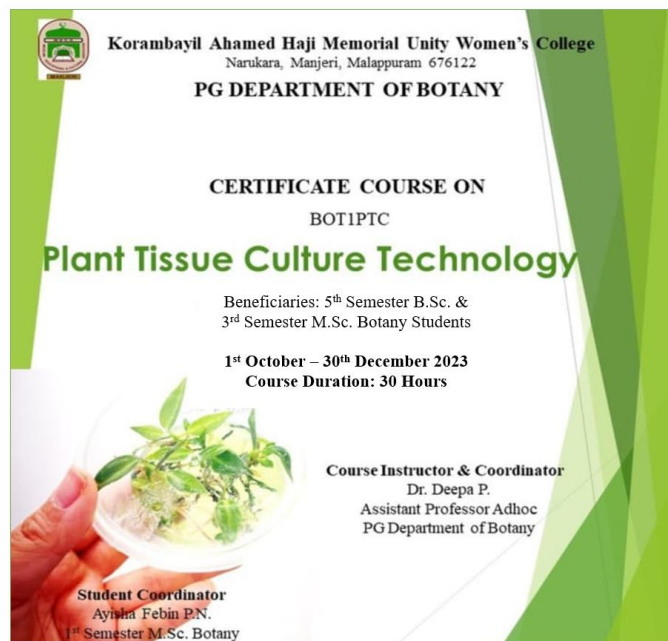


CERTIFICATE COURSE IN PLANT TISSUE CULTURE TECHNOLOGY

SUMMARY REPORT WITH OUTCOME

PG Department of Botany conducted a certificate course in Plant Tissue Culture Technology to the Third Semester MSc Botany and Fifth Semester BSc Botany students. The period of the course was 01st October 2023 to 31st December 2023 with 30 hours duration in which 81 students were enrolled and completed the same. Dr. Deepa P., Assistant Professor Adhoc, PG Department of Botany coordinated the course and the instructed the programme by Dr. Usman A., Head, PG Department of Botany. The aim of the course was to introduce the concept, methodology and applications of plant tissue culture technique to the participants. It makes an idea regarding germplasm conservation of rare and endangered plants of Kerala through micropropagation methods using different explants of desired mother plants. Moreover; it will make a better opportunity to propagate the tree plants which are difficult to propagate through normal agricultural methods. Propagation of medicinal and economically valuable plants are also successfully possible by this modern technique within a short period of time using the artificial media under sterile environmental conditions. After the completion of the course, the participants familiarized the protocols of the micropropagation methodology that included sterilization strategies, explant selection, media preparation, inoculation and hardening, in turn provided a better job-oriented practice to the participants.



PG DEPARTMENT OF BOTANY

KAHM UNITY WOMEN'S COLLEGE, MANJERI, MALAPPURAM, KERALA, 676122

CERTIFICATE COURSE

BOT1PTC - PLANT TISSUE CULTURE TECHNOLOGY

COURSE DESCRIPTION: Plant tissue culture technology provides better plant propagation method to produce a large number of plantlets from a desirable mother plant explant within a short period of time using the suitable artificial nutrient medium under sterile environmental conditions. The course provides a proper procedure for *in vitro* plant multiplication usable for agricultural practices and germplasm conservation. Beyond, it aims to provide the knowledge regarding sterilization methods, explant and media selection and hardening together with the familiarization about worldwide applications of plant tissue culture for the wellbeing of society.

SYLLABUS

CREDIT: 2

DURATION: 30 HOURS

OBJECTIVES

- To make awareness about the better strategy to multiply and establish the valuable plants needed for the welfare of human beings.
- To practice the proper procedure of *in vitro* multiplication of plantlets in germplasm conservation.
- To understand the method to produce stress tolerant plants that can grow under environmental stress.

