DEPARTMENT OF BOTANY

DEVA MATHA COLLEGE KURAVILANGAD

Affiliated to Mahatma Gandhi University, Kottayam

Syllabus

ADD-ON COURSE

In

Plant Tissue Culture

Academic Year: 2018-19

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 2018-19

Course Objectives

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

SYLLABUS

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 if 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
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