

SUBJECT OUTLINE DETAILS

1. Subject: PLANT TISSUE CULTURE LAB.

- Code: BT405C
- Credits: 1
- Hours: 30 practice hours, 30 self-study hours.

2. Management Unit:

- Department: Molecular Biotechnology
- Institute: Biotechnology Research and Development Institute

3. Prerequisites: general genetic (BT202), plant physiology (BT409)

4. Subject objectives:

4.1. Knowledge:

- 4.1.1. The students know how to apply theoretical knowledge to interpret the results obtained in practicing
- 4.1.2. The students get strongly understands the theoretical knowledge through practical

4.2. Skill:

- 4.2.1. Students perform basic techniques in the laboratory (aseptic techniques, adjust pH, preparation of culture media)
- 4.2.2. Students will learn the basic principles of practicing in sterile conditions (subculture, aseptic explants ...)
- 4.2.3. To supply the students how to use equipment in laboratory (laminar flow, pH machine, autoclave...)

4.3. Attitude:

- 4.3.1. The Students confidence and perform experiments independently
- 4.3.2. The students can carry out experiments by themselves

5. Brief description of subject content:

This course guides students how to prepare the equipment to perform chemical plant tissues cultured in sterile conditions. How prepared environment, prepared stock solution used to grow and culture. How to sterilize explants from natural conditions with high result. Apply to students some techniques such as: callus culture, shoot culture, meristem culture, subculture...

6. Subject content structure:

6. 1. Detailed content of course

	Contents	Periods	Objectives
--	----------	---------	------------

Lesson 1	<p style="text-align: center;">BASAL MANIPULATIONS IN PLANT AND CELL TISSUE CULTURE</p> <ol style="list-style-type: none"> 1. Prepare containers for tissue culture 2. Making media for tissue culture <ol style="list-style-type: none"> a. Stock solution b. Adjusting pH c. Autoclaving 	5	4.1; 4.2; 4.3
Lesson 2.	<p style="text-align: center;">ASEPTIC TECHNIQUES</p> <ol style="list-style-type: none"> 1. How to work in laminar flow 2. Aseptic explants 	5	4.1; 4.2; 4.3
Lesson 3.	<p style="text-align: center;">CALLUS STIMULATION AND MAINTENACE</p> <ol style="list-style-type: none"> 1. To establish callus form rice embryos 2. To observe morphological callus 	5	4.1; 4.2; 4.3
Lesson 4	<p style="text-align: center;">SUBCULTURE IN MICROPROPAGATION</p> <ol style="list-style-type: none"> 1. Subculture explants in vitro condition 2. To observe explants (new root, leaf foundation) 	5	4.1; 4.2; 4.3
Lesson 5	<p style="text-align: center;">MERISTEM CULTURE</p> <ol style="list-style-type: none"> 1. Isolation and culture meristem 2. Principle of diseaes plant 	5	4.1; 4.2; 4.3
Lesson 6	<p style="text-align: center;">ACCLIMATIZATION</p> <ol style="list-style-type: none"> 1. Tranfer plannets from <i>invitro</i> condition to net house condition 2. How to take care plantnets 	5	4.1; 4.2; 4.3

7. Teaching method:

The students practise by themselfe

8. Duties of student:

Students have to do the following duties:

- + Laboratory practice (100%)
- + Report and presentation in group

9. Assessment of student learning outcomes:

9.1. Assessment

No.	Point components	Rules and Requirement	Weights	Objectives
1	Report and presentation	+ Class attendance (100%) + Report and presentation	80%	4.1; 4.2; 4.3

2	Test	Multiple choice	20%	4.1; 4.2; 4.3
---	------	-----------------	-----	---------------

9.2. Grading

- Grading components and final test scores will be marked on a scale of 10 (0 to 10), rounded to one decimal place.
- Subject score is the sum of all the components of the evaluation multiplied by the corresponding weight. The subject score is marked on a scale of 10 and rounded to one decimal place, then is converted to A-B-C-D score and score on a scale of 4 under the academic provisions of the University.

10. Materials:

Materials information	Code number
[1] Nguyễn Bảo Toàn, 2004, Giáo trình Nuôi cấy mô và Tế bào thực vật, Đại Học Cần Thơ.	NN.015361 NN.015362 NN.015363 NN.015365 NN.015364 MOL.053166 MOL.053226 MOL.052825 MON.036532
[2] Plant tissue culture : Methods and applications in agriculture / edited by Trevor A. Thorpe. - New York : Academic Press, 1981 Arrangement: 580.0724/ P713, MFN 138609	DIG.001923 NN011429
[3] Plant tissue culture concepts and laboratory exercises / Edited by Robert N. Trigiano, Dennis J. Gray. - Boca Raton, Florida : CRC press, 1996 Arrangement: 581.0724/ P713	MON.009712

11. Self-study Guide:

Week	Content	Practice (hours)	Students' duties
1	BASAL MANIPULATIONS IN PLANT AND CELL TISSUE CULTURE	5	- [2]: Reading page 95 to 116
2	ASEPTIC TECHNIQUES	5	+ [2]: Reading page 117 to 129
3	CALLUS STIMULATION AND MAINTENANCE	5	+ To record the data in lesson 2 + [2]: Reading page 178 to 180
4	SUBCULTURE IN MICROPROPAGATION	5	+ To record the data in lesson 3 + [3]: Reading page 216-312
5	MERISTEM CULTURE	5	+ To record the data in lesson 4 + [1]: Reading chapter 6
6	ACCLIMATIZATION	5	+ To record the data in lesson 5 + [1]: Reading chapter 7

			+ To record the data in lesson + Report all results
--	--	--	--

**ON BEHALF OF RECTOR
DEAN/ DIRECTOR**

Can Tho,/...../20...
HEAD OF DEPARTMENT