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SAFETY CRITERIA FOR CANNED VEGETABLES

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Abstract
This article deals with the factors affecting the quality of vegetable products and canned vegetables, as well as the factors affecting the preservation of fruits and vegetables, and methods of preservation.

Keywords: vegetables, products, canned food, impact, factors, industry, production.

Introduction

Food spoilage of fruits and vegetables is mainly caused by microorganisms. Because microorganisms multiply rapidly in fruits and vegetables and consume nutrients contained in them. In some cases, fruits, vegetables and products made from them can be spoiled due to their biochemical processes. These disorders are caused by enzymes that were not damaged during technological processing. Therefore, to fully preserve fruits and vegetables from spoilage, microorganisms must be destroyed and enzymes must be inactivated [1-13].

Safety criteria affecting canned vegetables

According to the biological basis of canning, canning methods can be divided into three main groups:

1. A method of using the natural immunity of the raw material while preserving its vital processes. In this case, short-term storage of fruits and vegetables without the use of special preservation methods is envisaged by taking measures to preserve the natural quality of fruits and vegetables.
2. A method based on slowing down and repelling the life activity of

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microorganisms and raw materials by physical, chemical and biological effects.

There are several different ways to do this:

– through refrigeration, food products are cooled down to 0 ℃temperature and stored in conditions where their natural quality can be changed to a minimum without freezing. The product can be stored for several weeks.

– freezing is rapidly cooled to -18 ℃, freezing of raw material or product containing up to 90% moisture content is achieved. Water molecules when rapidly frozen

– form a fine crystal structure, do not destroy the cell structure and do not soften after defrosting. The frozen product should be stored in the same conditions. Only then the storage period will be up to several months.

– by salting or sugaring, an osmotic pressure effect is created on the plasma of cells of products and microorganisms, and their activity is weakened. In this way, long storage of products is not guaranteed.

– by drying, more than 25-30% for bacteria, and more than 10-15% for mould fungi, necessary for their nutrition, free moisture is lost. In this case, cell life activity stops completely. Only when the product is wet, the activity of microorganisms can be restored and it can spoil.

– It is based on prolonging the shelf life of the product by fermentation and marinating, by carrying out lactic acid or alcohol fermentation processes, or by adding it from the outside, strengthening the acid or alcohol environment in its composition and weakening the activity of microorganisms.

A method based on the complete cessation of the life activity of raw materials and microorganisms [14-27].

Here are the ways to do this:

– The thermostabilization method is traditionally carried out by sealing in an airtight container and boiling or heating it to a temperature of 120 ℃. Such products are original preserves and can be stored for years. In pasteurized products, even though the cells of microorganisms are killed, their spores are preserved. Therefore, in some cases, pasteurized products have a very short shelf life.

– The use of antiseptics is sterilization based on their ability to enter and destroy cells of microorganisms. Only antiseptics that meet the conditions such as a small amount of these substances affect microbes, do not affect the

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human body and do not react chemically with the product and the container in which it is placed [29-37] are considered high-quality.

– treatment with high-frequency currents (HFC) is also a form of thermostability.

– the vibrational energy of the electric field is absorbed by the structural elements of the product, internal friction occurs due to the vibrational movement, and as a result of this friction, heat is released. The use of SVCh is not widespread due to the complexity of the equipment and the difficulty of temperature control.

– the possibility of processing with ultraviolet rays (260 nm) is limited, and ultraviolet rays neutralize microorganisms only on the surface of the product. This method makes it possible to preserve the quality of meat stored at a temperature of 3-5 ℃even better [38-46].

Canned fruit is divided into the following types: compotes, fruit juices and jams.

Compotes are prepared by pouring sugar juice from whole or sliced fruits. The concentration of sugar syrup can be 30-60%. To prepare compote, some fruits (cherries, cherries, apricots) are blanched (5-10 minutes in hot water at a temperature of 80-90 ℃or in a solution of 0.1% citric acid) if they are not processed. This will prevent the fruits from darkening and the compote from becoming grey.

Fruit juices (juices) are prepared by adding sugar juice to naturally squeezed or crushed fruit pulp. Natural juices are only filtered, pasteurized at a temperature of 80-85 ℃and packed in an airtight container. The production of filtered, clear grape juice from natural juices is more complicated. Because it contains sour potassium salt of tartaric acid. Therefore, after a certain time, a clot or sediment is formed in the filtered juice. To get rid of this precipitate, the juice should be kept at -2 ℃for two months and then filtered again.

Jams are prepared by adding sugar to fruits and boiling them. Jams and marmalades differ from jams in the size of the fruit cut or crushed.

Canned vegetables are divided into the following types:

– the natural properties of the raw materials of natural vegetable preserves are preserved almost unchanged, and they are used in cooking and as a side dish

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– are possible preserves. Examples of these are common "green peas", corn, beans and others. When preparing these preserves, they are first blanched (hold in 90 ℃water for 2-5 minutes), then pour rassol (2% salt, 2-3% sugar solution) and sterilize under pressure in a steam bath for 45 minutes.

– canned vegetable snacks are canned foods that have been fried or otherwise processed and eaten only as ready-to-eat foods.

These cans come in three forms:

– stuffed with tomato sauce;
– topped with sliced tomato sauce;
– canned vegetable caviar.

Eggplant and other vegetable caviar and lechos are examples of these [46-57]. A lot of manual labour is used in the preparation of these preserves. Bell peppers are peeled, blanched, and quickly cooled to prevent overcooking before stuffing. It is one of the most complicated processes to bring the oiliness and taste of the fried mass made from vegetables for stuffing.

Tomato paste is prepared by washing, peeling, cutting, heating, removing skin and seeds from tomatoes, dehydrating them by cooking, and condensing until the dry matter content reaches 30%. In addition to these groups, vegetable juices, and marinated and salted vegetable preserves are prepared.

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