LEARNING OUTCOMES

- Familiarize the correct procedure of *in vitro* plant multiplication
- Gain the knowledge on proper precautions to reduce the microbial contamination
- Understand about the necessity of rare plant conservation

- Obtain the information on income generating job practice to the society

MODULE I (10 HOURS)

1. Plant tissue culture: Principles and techniques; Cellular totipotency; *in vitro* differentiation-de differentiation and re-differentiation
2. Tissue culture medium: Basic components in tissue culture medium - Solid and liquid medium; Murashige and Skoog medium - composition and preparation
3. Aseptic techniques in *in vitro* culture: sterilization methods, sterilization of instruments, glass wares, medium, explants; working principle of laminar air flow and autoclave
4. Preparation of explants: Surface sterilization, inoculation, incubation, subculturing
5. Micropropagation: Different methods - Apical, axillary bud proliferation, direct and indirect organogenesis and somatic embryogenesis
6. Different phases of micropropagation: Multiple shoot induction, shoot elongation, *in vitro* and *in vivo* rooting hardening, transplantation and field evaluation; advantages and disadvantages of micropropagation, somaclonal variation

MODULE II (10 HOURS)

1. Methods and Applications of tissue culture:
 1. Shoot tip and meristem culture
 2. Somatic embryogenesis and synthetic seed production
 3. Embryo culture
 4. Protoplast isolation culture and regeneration: Transformation and transgenics
 5. Somatic cell hybridization, cybridization.
 6. *In vitro* secondary metabolite production: Cell immobilization, bioreactors
 7. *In vitro* production of haploids: Anther and pollen culture, *In vitro* preservation of germplasm

PRACTICAL (10 HOURS)

1. Preparation of nutrient medium: Murashige and Skoog medium using stock solutions

2. Familiarize the technique of preparation of explants, surface sterilization, inoculation and subculturing
3. Preparation of synthetic seeds
4. Demonstration of anther culture

REFERENCES

1. Gamborg, O. L. & G. C. Philips (Eds.) (1995). Plant Cell, Tissue and Organ Culture: Fundamental Methods. Narosa Publishing House, New Delhi.
2. Razdan M. K. (1995) Introduction to Plant Tissue Culture. Oxford & IBH publishing Co. Pvt. Ltd.
3. Reinert & Bajaj (2006) Plant Cell, Tissue and Organ Culture
4. Edwin F. George, Michael A. Hall & Geert-Jan De Klerk (2008) Plant propagation by tissue culture Volume 1. The Background. Springer, P.O. Box 17, 3300 AA Dordrecht. The Netherlands.
5. Madhavi Adhav (2010) Practical book of Biotechnology and Plant Tissue culture
6. Bhojwani, San Saran, Danu, Prem Kumar (2013) Tissue Culture: An Introductory Text
7. Pullaiah , Subba Rao M. V. & Sreedevi E. (2023) Plant tissue culture: Theory and Practicals 2nd edition
8. Roberta H. Smith (2012) Plant Tissue Culture: Techniques and Experiments. Academic Press
9. Robert N. Trigiano_(2017) Plant Tissue Culture Concepts and Laboratory Exercises. Routledge

PG DEPARTMENT OF BOTANY

KAHM UNITY WOMEN'S COLLEGE, MANJERI, MALAPPURAM, KERALA, 676122

CERTIFICATE COURSE

BOT1PTC - PLANT TISSUE CULTURE TECHNOLOGY

MODEL QUESTION PAPER

Time: 1 Hour

Max Marks: 30

Section A

Answer at least ten questions. Each question carries 1 mark.

All questions can be attended. Overall ceiling 10.

1. Differentiate between differentiation and redifferentiation
2. Explain totipotency
3. Write a short account on synthetic seeds
4. What is somatic embryogenesis
5. Write on different tissue culture media
6. Distinguish MS medium and White's medium
7. Write the advantages of micropropagation
8. What are the steps of plant tissue culture
9. Mention the significance of meristem culture
10. Write a short note on in vitro shoot multiplication
11. Name of auxins cytokinins

(10X1= 10 Marks)

Section B

Answer at least five questions. Each questions carries 2 marks.

All questions can be attended. Overall ceiling 10

12. Explain in vitro secondary metabolite production

13. Explain about the orchid in vitro production
14. Write an account on anther culture
15. Write notes on somaclonal variation
16. Explain the steps of disease-free plant production
17. Explain the methods of in vitro germplasm conservation

(5X2= 10 Marks)

Section C

Answer any two questions. Each questions carries 5 marks

18. Write an essay on different types of tissue culture media
19. Explain the applications of micropropagation
20. Give an account of various steps of plant tissue culture

(2X5= 10 Marks)

EVALUATION & GRADING

Mark system is followed instead of direct grading for each question and the letter grade and grade point are introduced in 10-point indirect grading system.

