Mesophilic Bacteria Encyclopedia Article

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Mesophiles are **microorganisms** such as some species of **Bacteria**, **Fungi**, and even some **Archaea** that are best active at median temperatures. For instance, bacterial species involved in biodegradation (i.e., digestion and decomposition of organic matter), which are more active in temperatures ranging from approximately 70° ‐ 90°F (approx. 15°-40°C), are termed mesophilic bacteria. They take part in the web of micro-organic activity that form the humus layer in forests and other fertile soils, by decomposing both vegetable and animal matter.

At the beginning of the decomposition process, another group of bacteria, psychrophylic bacteria, start the process because they are active in lower temperatures up to 55°F (from below zero up to 20°C), and generate heat in the process. When the temperature inside the decomposing layer reaches 50-100°F, it attracts mesophilic bacteria to continue the biodegradation. The peak of reproductive and activity of mesophilic bacteria is reached between 86-99°F (30-37°C), and further increases the temperature in the soil environment. Between 104-170°F (40-85°C, or even higher), another group of bacteria (thermophyllic bacteria) takes up the process that will eventually result in organic soil, or humus. Several species of fungi also take part in each decomposing step.

Mesophilic bacteria are also involved in food **contamination** and degradation, such as in bread, grains, dairies, and meats. Examples of common mesophilic bacteria are *Listeria monocytogenes, Pesudomonas maltophilia, Thiobacillus novellus, Staphylococcus aureus, Streptococcus pyrogenes, Streptococcus pneumoniae, Escherichia coli, and Clostridium kluyveri.* Bacterial infections in humans are mostly caused by mesophilic bacteria that find their optimum growth temperature around 37°C (98.6°F), the normal human body temperature. Beneficial bacteria found in human intestinal flora are also mesophiles, such as dietary *Lactobacillus acidophilus.*