COMPARATIVE ASPECTS CONCERNING THE ALIMENTARY QUALITY OF FRESH AND CANNED VEGETABLES

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Abstract

In the current work we have tried to emphasize the importance of the vegetable quality, be them fresh and used in human consumption and the importance of maintaining their nutritious quality during storage for a period of 30 and 60 days respectively.

The research performed in order to realize the experimental programme has been based on establishing the production and quality performances for certain carrot, winter radish and red beet cultivations; on establishing the maximum storage period of these vegetables in two types of warehouses in order to ensure the commercial, biological alimentary and biochemical quality of the red beet, winter radish and carrot roots; and on establishing the losses of dry substance, carbohydrates and carotene in the three products taken into study according to the type of warehouse they were stored in and according to the influence of the three periods of storage and the consequences that all these factors have upon the quality of these vegetables.

Key words: balanced nutrition, alimentary imbalances, non-caloric nutrients, nutrition anemia

INTRODUCTION

The emphasis of the claims regarding the satisfaction of the consumers' requirements and the requirements of the vegetable sale in a fresh estate require the knowledge of the biochemical processes that take place within the vegetable after they are harvested, during the time they are sorted, conditioned, packed and stored for a short period of time, in order to maintain the taste and nutritional qualities for a period of some weeks. The qualitative properties of the stored carrots, of the winter radish and of the red beet can be emphasized by determining the dry substances over a storage period of 0 days, 30 days and 60 days after the vegetables had been harvested.

MATERIAL AND METHOD

The biological material used in this work related to the determination of the dry substance content at the carrot, winter radish and red beet has been taken from products delivered by shops and by markets, from private producers who sustain that they had not applied fertilizers and phytosanitary substances during the wholre culture period. The dry substance represents

the totality of substances which remain after the water has evaporated from a product.
The determination of the total dry substance has been done through the direct drying method in the drying stove at a temperature of +102 +105°C for 2 hours.

The quantity of total dry substance is calculated using the following formula:

$$S.U.T.\ (G\%) = \frac{M_2 - M_0}{M_1 - M_0} \times 100$$

In which:
S.U.T. – toal dry substances (%)
M_0 – mass of sand and wand capsule (g)
M_1 – mass of sand, wand and after drying residue capsule (g)
M_2 – mass of sand and wand capsule and the sample to be analyzed (g).

RESULTS AND DISCUSSIONS

After the determinations related to the content of dry substance for three rooty vegetables, meaning the carrot, the winter radish and the red beet, in order to determine a comparison of the alimentary quality when the vegetables are fresh, immediately after they are harvested and after 30 and 60 days of storage it comes out that there are significant differences which are presented in table1 and we had gained precious information related to the consumption quality of certain fresh estate vegetables.

Table 1

The variation of the dry substance content during the storage period

SPECIES	DRY SUBSTANCE % / STORAGE PERIOD, days					
	Natural ventilation			Cold storage		
	0 days	30 days	60 days	0 days	30 days	60 days
Carrot	14,57	20,65	23,78	14,57	15,11	17,14
Winter radish	10,98	17,58	20,42	10,98	10,41	13,12
Red beet	13,84	20,28	23,29	13,84	14,34	16,35

In table 1 it can be observed that the dry substance of the carrots has increased during the storage period and according to the storage conditions.

In the case of the natural ventilation warehouse/storage the dry substance has increased as follows: if initially the dry substance has been of 14,57%, within 30 days of storage it reached values of 20,65% and within 60 days of storage it reached the maximum of 23,78%.

From the data presented in table 1 it can be noticed that in the case of the natural ventilation warehouse the dry substance has increased in what

the other two vegetables were concerned, as follows: in the case of the radish the initial dry substance has been of 10,98%, after 30 days of storage it has reached values of 17,58% and after 60 days of storage it reached the maximum 20,42% and in the case of the red beet the initial dry subsstance has been of 13,84%, after 30 days of storage it has reached 20,28% and after 60 days of storage it was of 23,29%.

In figure 1 it can be noticed that the substance dried in the natural ventilation warehouses has increased vigorously in the first 30 days of storage and then until reaching 60 days of storage the content of dry substance has increased in a lower rhythm, thus in the case of the carrot if exactly in the storage moment the content of dry substance has been of 14,57mg%, after 30 days of storage it has reached 20,65mg% and after 60 days of storage it has reached a value of 23,78mg% so it had an increase of 50% in comparison with the dry substance content from the moment of starting the storage and until the moment of 30 days storage.

In the case of the other vegetables taken into study the increases have registered almost the same rhythm.

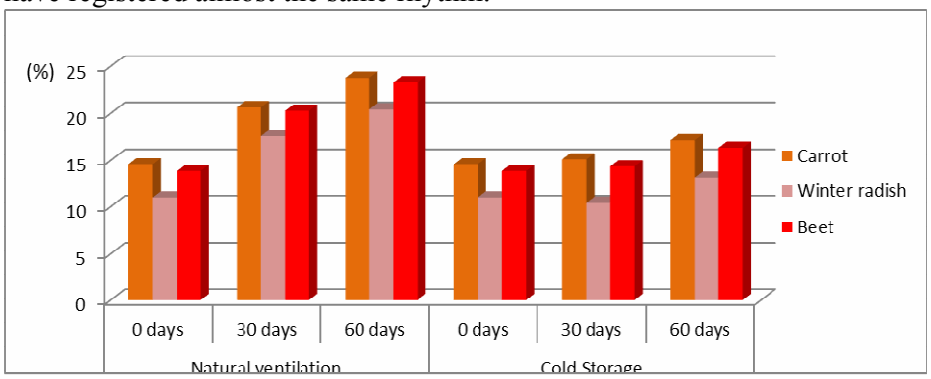

Fig. 1. The variation of the dry substance content during the storage period in two types of storage

In figure 1 it can be noticed that the dry substance has decreased during the period when it was stored in a cold warehouse, during the period from 0 to30 days and during the period from 30 to 60 days the content in dry substance has registered increases comprised between 2,01mg % in case of the red beet, of 2,03mg % in case of the carrot and 2,71 mg % in case of the winter radish.

Comparing the results obtained for the stored carrots' analyzed dry substance it comes out that in the natural ventilation warehouse the water losses are higher and in the cold storage only the inherent temperature variations led to the decrease of water content from the carrots' tissues.

In what the other vegetables taken into study were concerned the loss of dry substance have registered almost the same results.

CONCLUSIONS

From the carrot's analysis of the dry substance we can say that the carrot bevahes very well to the cold storage and it better maintains its physical characteristics, its fermness, in a word its nutrition qualities.

The cold storage has determined an increase of the dry substance in a lower percentage in comparison with the natural ventilation warehouses. Thus 30 days from the storage the dry substance has reached a level of only 15,11% representing 73,17% in comparison with the storage in natural ventilation conditions. At 60 days storage the dry substance has been of only 17,14% representing 72% in comparison with the storage in natural ventiltion conditions.

From the analysis of all the characteristics it comes out that all the vegetables taken into study have answered better to the cold storage in comparison to the storage in natural ventilation conditions.

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