SCHEME OF EVALUATION

The evaluation scheme for each course shall contain two parts 1) Internal assessment 2) External Evaluation. 25% weight shall be given to the internal assessment. The remaining 75% weight shall be for the external evaluation. The internal assessment shall be based on a predetermined transparent system involving assignment, class room participation and attendance in respect of classes.

METHOD OF EVALUATION			
Assessment Methods	Criteria	Marks	Weightage
Formative Assessment (FA)	Attendance	4	25%
	Assignment/Project/Activities/Reports	6	
Summative Assessment (SA)*	Test Paper	30	75%
	Total	40	100

ATTENDANCE

Attendance	Marks
90-100%	4
85-89.9%	3
80-84.9%	2
75-79.9	1
< 75%	0

GRADING POLICY

Grade	Percentage of total marks (FA+SA)
A	80% & above
B	60-79.9%
C	50-59.9%
D	40-49.9%
Not qualified	< 40%

KAHM UNITY WOMEN'S COLLEGE, MANJERI
CERTIFICATE COURSE SCHEDULE

Name of the Department: PG Department of Botany

Name of the course: BOT1PCT: Plant Tissue Culture Technology

Course Duration: 1st October - 30th December

Semester & Year: Fifth Semester B.Sc. Botany & Third Semester M.Sc. Botany

SL. NO	PLAN				EXECUTION	
	DATE	TIME	TOPIC	OFFLINE/ONLINE PLATFORM	Covered (Yes/No)	Changes/ Remarks if any
1.	05/10/23	10am-12.30pm	Introduction to Plant Tissue Culture	Offline, Botany Lab	Yes	-
2.	06/10/23	3.30pm-4.30pm	Tissue culture media preparation	Offline, Botany Lab	Yes	-
3.	16/10/23	2pm-4pm	Sterilization methods	Offline, Botany Lab	Yes	-
4.	18/10/23	3.30pm-4.30pm	Principle behind micropropagation	Offline, Botany Lab	Yes	-
5.	08/10/23	3.30pm-4.30pm	Applications of micropropagation	Online	Yes	-
6.	01/11/23	3.30pm-4.30pm	Types of plant tissue culture	Offline, Botany Lab	Yes	-
7.	02/11/23	3.30pm-4.30pm	Synthetic seed preparation	Offline, Botany Lab	Yes	-
8.	16/11/23	3.30pm-4.30pm	<i>In vitro</i> haploid production	Offline, Botany Lab	Yes	-
9.	21/11/23	9.30am-3.30pm	Practical: Medium preparation	Offline, Botany Lab	Yes	-
10.	22/11/23	9.30am-3.30pm	Practical: Inoculation and incubation	Offline, Botany Lab	Yes	-
11.	22/11/23	3.30pm-	Somatic embryogenesis	Offline, Botany Lab	Yes	-

		4.30pm				
12.	04/12/23	3.30pm-4.30pm	Protoplast culture	Offline, Botany Lab	Yes	-
13.	11/12/23	3.30pm-4.30pm	Anther culture demonstration	Offline, Botany Lab	Yes	-
14.	13/12/23	3.30pm-4.30pm	<i>In vitro</i> secondary metabolite production	Offline, Botany Lab	Yes	-
15.	18/12/23	9.30am-2pm	Practical: Synthetic seed preparation	Offline, Botany Lab	Yes	-
16.	19/12/23	3.30pm-4.30pm	Practical: Hardening	Offline, Botany Lab	Yes	-

Dr. Usman A.

HoD

Dr. Deepa P.

Course Coordinator

Dr. Usman A.

