

Food Preservation Techniques

Canning first destroys bacteria through heating and then the food is placed in a sterilized container and sealed.

Drying removes water from the food; spoilage bacteria require water to grow and reproduce.

Freezing slows down the spoilage process by changing that same essential water into ice, a form that the bacteria cannot use.

Pasteurization destroys most of the existing spoilage organisms by heating the food to a high temperature for a short duration.

Pickling or fermentation (culturing) leaves the food with a higher level of acid, making it an inhospitable environment for spoilage bacteria.

Vacuum packaging uses a vacuum sealed, abrasion-resistant, moisture-impermeable film that inhibits molds, yeasts, and bacterial growth on the surface of things such as meat. Since there is no air in the package, vacuum-packaged meat will have a darker, purple color before being opened. Once the meat is exposed to oxygen, it will turn the familiar bright red color. Fresh vacuum-packaged meat will give off a slight odor upon opening. The smell will dissipate within a few minutes—this should not be confused with spoilage.

Smoking adds smoke-born chemicals to food that help destroy potential spoilage organisms.

Chemical additives are designed to destroy spoilage organisms or inhibit their growth. Sugar and salt are examples of additives that have been in use for centuries. Both of these work by drawing water out of the spoilage organisms, thus preventing their growth.

UHT applies ultra-high temperature, higher than pasteurization, and pressure in order to create a sterile product.

Irradiation is a process like pasteurization that pasteurizes food by using energy, just like milk is pasteurized using heat. Irradiation DOES NOT make food radioactive. The food never touches a radioactive substance. Irradiation destroys insects, fungi, and bacteria. Fewer nutrients are lost during irradiation than in cooking and freezing. Food irradiation has been approved in 37 countries for more than 40 products. Astronauts have eaten irradiated foods for years.

Food additives are any substance added to food. Sugar, salt, and corn syrup are the most commonly used food additives. Food additives are often used to keep foods fresh, slow microbial growth, give desired texture and appearance, and aid in processing and preparation.