



Report on **Tissue Culture Research Lab**

As per the recommendation of Research committee Guru Nanak College, Budhlada .The Department of Agriculture has created Tissue culture lab facility for innovations and initiatives for transfer of knowledge during 2020-21.

About Tissue Culture

Plant research often involves growing new plants in a controlled environment. These may be plants that we have genetically altered in some way or may be plants of which we need many copies all exactly alike. These things can be accomplished through tissue culture of small tissue pieces from the plant of interest. These small pieces may come from a single mother plant or they may be the result of genetic transformation of single plant cells which are then encouraged to grow and to ultimately develop into a whole plant. Tissue culture techniques are often used for commercial production of plants as well as for plant research. Tissue culture involves the use of small pieces of plant tissue (explants) which are cultured in a nutrient medium under sterile conditions. Using the appropriate growing conditions for each plant type, plants can be induced to rapidly produce new shoots, and, with the addition of suitable hormones new roots. These plantlets can also be divided, usually at the shoot stage, to produce large numbers of new plantlets. The new plants can then be placed in soil and grown in the normal manner.

About Tissue Culture Lab

Tissue culture laboratory is building where little plants are grown in a climate/ growth chamber for research breeding or multiplication is consist of media room, cutting room, and growth chamber. The cultured tissue may consist of a single cell, a population of cells, or a whole or part of an organ



Objects:

- To obtain high frequency shoot regeneration
- To understand a procedure that is often used to propagate many plants of the same genetic background.
- To understand the importance of sterile techniques.

Required Equipment's for lab

The general laboratory for tissue culture should be provided with the following articles and arrangements:

1. A Washing Area
2. Hot Air Oven
3. Refrigerator
4. Distillation Plant
5. Weighing Balance:
6. pH Meter
7. Autoclave
8. Culture Room
9. Glassware and chemicals etc
10. Glass aquarium or box lined with plastic
11. Sheet to cover the top of the aquarium
12. Adhesive tape
13. 10% Bleach in a spray bottle
14. 70% alcohol in a spray bottle
15. Forceps or tweezers
16. Gloves
17. Cutting equipment such as a scalpel blade or razor blade
18. bottles of sterile distilled water



GURU NANAK COLLEGE BUDHLADA

Under the Management of Shiromani Gurdwara Parbandhak Committee, Sri Amritsar Sahib

NAAC - SSR - Cycle - II

Lab Photographs and Prepared Specimens





GURU NANAK COLLEGE BUDHLADA

Under the Management of Shiromani Gurdwara Parbandhak Committee, Sri Amritsar Sahib

NAAC - SSR - Cycle - II





GURU NANAK COLLEGE BUDHLADA

Under the Management of Shiromani Gurdwara Parbandhak Committee, Sri Amritsar Sahib

NAAC - SSR - Cycle - II





GURU NANAK COLLEGE BUDHLADA

Under the Management of Shiromani Gurdwara Parbandhak Committee, Sri Amritsar Sahib

NAAC - SSR - Cycle - II



Presently department of agriculture is perusing following activities in tissue culture laboratory

- Requirements for Plant Tissue Culture Laboratory
 - Techniques in Plant Tissue Culture
 - Media components and preparations
 - Sterilization techniques and Inoculation of various explants
 - Micro propagation of important crops and hardening I acclimatization of regenerated plants
 - Culturing of protoplast
- Students are given exposure for these techniques so that they become well versed with latest biotechnology innovations and techniques,