Course Instructor

CERTIFICATE COURSE
BOT1PTC - PLANT TISSUE CULTURE TECHNOLOGY
STUDENTS ENROLLMENT LIST

Name of the Department: Botany

Name of the course: BOT1PTC - Plant tissue culture technology

Semester & Year: Fifth Semester B.Sc. Botany & Third Semester M.Sc. Botany

SL. NO	ROLL NO.	NAME OF STUDENT	SEMESTER & COURSE
1.	1371	AFRIN AHAMMED K	FIFTH SEMESTER BSc BOTANY
2.	1372	ANSHIDA P	FIFTH SEMESTER BSc BOTANY
3.	1374	BIBISHAHMA PP	FIFTH SEMESTER BSc BOTANY
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41.	1415	SHAHANA K	FIFTH SEMESTER BSc BOTANY
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43.	1417	SHARANYA K	FIFTH SEMESTER BSc BOTANY
44.	1418	SISIRA A M	FIFTH SEMESTER BSc BOTANY
45.	1419	SNEHA A P	FIFTH SEMESTER BSc BOTANY
46.	1420	NAYANA SURESH	FIFTH SEMESTER BSc BOTANY
47.	1421	NIDHA SHERIN	FIFTH SEMESTER BSc BOTANY
48.	PGB677	RINSHA SHERIN M	THIRD SEMESTER MSc BOTANY
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Dr. Usman A.

HOD

Dr. Deepa P.

Course Coordinator

CERTIFICATE COURSE
BOT1PTC - PLANT TISSUE CULTURE TECHNOLOGY
LIST OF STUDENTS COMPLETED THE COURSE

Name of the Department: Botany

Name of the course: BOT1PTC - Plant tissue culture technology

Semester & Year: Fifth Semester B.Sc. Botany & Third Semester M.Sc. Botany

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Dr. Usman A.

HOD

Dr. Deepa P.

Course Coordinator

CERTIFICATE COURSE
BOT1PTC - PLANT TISSUE CULTURE TECHNOLOGY
CERTIFICATE COURSE – MARK/GRADE SHEET

Name of the Department: Botany

Name of the course: BOT1PTC - Plant tissue culture technology

Semester & Year: Fifth Semester B.Sc. Botany & Third Semester M.Sc. Botany

SL. NO	ROLL NO.	NAME OF STUDENT	FORMATIVE ASSESSMENT (FA) (10 MARKS)	SUMMATIVE ASSESSMENT (SA) (30 MARKS)	TOTAL MARKS (40)	GRADE
1.	1371	AFRIN AHAMMED K	10	30	40	A
2.	1372	ANSHIDA P	09	30	39	A
3.	1374	BIBISHAHMA PP	10	30	40	A
4.	1375	DALIYA TP	10	30	40	A
5.	1376	DIYA FATHIMA KT	10	30	40	A
6.	1377	ESATH JANNA SHERIN	10	30	40	A
7.	1378	FAIROOS BEEGUM S	10	30	40	A
8.	1379	FASNA SHIBIN KM	09	30	39	A
9.	1380	FATHIMA FIDHA CK	10	30	40	A
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11.	1382	FATHIMA NIDHA	10	30	40	A
12.	1383	FIDA JABIN K	09	30	39	A
13.	1385	HIDHA SHERIN P	10	30	40	A
14.	1386	HUSNA MARJAN OV	10	30	40	A
15.	1387	LUBNA V	10	30	40	A
16.	1388	MINHA K	10	30	40	A
17.	1389	MUFEEDA K V	10	30	40	A
18.	1390	NAVAZISH K	09	30	39	A
19.	1391	NISHMA	10	30	40	A
20.	1392	RASHA MUBASSIR M	10	30	40	A
21.	1393	RISNA SHERIN T P	10	30	40	A

