STUDIES REGARDING THE QUALITY OF FRESH FRUITS DURING STORAGE MARKETED IN BULK

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Abstract

Fresh fruits are the most valuable because of their bioactive compounds, high level of vitamins and other bioactive compounds. Those fruits are also very valuable because of their taste and color and because increase the local economies and sustainability of the area. Our region is well known as a good market and a important provider since 1960.

Berries because of low cost of production enrich the rural mountain poor area as well.

Fruits of Malus domestica, Pyrus communis, Persica vulgaris, Prunus armeniaca and Prunus domestica there are one very valuable among fruits because of the vitamin C content and high level of production. The trees grows very easy are resistant and the market is well established.

Present study try to monitories the following quality parameters of Malus domestica, Pyrus communis, Persica vulgaris, Prunus armeniaca and Prunus domestica fruits during storage in the bulk marketing because of very well known issues regarding of storage.

Key words: *Malus domestica, Pyrus communis, Persica vulgaris, Prunus armeniaca and Prunus domestica*, vitamin C, dry matter balance, pH, NO_3 content.

INTRODUCTION

Malus domestica

The apple tree is a tree best known for its sweet, pomaceous fruit, the apple. It is cultivated worldwide most widely species from the genus *Malus.* The quality of fruits is influenced by storage duration, and there are diferent ways of mentaining shelf life of apple fruits. We taken in to study Idared cultivar.

Pyrus communis

The European pear *Pyrus communis*, known as common pear, is a species of pear from central and eastern Europe and southwest Asia. It is one of the most important fruits of temperate regions grown in Europe, North America, and Australia. Fruits are delicious but have issues regarding storage. The cultivar taken in to study was Williams.

Persica vulgaris

Persica vulgaris is a member of the ***Persica*** family. Its botanical name is ***Persica vulgaris***. Fruits are valuable for fresh consumption and processing as well. The Redhaven cultivar was selected for present study.

Prunus armeniaca

"Armenian plum" is the most commonly cultivated apricot species is a species of *Prunus*, classified with the plum in the subgenus *Prunus*. The

fruits are one of the bests and provide a very valuable raw material for processing. Harcot cultivar was taken in to study.

Prunus domestica

This is a species of flowering plant in the family Rosaceae. Plant is very common in Romania. Fruits are resistant and are proper for consumpsion fresh. The fruits taken in to study were from Stanley cultivar.

There were considered 2 storage systems, fresh in bulk and refrigerated in bulk.

There is important to have this tresholds temperature because the storage at those temperature is most regular in Romanian markets.

In this way parameters taken in study are important from all points of view, food safety and echonomical especialy.

Methods used for analysis were according with romanian standards and are quottation in latest studys.

MATERIAL AND METHOD

For determination the physico-chemichal and organoleptic indicators were carefully examined 6 samples from each kind of fruits.

The samples were kept fresh (20ºC) and refrigerated (0-4ºC) for 30 days. The parameters were determined in the same day for each storage system.

The samples were examined from the organoleptic point of view, and they analyzed the shape of the exterior, aspect of the section, general aspect, also the consistency, the color, the smell and the taste. The samples that not meet the normal properties of the fruits were considered alterated and were not taken in to study.

In the physic-chemical examination consist in following parameters assesment: vitamin C, dry matter, pH and NO_3 content.

The research methods were according Romanian regulation. As following:

Organoleptical parameters:

Were done by scoring the samples from 0 to 10 points.

The Vitamin C content: done by titration with KI in of starch.

Dry matter: was done using own at 105 ºC one hour.

pH: was done using a pH-meter, potentiometric method.

NO_3 content: was done by Griess method**.**

RESULTS AND DISSSIONS

Organoleptic examination did not reveal any significant changes to the conditions of admissibility imposed by legal regulations allowed.

Table 1. Reserch results regarding dry matter of the fruits

No.	Specie	Fresh (%)	Refrigerated (%)
1	*Malus domestica*	19,63	20,12
2	*Pyrus communis*	17,21	19,04
3	*Persica vulgaris*	10,41	12,10
4	*Prunus armeniaca*	11,26	10,18
5	*Prunus domestica*	13,49	12,89

Because of morphological aspects the biggest dry matter was recorded to *Malus domestica* fresh fruits.. After refrigerations because of methabolism and morphological particularities the biggest dry matter was recorded to *Malus domestica* but *Pyrus communis* was in the same range. The smallest values were recorded in case of *Persica vulgaris* for fresh fruits and *Prunus armeniaca* for refrigerated fruits.

Table 2. Reserch results regarding Vitamin C of the fruits

No.	Specie	Fresh (mg/100g)	Refrigerated (mg/100g)
1	*Malus domestica*	6,86	6,11
2	*Pyrus communis*	4,11	4,21
3	*Persica vulgaris*	6,21	6,69
4	*Prunus armeniaca*	11,40	11,07
5	*Prunus domestica*	9,42	9,28

The highest Vitamin C content was recorded in fresh *Prunus armeniaca* fruits. The decreasing of Vitamin C content after cooling is present for all fruits, especialy because of cellular juice drained during cooling by evapotranspiration excepting *Pyrus communis* and *Persica vulgar*. The worst evolution it was recorded to *Malus domestica* that losse more than 10% of his Vitamin C content.

Table 3. Reserch results regarding NO_3 content

No.	Specie	Fresh (mg/kg)	Refrigerated (mg/kg)
1	*Malus domestica*	1,3	1,1
2	*Pyrus communis*	2,1	2,4
3	*Persica vulgaris*	2,3	2,5
4	*Prunus armeniaca*	2,1	2,2
5	*Prunus domestica*	1,7	1,2

The highest Total amount of NO_3 content content was recorded in fresh *Persica vulgar* fruits. There is also evident the increasing of the level coresponding of cooling and storage process. Fruits that have an resistent peel have better attitude for storage from this point of view.

Table 4. Reserch results regarding pH of the fruits

No.	Specie	Fresh (g malic acid/100g)	Refrigerated (g malic acid/100g)
1	*Malus domestica*	0,28	0,33
2	*Pyrus communis*	0,14	0,21
3	*Persica vulgaris*	0,26	0,31
4	*Prunus armeniaca*	0,38	0,41
5	*Prunus domestica*	0,36	0,41

The pH evolution shown that during cooling and storage there were no alteration process for all samples. That allow us to suggest that high bioactive compounds level provide protection for fruits. The values recorded were according to our data very stabile.

CONCLUSIONS

The specie that shown the best storage capabilities was *Malus domestica.*

The results shown that all the fruits taken in to study can be cooled and stored at low temperature without alteration.

Vitamin C level that decrease us the issues regarding durations and storage conditions impact on the bioactive compounds level.

The dry matter level remaind after cooling and storing at higher level just in *Malus domestica* and partialy in *Pyrus communis.*

In this way we suggest collecting, cooling and storing for long therms mainly *Malus domestica* and partialy *Pyrus communis* fruits in order to have the smallest losses from quantitative and qualitative point of view.

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