

Processing to preserve

WHY DO WE PRESERVE FOOD?

We need to transform most foodstuffs in order to eat them, but also to preserve them. The first question to ask is: Why do humans want to preserve their food?

To prevent shortages:

Certain foodstuffs keep for a long time; consequently, this is a way of preventing food shortages.

To transport food:

Others perish easily and so they need to be preserved, if only to be able to transport them from the producer to the consumer.

Consequently, humans invented **techniques to preserve food**, to slow down the process of food decomposition. In order to understand how these techniques work, first you need to understand what causes the natural decomposition of food. The main cause is the presence of microorganisms.

WHAT ARE MICROORGANISMS?

Microorganisms are living organisms, which come in many shapes and sizes. For example, there are **bacteria**, **yeasts** and even **moulds**. They are invisible to the naked eye, yet they are numerous and can colonise all environments. The question is, are they harmful, or rather are they useful? We can answer, that depends on the microorganism! Most of them are harmless; some can make us ill, whilst others can in fact improve food.

HOW DO MICROORGANISMS MULTIPLY?

The next question is: How do microorganisms multiply? There are several parameters to be taken into account.

First, there is the **temperature**. High temperatures destroy microorganisms, cold generally stops them from growing, whereas moderate temperatures speed up their growth.

The multiplication of microorganisms also depends on **water** being available. Water is the main constituent of living beings and foodstuffs containing lots of water are the most sensitive. It is said that the water present in a foodstuff is available to a greater or lesser extent if it is linked to other molecules or not. The more the water in a foodstuff is available, the more this helps the development of microorganisms.

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Here are some examples: Water is very available in milk and raw meat. On the other hand, there is little water available in spices and dried fruit.

Milk, raw meat: water is very available

Spices, dried fruit: water not very available

There is another parameter concerning the multiplication of microorganisms – the amount of **oxygen** available. Most germs need oxygen to breathe and if the amount of oxygen is reduced, their growth is slowed down. However, you need to watch out for anaerobic germs, which do not need oxygen to grow.

Finally, **the acidity** of the environment has an impact on microorganisms. In an acidic environment, or one where alcohol or preserving agents are present, microorganisms stop multiplying or are destroyed.

SUMMARY

To summarise, **temperature**, **water**, **oxygen** and **acidity** have an important role to play in the development of microorganisms. Different preservation techniques take these parameters into account to destroy germs or at least to prevent them from developing.

Means of prevention:

Nonetheless, remember that there are simple ways of preventing food contamination, like washing your hands before using food or utensils, storing food at the right temperature, or cooking and reheating food at the appropriate temperature.