Cell Cultures

Modern Biotechnology

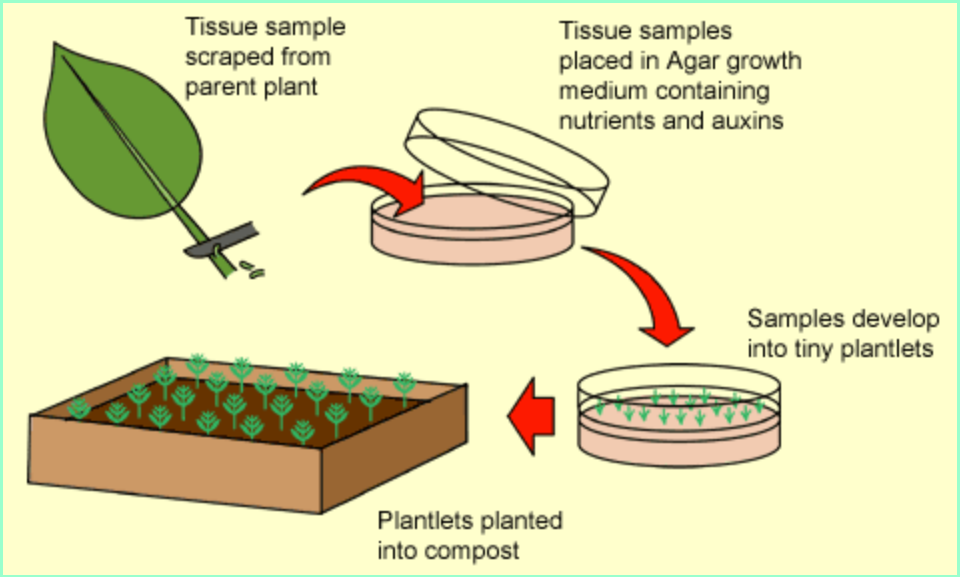
Cell Cultures

A cell culture is a process that allows cells to be reproduced outside of their natural environment (meaning outside of the organisms from which they came)

Culturing cells results in an increase in the number of cells in a cell culture

Uses

- Research
- Testing medications
- Producing vaccinations
- Producing tissue such as skin



How it works

1. Collection of sample from an original environment.
2. Transfer to an appropriate culture medium.
3. Incubation in favourable conditions
4. Growth of new cells

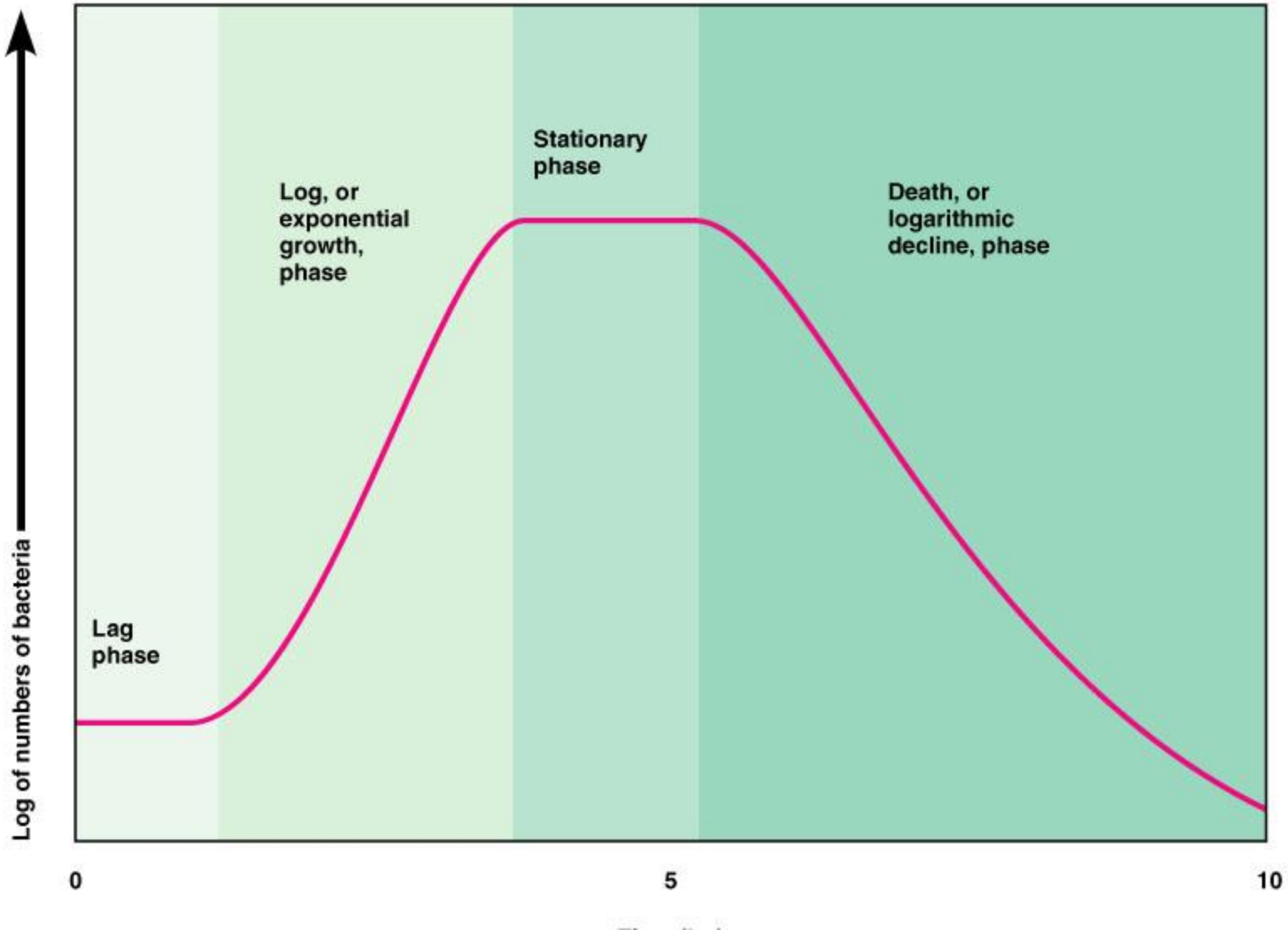
Cell culture media

- A culture medium is an environment that contains all the necessary elements to promote cell growth in a culture.

- The following parameters must be controlled in a culture medium:

- Water level
- Nutrient composition
- Mineral level
- Oxygen and carbon dioxide levels
- Temperature
- pH
- Amount of light

Cell culture growth



- 1. Lag phase: Cells adapt to their new environment; there is little or no cell growth.
- 2. Log phase: Cells rapidly divide and consume most of the nutrients contained in the culture medium
- 3. Stationary phase: New cells are produced and other cells die at the same rate due to depletion of nutrients, lack of space and/or too much waste
- 4. Death phase: Cell numbers decrease due to depletion of nutrients, lack of space and/or too much waste