

Industrial Microbiology

Biology

What microbes are used to make, and how the process is run.

Batch culture

- Fixed volume, run to completion
- Growth curve applies
- Suits secondary metabolites — penicillin
- Harvest, clean, restart
- Lower contamination risk

Continuous culture

- Nutrients added, product removed
- Held in log phase
- Suits primary metabolites — enzymes, biomass
- Higher productivity
- Higher contamination risk

THE DIFFERENCE THAT MATTERS

Penicillin is made in batch because it is produced in the stationary phase, not during growth.

Fermenter conditions controlled: temperature, pH, oxygen, agitation and sterility. All must be maintained simultaneously.