22.	1394	SHABINSHA SHERIN T H	09	30	39	A
23.	1395	SHAMEEMA AK	10	30	40	A
24.	1396	SHANA PARVEEN K	10	30	40	A
25.	1397	SHELVA AP	09	30	39	A
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27.	1399	AISWARYA K C	09	30	39	A
28.	1400	AISWARYA P	10	30	40	A
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34.	1407	ANANYA MANOJ TK	08	30	38	A
35.	1408	ANASWARA A	10	30	40	A
36.	1410	DILNA PP	10	30	40	A
37.	1411	GOPIKA A	09	30	39	A
38.	1412	JUMNA MOL K	10	30	40	A
39.	1413	NIHALA NILOFAR TK	10	30	40	A
40.	1414	RINSHA M	10	30	40	A
41.	1415	SHAHANA K	10	30	40	A
42.	1416	SHAHARBAN C	10	30	40	A
43.	1417	SHARANYA K	10	30	40	A
44.	1418	SISIRA A M	08	30	38	A
45.	1419	SNEHA A P	09	30	39	A
46.	1420	NAYANA SURESH	10	30	40	A
47.	1421	NIDHA SHERIN	10	30	40	A
48.	PGB677	RINSHA SHERIN M	09	30	39	A
49.	1	ABIRSHA NC	09	30	39	A
50.	2	ADILA NASRIN	10	30	40	A
51.	3	AFNAN ABDUL NAZER	10	30	40	A
52.	4	ANJANA DAS P	09	30	39	A
53.	5	BINSY KC	10	30	40	A
54.	6	FATHIMA SANIYA PM	10	30	40	A
55.	8	FIDA FATHIMA P	10	30	40	A

56.	9	FIDHA CK	10	30	40	A
57.	10	HARITHA A	09	30	39	A
58.	11	JASEERA NASRIN P	10	30	40	A
59.	12	JINSHA M	09	30	39	A
60.	13	JUMANATH KC	10	30	40	A
61.	14	MISNA MINNA	09	30	39	A
62.	17	RASHA FATHIMA K	10	30	40	A
63.	18	SHAHANA SHERIN K	10	30	40	A
64.	19	SHRUTHI S	09	30	39	A
65.	20	THASHNIFA PK	10	30	40	A
66.	1	ANEENA MEHNAZ	10	30	40	A
67.	2	DEVIKA T	10	30	40	A
68.	3	FARHANA SHERIN CK	10	30	40	A
69.	4	FAYISA NASRIN CT	10	30	40	A
70.	5	FAYIZA T	10	30	40	A
71.	6	ISHMA ABDUL HAMEED	10	30	40	A
72.	7	JASNA P	10	30	40	A
73.	8	MUHSINA THASNI	10	30	40	A
74.	10	NIDHA NAHAN P	10	30	40	A
75.	11	NUSREENA	10	30	40	A
76.	12	RAHANA U	10	30	40	A
77.	13	SHAFEEDA VALPPARA	10	30	40	A
78.	14	SHIBLA BANU	10	30	40	A
79.	15	SHIBILY PK	10	30	40	A
80.	16	SUFNA C	10	30	40	A
81.	18	THARA SHIRIN S	09	30	39	A

Dr. Usman A.

HOD

Dr. Deepa P.

Course Coordinator

CERTIFICATE COURSE
BOT1PTC - PLANT TISSUE CULTURE TECHNOLOGY
ATTENDANCE OF THE PARTICIPANTS

CERTIFICATE COURSE																				
BOT1PTC - PLANT TISSUE CULTURE TECHNOLOGY																				
ATTENDANCE OF PARTICIPANTS																				
SL. NO	ROLL NO.	NAME OF STUDENT	CLASS	5/10	6/10	16/10	18/10	8/10	1/11	2/11	16/11	21/11	22/11	4/12	11/12	13/12	18/12	19/12	SIGN.	
1.	1371	AFRIN AHAMMED K	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
2.	1372	ANSHIDA P	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	a	X	X	X	a	X	[Signature]
3.	1374	BIBISHAHMA PP	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
4.	1375	DALIYA TP	FIFTH SEMESTER BSC BOTANY	X	X	a	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
5.	1376	DIYA FATHIMA KT	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	a	X	X	X	X	X	X	X	[Signature]
6.	1377	ESATH JANNA SHERIN	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
7.	1378	FAIROOS BEEGUM S	FIFTH SEMESTER BSC BOTANY	X	X	X	X	a	X	X	X	X	X	X	X	X	X	X	X	[Signature]
8.	1379	FASNA SHIBIN KM	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
9.	1380	FATHIMA FIDHA CK	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
10.	1381	FATHIMA LABEEBA KK	FIFTH SEMESTER BSC BOTANY	X	X	X	a	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
11.	1382	FATHIMA NIDHA	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
12.	1383	FIDA JABIN K	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
13.	1385	HIDHA SHERIN P	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
14.	1386	HUSNA MARJAN OV	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
15.	1387	LUBNA V	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
16.	1388	MINHA K	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	a	X	X	X	X	X	X	[Signature]
17.	1389	MUFEEEDA K V	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	a	X	X	X	X	X	[Signature]
18.	1390	NAVAZISH K	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	a	X	X	X	X	X	X	X	X	X	[Signature]
19.	1391	NISHMA	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
20.	1392	RASHA MUBASSIR M	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
21.	1393	RISNA SHERIN T P	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]

