

DEPARTMENT OF BOTANY
DEVA MATHA COLLEGE, KURAVILANGAD

Affiliated to Mahatma Gandhi University, Kottayam



SYLLABUS

ADD-ON COURSE

In

Plant Tissue Culture

Academic Year: 2019-20



DEVA MATHA COLLEGE KURAVILANGAD

DEPARTMENT OF BOTANY

Add on Courses offered for Students: 2019-2020



PLANT TISSUE CULTURE

Department Coordinator: Dr. Varghese M. C.

Title: Plant Tissue Culture

Instructional Hours: 30 hrs

Duration: Three Months

Mode of Instruction: English

Intake Capacity: 35

Eligibility: +2



**DEVA MATHA COLLEGE KURAVILANGAD
ADD-ON COURSE FOR THE AY 2019-20**

Course Objectives

1. Understand the current developments in the field of Biotechnology
2. Equip the students to carry out plant tissue culture

SYLLABUS

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| 1. | Brief history of tissue culture | 1 Hour |
| | a. Cellular totipotency | |
| | b. Concept of dedifferentiation, redifferentiation and organogenesis | |
| 2. | Tissue culture media | 3 Hours |
| | Media composition | |
| | Selection of media | |
| | Media preparation | |
| 3. | Micropropagation | 6 Hours |
| | a. Selection of suitable material | |
| | b. Stock plant selection | |
| | c. Parts of plant | |
| | d. Size of explants | |
| | e. Avoid diseased tissue | |
| 4. | Types of plant tissue culture | 3 Hours |
| | Meristem culture | |
| | Callus culture | |
| | Anther culture | |
| | Embryo culture | |
| | Ovary culture | |
| | Ovule culture | |
| | Pollen culture | |
| 5. | Benefits of plant tissue culture | 4 Hours |
| | Rapid multiplication of clones | |
| | Genetic uniformity | |
| | Aseptic condition | |
| | Controlled environment | |
| 6. | Outline of procedure and technique – Slide show | 1 Hours |
| 7. | Practical | 12 Hours |



References

1. R Keshavachandran and K V Peter. Plant Biotechnology: Methods in Tissue Culture and Gene Transfer. Orient Blackswan.
2. Haberlandt, G. (1902) KulturversuchemitisoliertenPflanzenzellen. Sitzungsber. Akad. Wiss. Wien. Math.-Naturwiss. Kl., Abt. J. 111, 69–92.
3. [^] Noé, A. C. (1934). "Gottlieb Haberlandt". *Plant Physiol.* **9** (4): 850–855. doi:10.1104/pp.9.4.850. PMC 439112. PMID 16652925.
4. [^] Plant Tissue Culture. 100 years since Gottlieb Haberlandt. Laimer, Margit; Rücker, Waltraud (Eds.) 2003. Springer ISBN 978-3-211-83839-6
5. [^] Martin, Bernice M. (2013-12-01). *Tissue Culture Techniques: An Introduction*. Springer Science & Business Media. pp. 29–30. ISBN 978-1-4612-0247-9.
6. [^] Simon, Eric M. (1988). "NIH PHASE I FINAL REPORT: FIBROUS SUBSTRATES FOR CELL CULTURE (R3RR03544A) (PDF Download Available)". ResearchGate. Retrieved 2017-05-22.

Assessment Procedure

Theory and practical examinations will be conducted at the end of completion of syllabus.

Grading

Sl. No	Marks	Grade
1	90-100%	A+
2	75-90%	A
3	60-75%	B+
4	50-60%	B
5	40-50%	C
6	Below 40%	D

Course Coordinator: Ms. Varsha Maria Babu, Assistant Professor, Dept. of Botany
Duration: 30 Hours

COURSE OUTCOMES

- Understand the basic concepts in plant tissue culture
- Discuss the process involved in micropropagation.
- Analyse the practical use of tissue culture in life



RESOURCE PERSONS

1. Ms. Varsha Maria Babu
Assistant Professor
Department of Botany
Deva Matha College, Kuravilangad

2. Dr. Varghese M.C.
Assistant Professor & HOD
Department of Botany
Deva Matha College, Kuravilangad



*Principal
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