

Protoplast Culture

Protoplast is the term used to refer to cell (fungi, bacteria, plant cells etc) in which the cell wall has been removed, they are also referred to as naked cells.

Protoplasts may be cultured in the following ways:

Hanging-drop cultures

Micro culture chambers

Soft agars matrix

Once a protoplast has regenerated a cell wall, then it goes through the process of cell division to form a callus, which may then be subcultured for continued growth. It is an important method that provides numerous cells (single cells) that can be used for various studies.

These include:

1. Regeneration of whole plant.
2. Development of hybrids
3. Cell cloning
4. Genetic transformations
5. Membrane studies

In protoplast culture, a number of phases can be observed.

These include:

1. Development of a cell wall
2. Cell
3. Continuous growth or regeneration to a whole plant

For plants, some of the special requirements include:

- a. Less amounts of iron and zinc and no ammonium
- b. Higher concentration of calcium
- c. High auxin/kinetic ratio for cell division and high kinetin/auxin ratio for regeneration
- d. Glucose and vitamins