Changes Arising from Conservation Peas

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Abstract
It was established that the amount of canned food products depends on the one hand the amount of raw material and on the other processing conditions. To ensure a high food value of canned products, in establishing the technological process should take termolability account both the solubility and valuable substances that some vitamins, minerals, carbohydrates and nitrogenous substances. If the solubility of the substances determined, in particular, losses during the preliminary operations of washing, scalding, cooling, causes losses both during thermolability cooked, and during sterilization. The vitamins, which recorded the largest losses during the technological process, are vitamin C followed by B1 and B2 lesser extent. These vitamins, in addition to being water soluble, are thermo labile, but termolability depends largely on conditions of heating. Thus, vitamin C is destroyed in the presence of air even at a temperature of 50 °C, but in the absence of air and acid, its resistance to heat action is much greater, mentioned that the acidic environment increases and the strength of vitamin B1. In some cases, a short heating can contribute to keeping the vitamins in the product by removing air from the tissue and inactivation of enzymes that catalyzes the oxidation of vitamin C (ascorbinase).

Keywords: carbohydrates, keeping, enzymes

1. Introduction

The protocol supply various canned products leads to the following conclusions:
The energy of preserved vegetables in water and the broth is generally low (150-250 cal / kg), except canned peas which, due to a higher content in nitrogenous substances have a calorific value of 350-600 cal / kg. [1]
It is noteworthy that the liquid phase of water has preserved a calorific value (due to passing fruit extract soluble in brine), which is canned peas 110-160 cal / kg and the other preserved in water is of 50-70 cal / kg.
Regarding the content of vitamin C, is found that in most canned in water, a small enough content (2-5 mg/100 g) due to large losses during thermal processes and storage.
Regarding the value of food raw materials, is noted that although vegetables, because of low content of energy and substances high in water content (0.1-0.5% fat, 1-14% carbohydrates, nitrogenous substances 1-6.5%, water 75-90 %), generally have an energy-reduced (50-500 cal / kg), they nevertheless present a special importance in human nutrition because of their important content in vitamins and minerals (0.4-1.8%). [2]
Also was found that when human food is made only with meat or bread alone, protein assimilated by the body is reduced by 10-15% and when these foods are consumed in addition to vegetables and fruit, similar protein quantity increased by 15-20%.
It was agreed generally that the loss of vitamin C are high in cooked and sterilization, they increased further during storage. [3]
Regarding vitamins B1 and B2, it was established that the losses are small and somewhat higher in scalding sterilization, in particular for vitamin B1 (e.g., if canned peas, loss of vitamin B1, after nine months of storage, are approximately 50% and vitamin B2 of approximately 20%).
2. Materials and methods

To highlight the changes taking place in conservation peas were analyzed four different types of canned peas which were compared with a reference sample represented by fresh green peas.

One of the methods and techniques of analysis referred to the control of preserved organoleptic peas and of their acidity. [4]

For conservation have been used immature seeds of varieties of garden peas:
- Wavy grain (var. medullare) irregular polyhedral shape
- Flat grain (var. vulgare) approximately spherical shape and overall size somewhat lower than the first variety.

The conditions that the peas have to be met, regardless of how conservation applied is:
- Beans with thin skin, green uniform, pleasant taste, starch sugar ratio as high (i.e. insoluble in alcohol no matter how small)
- Form prolonged maturing and uniform of plants in the age of harvest
- High productivity
- The ratio between grains and legumes (manual collection) or between grains and green mass (mechanized harvesting) as high

Such requirements are met in much greater measure of curly grain pea varieties, so that the current general trend in global industry is preserved to give preference, or even exclusively, these varieties. [1, 3]

The preparation of canned green pea green pea quality I will use STAS 1420-52, salt and 1% sugar. [2] The application rate of sugar may be increased. Auxiliary materials used in the preparation of canned peas must comply with health laws and standards of the state or, failing that, national rules.

It is not permitted the use of substances, dyes and preservatives. In the case of canned vegetables and fruit salads, organoleptic examination of samples taken is to control the following characteristics: appearance, taste, smell, color, texture, etc.. Examination has to be done in cold or after heating the product, depending on the mode and conditions of use for each kind of product, quality standards.

3. Results and discussions

Organoleptic examination of the content has been done on the original container that was tightly closed and that on convex when thermostatic, for which purpose it is passed into a bowl or clean glass. To establish transparency to canning liquid part, the liquid is placed in a glass vessel colorless and transparent, and the rest in another container. The smell and taste is evaluated by tasting.

