

A Report on Hands on training in Plant Tissue Culture

(A summer training programme for 3rd year Biotechnology students)

The hands on Training in Plant Tissue Culture was organised by the department of Biotechnology, St. Xavier's College, Burdwan. The entire programme duration was 6 days from 2nd June, 2022 to 2nd July, 2022. Two sessions were conducted for each day (Morning session from 10.30 am to 1.00 pm. and evening session from 2.00 pm to 5.30 pm.). Refreshments and working lunch were provided to the students. In each session there was one lecture and one Hands on training.



Day 1

Session 1

The session was begun with a welcome speech by the organiser and trainer of this program Dr. M. Senthilkumar, Head of the Department of Biotechnology, St. Xavier's College, Burdwan.



The programme was inaugurated by Rev. Fr. Dr.G. Paul Arockiam, The principal of St. Xavier's College, Burdwan on 2nd June, 2022.



Followed by the inauguration, Fr. Principal delivered the invited speech on "Plant tissue culture at A glance". The fundamentals of plant tissue culture, types of plant tissue culture, advantages of plant tissue culture, Tissue culture plants and industries in india and the course overview was discussed in this invited speech, and with this inaugural speech the inauguration ceremony was ended.



Session 2

From the session 2 onwards, the Hands on training were started. All the sessions were conducted by Dr. M. Senthil Kumar, Head of the department of Biotechnology, St. Xavier's College, Burdwan. In this session, a lecture on "Scope and importance of plant tissue culture" was delivered to the students. This lecture covered different areas such as History of plant tissue culture, Tissue culture in agriculture, *In vitro* germplasm conservation, Embryo culture, Genetic transformation, Protoplast fusion and Haploid production in detail.



Day 2

Session 1

Role of Micro and Macro nutrients, vitamins & Hormones on plant tissue culture was explained in detail in the first session. Followed by a Hands on training was given to students on preparation of stock solution of MS medium.



Session 2

In this session, students gathered knowledge on the plant tissue culture media preparation through a lecture. Followed by they prepared the MS medium with different concentrations of plant growth Regulators.

Day 3

Session 1

In this session, students learned about the explants and the preparation explants for inoculation. A complete hands on training was given to all the students for the preparation of explants and inoculation. All the students were allowed to take part in inoculation of explants.



Session 2

A lecture on callus culture, preparation of explants for callus culture was delivered. The inoculation of callus culture was demonstrated to the students. Individually, all the students were inoculated the explants to initiate the callus culture.

Day 4

Session 1

Observation of morphogenetic response of the explants for meristem culture and callus culture were done by the students in this session. Followed by the students were gathered a knowledge on sub-culturing and *in vitro* rooting of *in vitro* plantlets through a lecture.



Session 2

In vitro rooting medium was prepared by students in this session.

Day 5

Session 1

In vitro rooting of micropropagated shoots were done by the students. All students were allowed to inoculate the micropropagated shoots for *in vitro* rooting.

Session 2

In this session, a lecture was delivered on synthetic seeds by Mr. Arjit Bhattacharya, Asst. Professor, Department of Biotechnology, St. Xavier's College, Burdwan. Followed by this lecture Mr. Arjit Bhattacharya also demonstrated the preparation of synthetic seeds by encapsulation of embryos by sodium alginate.



Day 6

Session 1

A lecture on Acclimatization of *in vitro* propagated plants was delivered by Dr. M. Senthil Kumar to enlighten the knowledge to students on the importance of acclimatization process in the plant tissue culture technique.



The *in vitro* propagated plants were transferred to green house for acclimatization by the students.

Session 2

Feedbacks from the students were collected for further improvement of the training programmes will be conducted in near future, and the certificates were distributed to all the students.



The program was ended with a vote of thanks by Miss. Sukanyakundu, Student of 3rd year Biotechnology, St. Xavier's College, Burdwan.



REPORT ON HANDS ON TRAINING IN PLANT TISSUE CULTURE

**(A SUMMER TRAINING PROGRAMME FOR 3rd YEAR BIOTECHNOLOGY
STUDENTS)**

Organised by

The Department of Biotechnology
St. Xavier's College
Burdwan.

Duration: 6 days (From 2nd June, 2022 to 2nd July, 2022)
Venue: Plant Tissue Culture and Phytochemistry Laboratory
Department of Biotechnology
St. Xavier's College, Burdwan.