

**COLD CHAIN****Why do we need to worry about the cold chain?**

The #1 reason for maintaining the cold chain is to **prolong the shelf life of foods by slowing the bacteria growth.**

Bacteria grow much more slowly at chilled temperatures (0°C to 4°C) which minimizes spoilage and damage to the food. Growth is much more rapid at temperatures above 4°C.



**Cool fact:** Bacteria live everywhere. They are only harmful when they grow out of control.

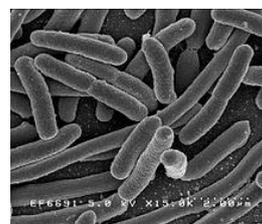
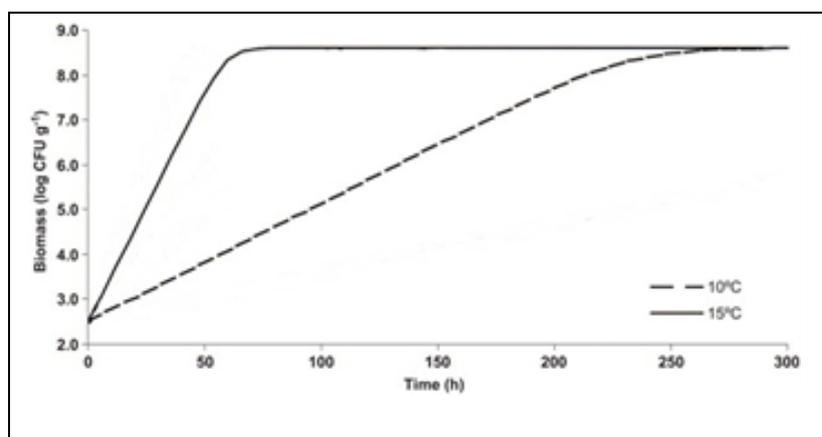
An increased amount of bacteria in food may lead to **food poisoning**. Food poisoning can be harmful to everyone, but it poses an even more serious problem to **high risk groups**. These include **children under 2 years, pregnant women, the elderly, and those already suffering from an illness.**

*Explanatory leaflet for foodworkers*

Temperature is the most important factor that determines the rates of growth, multiplication and survival of all living organisms, such as bacteria. Growth and reproduction of living organisms are dependent on a coordinated series of enzyme-catalysed chemical reactions. The rates of enzyme reaction increase with the increase in temperature.

*From GITAM microbiology laboratory*

Simulation of behaviour of bacteria "E.coli" in chocolate cream at 10°C (dotted line) and 15°C (solid line):



*Escherichia.coli. is a bacterium that can get into food and that can cause serious infections.*

**TASK:**

**You are a physician responsible for a food storing service in a hospital. Use scientific argument to convince employees of the importance to store the food in a cold place and to maintain the cold chain.**

*You can use the documents and your knowledge to organise and support your presentation, feel free to use them in any order you like.*

Keywords you may use : kinetic factors, half-reaction time and collision theory.