

Food Preservation

1. Food Preservation

Food preservation names methods to store food in ways so that taste and nutritional value will be stored. Also natural spoilage should be stopped or slowed down.

Humans have always needed to store food. Prehistoric humans have dried fruits in the sun and stored meat at cold places like caves. Salt and Sugar were also favourite methods to preserve food. Salt is used for fish and meat where sugar could preserve fruits like in jam. The modern preservation industry was born in 1809, when the French inventor Nicolas Appert, searching for a better way to provide food for Napoleon's army, discovered a method for sterilizing food in tightly sealed glass bottles.



Today a wide variety of methods are available to store and safe food over a long period of time. These methods create also products that are convenient for consumers, such as products that are ready to eat or require minimal preparation and cooking. Combining these preservation methods with modern distribution networks makes seasonal crops available year-around in grocery-stores all over the world.

2. Types

Food preservation refers to processing techniques that are used to keep food from spoiling. Spoiling is any change that makes food unfit for consumption and includes chemical and physical changes, such as browning or growth of micro-organisms (for example mold). Some of the food preservation techniques destroy these enzymes, proteins and micro-organisms that are present in all raw food, which are responsible for the physical and chemical changes.

2.1. Curing

Curing is one of the oldest forms of food preservation. It is used to preserve meat and fish, through salt, sugar, spices or vinegar. In combination with curing smoking is often used. Smoking is cooking meat or fish slowly through the smoke of a low wood fire. These two methods impart a distinctive color and flavour to food and in some cases it eliminates the need for refrigeration.

2.2. Drying

Drying food is as old as the human culture. Nowadays there exists the traditional sun drying and the hot air trying. Removing the water preserves the food because micro-organisms need water to grow and food enzymes could not work without a watery environment. Removing the water also decreases the weight and volume of food, thereby reducing the transportation and storing costs. And so many things are tried and dehydrated again later.

2.3. Canning

Canning preserves food by heating it in vacuum-sealed containers. The can is filled with food, and the air is pumped out, which results a vacuum. Then it is sealed and heated in a cooker to kill micro-organism. Canned foods are popular

because they are already partially prepared and cooked, and can be stored without the need of a refrigerator for a long period of time. But one big disadvantage is that most of the vitamins could be lost during preparation and preservation.

2.4. Additives

Food additives are chemicals that are added to food in small amounts. These chemicals are added to make food look and taste better and improve nutritive value. Some additives help preserve food by preventing or slowing chemical changes and the growth of micro-organism. Food additives have been used for thousand of years. Salt, sugar or vinegar used in curing in the past are chemical additives. Nowadays with the advance in the knowledge of chemistry these additives are replacement for taste, color, vitamins, sugar or fat of the food. For example, many of modern products have never seen a great amount of the expensive fruits. They use artificial flavour enhancer to imitate the fresh taste of strawberries or bananas.

2.5. Freezing

One of the oldest preservation methods is cooling and freezing. Low temperatures slow down the enzymatic reactions involved in spoilage. Prehistoric humans stored meat and other foods in ice caves. Nowadays refrigerators and ice-boxes are used to conserve and keep food fresh over days, weeks and even months.

2.6. Vacuum packing

Vacuum-packing stores food in vacuum environment, usually in air-tight bags or bottles. The vacuum environment prevents the food of bacteria out of the air. This method is used for example for meat or can-food.

2.7. Aseptic packing

Fruits and vegetables are often stored in great warehouses. These warehouses have a controlled atmosphere. That includes temperature, humidity and the composition of gases and light. All these factors are playing a great role in the ripe-process of fruits and vegetables and so this process could be controlled and slowed down. As a result the fruits and vegetables are longer fresh and enjoyable.

2.8. Irradiation

Irradiation names a process in which food is passed through a chamber where it is exposed gamma-rays or X-rays. Irradiation kills most bacteria, mold and insects that may contaminate food. Because these procedure involves a minimal heating (like a microwave), it has a very little effect on taste and texture of the food.

2.9. Fermentation

Fermentation is a chemical reaction carried out by special types of micro-organisms, which break down complex organic compound into simpler substances. For example in the production of beer, wine or special alcoholic beverage this process is used. In the making of yoghurt or cheese, bacteria convert lactose, a sugar found in milk, to lactic acid.

2.10. Pasteurization

Pasteurization names a process where food is heated to a certain temperature for a specific time to kill micro-organisms. Milk, wine, beer and fruit juices are all routinely pasteurized. Milk, for example, is heated to about 63°C for 30 minutes.

2.11. Genetic Engineering

Genetic engineering improves the quality of food by manipulating the DNA of a plant. So it is possible to produce a seed and grow a plant where the fruits are resistant against insects and where the spoiling process is slower than in natural variants of the fruit.

3. References

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