Growth in Bacteria

The increase in number of population or mass of cells instead of size is known as growth. The growth of bacteria depends on the following factors:

i. Water ii. pH iii. Nutrient iv. Temperature

Exponential growth: The rapid increase in the number of cells is called exponential growth.

Generation time: The time interval between two successive cell divisions is known as generation time. Under ideal condition, bacteria divide after 20 minutes. It varies in different strains of bacteria e.g. *E. coli* has generation time of 20 minutes.

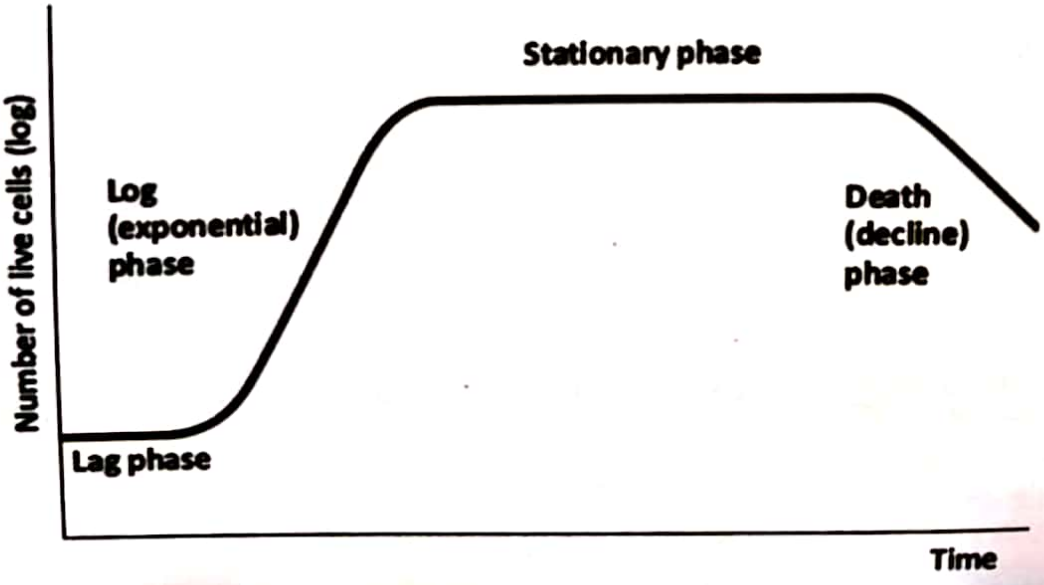
Growth phases of bacteria

The growth curve of bacteria consists of 4 phases:

1. **Lag Phase**
   - Lag means time interval between two events.
   - This phase lasts for few hours.
   - In this phase no growth occurs, therefore, it is also known as resting phase.
   - In this phase bacteria accustom or adapt themselves to the new environment.
2. **Log Phase**
   - Log means to achieve speed.

- This is a phase of fast growth.
- In this phase rapid increase in number of cells occur.
- The bacteria utilize nutrients in this phase.
- The disease symptoms in human appear in this phase due to rapid increase in number of cells which damage the tissues.

3. **Stationary Phase**
   - The bacteria utilize all the nutrients.
   - Shortage of nutrient occurs.
   - In stationary phase, growth of bacteria slows down due to wastes and toxic products in the medium.
4. **Declined or Death Phase**
   - In this phase the growth of bacteria stop due to depletion of nutrients
   - In this phase wastes and toxic products are accumulated in the medium.
   - The number of dead cells increases than the number of newly formed cells.



Growth curve of B