22.	1394	SHABINSHA SHERIN T H	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
23.	1395	SHAMEEMA AK	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
24.	1396	SHANA PARVEEN K	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
25.	1397	SHELVA AP	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
26.	1398	SUHAILA M	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
27.	1399	AISWARYA K C	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
28.	1400	AISWARYA P	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	a	X	X	X	X	X	X	X	X	[Signature]
29.	1401	ANSHIDA MARIYAM KK	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
30.	1402	MEGHA M RAJEEV	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
31.	1403	NAJA SAJEESH TK	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
32.	1405	SHAHZIN C P	FIFTH SEMESTER BSC BOTANY	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
33.	1406	SUHAILA K	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	a	X	X	X	X	X	X	X	[Signature]
34.	1407	ANANYA MANOJ TK	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
35.	1408	ANASWARA A	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
36.	1410	DILNA PP	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
37.	1411	GOPIKA A	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
38.	1412	JUMNA MOL K	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	a	X	X	X	X	X	X	X	X	X	X	[Signature]
39.	1413	NIHALA NILOFAR TK	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
40.	1414	RINSHA M	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
41.	1415	SHAHANA K	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
42.	1416	SHAHARBAN C	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
43.	1417	SILARANYA K	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]
44.	1418	SISIRA A M	FIFTH SEMESTER BSC BOTANY	X	X	X	a	X	X	X	X	X	X	X	X	X	X	X	X	[Signature]

45.	1419	SNEHA A P	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
46.	1420	NAYANA SURESH - MPDHU	FIFTH SEMESTER BSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
47.	1421	NIDHA SHERIN TP	FIFTH SEMESTER BSC BOTANY	X	X	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
48.	PGB677	RINSHA SHERIN M	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
49.	1	ABIRSHA NC	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
50.	2	ADILA NASRIN	THIRD SEMESTER MSC BOTANY	X	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
51.	3	AFNAN ABDUL NAZER	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
52.	4	ANJANA DAS P	THIRD SEMESTER MSC BOTANY	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
53.	5	BINSY KC	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
54.	6	FATHIMA SANIYA PM	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
55.	8	FIDA FATHIMA P	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
56.	9	FIDHA CK	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	a	X	X	X	X	X	X	X	X	X	X	X	X
57.	10	HARITHA A	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
58.	11	JASEERA NASRIN P	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
59.	12	JINSHA M	THIRD SEMESTER MSC BOTANY	X	X	X	X	a	X	X	X	X	X	X	X	X	X	X	X	X	X
60.	13	JUMANATH KC	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
61.	14	MISNA MINNA	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
62.	17	RASHA FATHIMA K	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
63.	18	SHAHANA SHERIN K	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
64.	19	SHRUTHI S	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
65.	20	THASHINIFA PK	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
66.	1	ANEENA MEHNAZ	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
67.	2	DEVIKA T	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

68.	3	FARHANA SHERIN CK	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
69.	4	FAYISA NASRIN CT	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
70.	5	FAYIZA T	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
71.	6	ISHIMA ABDUL HAMEED	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	a	X	X	X
72.	7	JASNA P	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
73.	8	MUHSINA THASNI	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
74.	10	NIDHA NAHAN P	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	a	X	X	X	X	X	X	X	X	X	X	X	X
75.	11	NUSREENA	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
76.	12	RAHANA U	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
77.	13	SHAFEEDA VALPPARA	THIRD SEMESTER MSC BOTANY	X	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
78.	14	SHIBLA BANU	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
79.	15	SHIBILY PK	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
80.	16	SUFNA C	THIRD SEMESTER MSC BOTANY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
81.	18	THARA SHIRIN S	THIRD SEMESTER MSC BOTANY	X	X	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Coordinator

Dr. Deepa P.

