

Microbial Growth and Control

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1. Introduction

- Microbial growth is the increase in the number of cells, usually by binary fission in bacteria.
- Controlling growth is central to preventing infection and spoilage.

2. The Growth Curve

- **Lag phase:** cells adapt to the environment; little growth.
- **Log (exponential) phase:** rapid division.
- **Stationary phase:** growth balances death as nutrients run low.
- **Death phase:** cells die faster than they divide.

3. Factors Affecting Growth

- Temperature, pH, oxygen, moisture, and nutrient availability.
- Microbes are grouped by their preferred conditions, such as mesophiles for moderate temperatures.

4. Methods of Control

- **Sterilisation:** destroys all microorganisms, including spores.
- **Disinfection:** removes most pathogens from surfaces.
- **Antiseptics:** reduce microbes on living tissue.
- Physical methods include heat, filtration, and radiation.

5. Summary

- Microbial populations grow in defined phases and can be controlled by managing environmental conditions and applying sterilisation, disinfection, and antisepsis.