

Tissue before culture laboratory design

Before carrying out the work of plant tissue culture, first of all, we need to know what basic equipment conditions we have in local conditions, so that use the existing housing, or re-build laboratory, renovation laboratory. Laboratory depends on the purpose and scope of the work. The purpose for factory production, If laboratory-scale is too small, it will limit production and affect efficiency. When design the tissue culture laboratory, according to tissue culture procedures to design, to avoid certain areas inverted, causing confusion in future work. Plant Tissue Culture is strictly carried out under sterile conditions. To achieve sterile conditions, we not only needs some equipment, apparatus and appliances, but also the need to manually control temperature, light, humidity and other culture conditions.

Laboratory design principles: to ensure sterile operation, to facilitate the work, to prevent pollution.

Laboratories: Chemical Laboratory, washed bacteria rooms, sterile operating room (vaccination room), training room, cytology laboratories, and other small equipment.

1) Chemical Laboratory (preparation room): completion of the various drugs used in reserving, weighing, dissolution, preparation, and other medium-packing.

Main Equipment: medicine cabinets, dustless cabinet (placed culture vessel), refrigerator, balance machine, distilled water device, or acidity, and commonly used medium for preparation of glass apparatus.

2) washing, sterilization room: the completion of various appliances washing, drying, storage, sterilization and other media.

Major equipment: sink, console, high-pressure autoclaves, dry sterilizer (e.g, oven), etc..

3) sterile operating room (vaccination room): mainly used for the disinfection of plant material, inoculation, culture transfer, plantlet subculture, protoplast preparation and all necessary procedures for aseptic technique.

Main equipment: UV light source, Clean cabinet, sterilizers, alcohol lamps,

vaccination equipment (inoculation tweezers, scissors, scalpels, vaccination needles) and so on.

Primary inoculation room should not be large, generally 7 to 8 square meters, the required floor, ceiling and walls is more closed and smooth, more better, and ensure it is easy to clean and disinfect. Configuration the pull the door, to reduce the air turbulence when open or close the door. Vaccination requirements dry, quiet, clean and bright. Lifting a ~ 2 UV sterilization lamp for irradiation sterilization at a suitable place. It is better to install a small air-conditioning, it can make the room temperature controlling, and the door will opened or closed to reduce air convection with the outside world. Q inoculation room should have a buffer area of 1m² is appropriate. Into the sterile operating room before changing his shoes in the dressing, in order to reduce the time and out into the room bacteria inoculated. Buffer between the best security a UV sterilization is also light for irradiation sterilization.

4) Training Room: Training Room is to the material culture inoculated with the growth of the place. Training room the size of the training according to need frame size, number, and other ancillary equipment may be. Designed to take advantage of space and energy conservation principle. Height slightly higher than the suitable training aircraft, surrounded by walls require insulation fire performance.

Training material on the culture shelf training. Training aircraft made mostly of metal, usually with 5 floors high from the lowest layer of 10cm, 30cm interval on each other about training aircraft that is about 1.7m high. Length of training aircraft are designed according to the length of daylight, such as using 40W fluorescent lights, the long l. 3m, 30W long-lm, widths are 60cm.

Training Room of the most important factor is temperature, usually maintained at about 20-27 °C, with heat device, and install window-type or vertical air conditioners. As the tropical plants and boreal plants of different types require different temperatures, preferably of different types have different training room.

It also requires a constant relative humidity indoor in order to maintain the

70% to 80%, and can be installed humidifier. Control the illumination time can be mounted time switch clock, it normally takes daily illumination 10-16h, while others need continuous illumination. Short day plants require a short day conditions, long-day plants need a long day conditions. Most of the modern tissue culture laboratory is designed to use natural sunlight as the main source of energy, will not only save energy, but solar grew well in tissue culture to accept, domesticated easy to survive. Lighting in rainy days can be added.

Main Equipment: Training aircraft (controlled temperature light and humidity), shaker, incubator, UV light source, etc..

5) The cytology laboratory: used for observation and analysis of culture and culture of the counting. Main equipment: binocular microscopes, microscopes, inverted microscope.

6) other small equipment: separate injection devices, blood cell counter, pipette gun, filter sterilization, stoves and other heating devices, magnetic stirrer, low-speed desktop centrifuge.