phil., Ph.D.
Research Supervisor
Government College (A)
RAJAHMUNDRY-533 105.

Dr. K. SAMUEL KUMAR
Course Co-Ordinator
Department of Botany
ADIKAVI NANNAYA UNIVERSITY
RAJAHMUNDRY-533 296.

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Department OF Botany, Pre – Ph.D. Model Question Paper

Parer – II **Ethnobotany and its Research methodology**

Time : 3hrs

Max marks – 100

Note: Answer All the question, All questions carry equal marks. 5x20 = 100

1. A) Define Ethnobotany? Scope and importance of Ethnobotany

(Or)

B) Write about categories of Ethnobotanical plants.

2. A) Explain the role of natural products in treating various diseases like Jaundice, Diabetes diseases.

(Or)

B) Discuss the role of Research institutes in the field of medicinal and aromatic plants.

3. A) Write about the various types of Extraction methods used in extraction of plant products.

(Or)

B) Write about the identification and characterization of Terpenoides.

4. A) Explain the process of centrifugation techniques used in separation of plant products.

(Or)

B) Write about the process and principle involved in thin layer chromatography.

5. A) Explain about the Intellectual Property Rights.

(Or)

B) Write about the process of collection of plant specimen and their management.

Padmarathi
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BOTANY, ANUR.

Prof. J. Suneeitha, M.Sc., M.Phil., Ph.D.
Research Supervisor
Government College (A)
RAJAHMUNDRY-533 105.

Dr. K. SAMUEL KUMAR
Course Co-Ordinator
Department of Botany
ADIKAVI NANNAYA UNIVERSITY
RAJAHMUNDRY-533 105