Organoleptic properties

<table>
<thead>
<tr>
<th>Type</th>
<th>Appearance</th>
<th>Color peas</th>
<th>Peas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broken peas (reported to total weight of peas), % max.</td>
<td>10</td>
<td>Clear or slightly opalescent</td>
<td>Turbid; is allowed to sediment slightly gelatinous</td>
</tr>
<tr>
<td>Peas dry and peel (reported to total weight of peas), % max.</td>
<td>2</td>
<td>Clear or slightly opalescent</td>
<td>Turbid; is allowed to sediment slightly gelatinous</td>
</tr>
<tr>
<td>Yellow peas (calculated at the outer 1 / 1), ea. max.</td>
<td>3</td>
<td>Opalescent to slightly turbid allowed</td>
<td>Turbid; is allowed to sediment slightly gelatinous</td>
</tr>
<tr>
<td>Black and brown peas (calculated at the outer 1 / 1), ea. max.</td>
<td>3</td>
<td>Slightly turbid allowed; few cloudy sediment is allowed</td>
<td>Turbid; is allowed to sediment slightly gelatinous</td>
</tr>
<tr>
<td>Foreign bodies (maize, beans, seeds, etc...)</td>
<td>not allowed, except for remnants of pills that are allowed in the proportion of 2% of the total mass of peas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor and taste</td>
<td>not allowed, except for remnants of pills that are allowed in the proportion of 2% of the total mass of peas</td>
<td>Characteristic of early peas, boiled, without smell and taste</td>
<td></td>
</tr>
</tbody>
</table>
Following the organoleptic tests were found other important data:

<table>
<thead>
<tr>
<th></th>
<th>P1 Bonduelle</th>
<th>P2 Darinne</th>
<th>P3 Olympia</th>
<th>P4 D’aucy</th>
<th>Pr Green peas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspect beans</td>
<td>Small peans with a few shells</td>
<td>Hard beans</td>
<td>Big fine beans.</td>
<td>Well cooked beans, do not the peel at all.</td>
<td></td>
</tr>
<tr>
<td>Liquid appearance</td>
<td>Slightly opalescent</td>
<td>Slightly cloudy</td>
<td>Clear</td>
<td>Slightly cloudy</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>Green-yellow</td>
<td>Green</td>
<td>Green</td>
<td>Green-yellow</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>Proper early peas</td>
<td>Proper early peas</td>
<td>Proper early peas</td>
<td>Proper early peas</td>
<td></td>
</tr>
<tr>
<td>Taste</td>
<td>Slightly bitter</td>
<td>Sweet</td>
<td>Pleasant flavor</td>
<td>Natural</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>P1 Bonduelle</th>
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<th>Pr Green peas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acidity [mLNaOH/100g]</td>
<td>1.41</td>
<td>1.02</td>
<td>1.1</td>
<td>1.1</td>
<td>2.24</td>
</tr>
</tbody>
</table>

After considering evidence it was found that green peas in the process of conservation loses acidity, which shows character nonacid of canned peas. Acidity shows any microbiological fermentation of the premises.

As analyzed samples is low, acid canned peas will undergo microbial fermentation processes, if they are kept under the conditions set by standards. Low acidity scalding due process suffered during the technological process of processing peas when inactivated enzymes.

Increased acidity causes accelerating the development of microorganisms.

4. Conclusions

All vegetables for preservation should be tender, harvested at the right time and in good condition and transported immediately to the cannery, to keep unchanged the organoleptic properties: taste, flavor, color, the more so as any decrease in organoleptic properties is increasing and becoming more discernible after preservation.

For a long time it was widespread idea that by canning it diminishes the value of food products compared to domestic food preparation. This decrease was attributed to the loss nutrition of water-soluble components (carbohydrate, soluble protein, soluble vitamins, minerals, etc.) during the preparatory operations (washing, boiling) and degradation during sterilization.

But it should be mentioned that in preparing household food, vegetables are subject to the action of large amounts of water and heat, which means that in this case also, there is loss of water-soluble and thermolabile products. Proper perseveration has greater shelf life, because through their sterilization, enzymes and microorganisms are destroyed.

References

4. Holban St., What we know about diet products, Bucharest, Ed. Ceres. 198