Assistant Professor Adhoc

PG Department of Botany

CERTIFICATE COURSE
BOT1PTC - PLANT TISSUE CULTURE TECHNOLOGY
CERTIFICATE COURSE – FEEDBACK ANALYSIS

Name of the Department: Botany

Name of the course: BOT1PTC - Plant tissue culture technology

Semester & Year: Fifth Semester B.Sc. Botany & Third Semester M.Sc. Botany

CERTIFICATE COURSE						
BOT1PTC - PLANT TISSUE CULTURE TECHNOLOGY						
CERTIFICATE COURSE – FEEDBACK ANALYSIS						
Name of the Department: Botany						
Name of the course: BOT1PTC - Plant tissue culture technology						
Semester & Year: First & Third Semester M.Sc. Botany						
SL. NO	ROLL NO.	NAME OF STUDENT	SEMESTER & COURSE	FEEDBACK OF PARTICIPANTS		
				GOOD	VERY GOOD	EXCELLENT
1.	1371	AFRIN AHAMMED K	FIFTH SEMESTER BSC BOTANY		✓	
2.	1372	ANSHIDA P	FIFTH SEMESTER BSC BOTANY			
3.	1374	BIBISHAHMA PP	FIFTH SEMESTER BSC BOTANY		✓	
4.	1375	DALIYA TP	FIFTH SEMESTER BSC BOTANY		✓	
5.	1376	DIYA FATHIMA KT	FIFTH SEMESTER BSC BOTANY		✓	
6.	1377	ESATH JANNA SHERIN	FIFTH SEMESTER BSC BOTANY			
7.	1378	FAIROOS BEEGUM S	FIFTH SEMESTER BSC BOTANY		✓	
8.	1379	FASNA SHIBIN KM	FIFTH SEMESTER BSC BOTANY			
9.	1380	FATHIMA FIDHA CK	FIFTH SEMESTER BSC BOTANY		✓	
10.	1381	FATHIMA LABEEBA KK	FIFTH SEMESTER BSC BOTANY			
11.	1382	FATHIMA NIDHA	FIFTH SEMESTER BSC BOTANY		✓	
12.	1383	FIDA JABIN K	FIFTH SEMESTER BSC BOTANY			✓
13.	1385	HIDHA SHERIN P	FIFTH SEMESTER BSC BOTANY		✓	
14.	1386	HUSNA MARJAN OV	FIFTH SEMESTER BSC BOTANY		✓	
15.	1387	LUBNA V	FIFTH SEMESTER BSC BOTANY			
16.	1388	MINHA K	FIFTH SEMESTER BSC BOTANY		✓	
17.	1389	MUFEEDA K V	FIFTH SEMESTER BSC BOTANY		✓	
18.	1390	NAVAZISH K	FIFTH SEMESTER BSC BOTANY		✓	
19.	1391	NISHMA	FIFTH SEMESTER BSC BOTANY			✓
20.	1392	RASHA MUBASSIR M	FIFTH SEMESTER BSC BOTANY		✓	
21.	1393	RISNA SHERIN T P	FIFTH SEMESTER BSC BOTANY			✓
22.	1394	SHABINSHA SHERIN T H	FIFTH SEMESTER BSC BOTANY		✓	
23.	1395	SHAMEEMA AK	FIFTH SEMESTER BSC BOTANY		✓	
24.	1396	SHANA PARVEEN K	FIFTH SEMESTER BSC BOTANY		✓	
25.	1397	SHELVA AP	FIFTH SEMESTER BSC BOTANY		✓	
26.	1398	SHUHAILA M	FIFTH SEMESTER BSC BOTANY		✓	

1371
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Dr. Usman A.
HOD

Dr. Deepa P.
Course Coordinator

MINUTES OF THE MEETING OF BOARD OF STUDIES HELD ON 06TH SEPTEMBER 2023

A meeting of the Board of Studies to implement the Certificate Courses in 'BOT1PTC - Plant Tissue Culture Technology, BOT2GB - Fundamentals of Microbiology, BOT4APB - Tools and Techniques in Life Sciences' for the odd and even semester B.Sc. and M.Sc. Botany programme during the academic year 2023-24 was held at PG Department of Botany, KAHM Unity Women's College, Manjeri on 06th September 2023 at 1.30 pm to discuss the following agenda.

