



**LEAD CITY UNIVERSITY, IBADAN.
FACULTY OF BASIC MEDICAL & APPLIED SCIENCES
DEPARTMENT OF BIOLOGICAL SCIENCES
SECOND SEMESTER, 2017/2018 ACADEMIC SESSION**

COURSE PARTICULAR

Course Title: PLANT TISSUE CULTURE

Course Code: BOT 414

Units: 2

Name :Adegbehingbe K.O

Qualifications: Bsc. Biology ,Msc. Zoology (Parasitology)

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Area of Specialization: Public-Health Parasitology & Biology

Section A:

Introduction: Plant tissue culture is a fourth year course. It is a compulsory course for students in the Education Biology department.

Objectives:

- 1.To learn various protocols of plant cell, tissue, and organ culture.
2. To understand the scientific principles underlying the protocols.
3. To learn the application of plant tissue culture technology for clonal propagation, and plant improvement, recovering plants from transformed cells, and production of valuable plant biochemicals.

Course Description: BOT 413: The Plant Tissue Culture introduces students the concepts and techniques of plant cell, tissue, and organ cultures. Applications of plant tissue technology for clonal propagation and plant improvement, recovering plants from transformed cells, and production of valuable plant biochemical are discussed.

Teaching Plan

WEEK	CONTENT
1	Introduction to plant tissue culture
2	History of plant cell culture
3	Types of tissues culture
4	Plant tissue culture techniques
5	Plant tissue culture application and relevance
7	Culture cell division and secondary metabolites
8-9	Organogenesis
10	Tissue culture media preparation
11	Plant cell cultivation as a biotechnological method
12	Factors necessitate the growth of tissue culture
13	Germplasm
14	Revision

Course Requirement/Assessment:

Continuous Assessment Test	40%
Terminal Examination	60%
Total	100%

Reading List: Reece, Jane B., Lisa A. Urry, Michael L. Cain, Steven A. Wasserman, Peter V. Minorsky, and Robert B. Jackson."Angiosperm Reproduction and Biotechnology."Campbell Biology. 9th ed. San Francisco, CA: Benjamin Cummings, 2011. 860. Print.

Lorraine Mineo(1990).Plant Tissue Culture Techniques.

Tutorial Questions

- 1a. Define the term tissue culture.
- b. Describe how the process of tissue culture is done in plant.
- c. State four types of tissue culture.

- 2a. Explain the term “totipotency”
- b. Describe cell line in plant culture.
- c. Outline ways of maintenance of cell line.

3. Write a concise note on history of Plant tissue culture.

- 4 a. State three advantages of synthetic seeds and two limitation.
- b. State three reasons tissue culture is used for plants.
- 5 (a) Explain cell suspension culture. b. Describe general procedure for plant tissue culture.

6. Explain the role of culture media in tissue culturing with examples.

- 7a. Describe the term “organogenesis”
- b. State and explain five factors affecting organogenesis.

8. Explain why anthers are preferred to microspores in production of Androgenic haploids.

- 9a. Highlight seven importance of tissue culture.
- b. State four secondary metabolites produced during tissue culture.

- 10a. Describe four ways which cell division can be suppressed in plant tissue culturing.
- b. Explain briefly method of conservation of germplasm.

- 11a. Highlight six importance of tissue culture.
- b. Outline major steps of tissue culture.

- 12 a. State three advantages of synthetic seeds and two limitation.
- b. Mention four plant growth hormones used in tissue culture.
- c. Outline the four explants used for callus induction and regeneration