Agenda:

1. Certificate Course 2023-24
2. Syllabus of the Certificate Course
3. Duration of the Course
4. Mode of Evaluation

Decision of the meeting:

1. Board of studies came to the unanimous decision to accept the title, syllabus, duration & mode of evaluation of the course.
2. The draft of the syllabus prepared was placed for discussion. The modifications suggested by members were accommodated. It was decided to approve the syllabus of the course

Members participated:

- Dr. Hussain K., Assistant Professor, PG & Research Department of Botany, SNGS College, Pattambi.



- Dr. Sanoj E., Assistant Professor, PG & Research Department of Botany, The Zamorin's Guruvayurappan College, Kozhikode.



- Dr. Usman A., HOD, PG Department of Botany, KAHM Unity Women's College, Manjeri.



- Dr. Faseela P., Assistant Professor, PG Department of Botany, KAHM Unity Women's College, Manjeri.



- Dr. Deepa P., Assistant Professor Adhoc, PG Department of Botany, KAHM Unity Women's College, Manjeri.



- Mrs. Shifa M., Assistant Professor Adhoc, PG Department of Botany, KAHM Unity Women's College, Manjeri.







Korambayil Ahamed Haji Memorial Unity Women's College
Narukara, Manjeri, Malappuram 676122

PG DEPARTMENT OF BOTANY

Hands-on Training Workshop on Plant Tissue Culture Technique

21st - 22nd November 2023 @ PG Department of Botany

- **DAY 1 (21/11/2023)**
- Theory 1: Introduction to Plant Tissue Culture
- Theory 2: Micropropagation steps
- Theory 3: Medium types & composition
- Practical1: Aseptic techniques & culture media preparation

- **DAY 2 (22/11/2023)**
- Practical 2: Explant surface sterilization
- Practical 3: Inoculation & subculturing of explants
- Practical 4: Callus induction, organogenesis & rooting of plantlets
- Practical 5: Acclimatization & hardening
- Certificate distribution

Resource Person & Coordinator
Dr. Deepa P.
Assistant Professor Adhoc
PG Department of Botany

Student Coordinator
Adila Nasrin
Third Semester M.Sc. Botany



E-source: <https://www.youtube.com/watch?v=YPrpITGFh9g&t=194s>



**KORAMBAYIL AHAMED HAJI MEMORIAL
UNITY WOMEN'S COLLEGE, MANJERI
P.G. DEPARTMENT OF BOTANY**

CERTIFICATE OF ACHIEVEMENT

THIS CERTIFICATE IS AWARDED TO

Adila Nasarin

who has participated in the **Hands-on Training Workshop on Plant Tissue Culture Technique** organised by P.G. Department of Botany, Korambayil Ahamed Haji Memorial Unity Women's College, Manjeri on 21st and 22nd November 2023.


HOD
P.G. Department of Botany




Principal



PG DEPARTMENT OF BOTANY

Korambayil Ahamed Haji Memorial Unity Women's College
Manjeri, Malappuram, Kerala, 676122
Affiliated to University of Calicut, Reaccredited by NAAC at B++ Grade

CERTIFICATE OF COMPLETION



Certified that Ms. Sufna C. of Third Semester M.Sc. Botany, has successfully completed the Certificate Course in **BOT1PTC - Plant Tissue Culture Technology** during the period of 01st October 2023 to 30th December 2023 offered by PG Department of Botany, KAHM Unity Women's College, Manjeri, with A Grade.

Coordinator

Head of the Department

Principal

Dr. Usman A.

HOD

Dr. Deepa P.

Course Coordinator