

OPTIMAL DETERMINATION OF FREEZING TEMPERATURE OF RASPBERRY FRUIT IN INTENSIVE CULTURE ON ORGANIC BASES

DETERMINAREA TEMPERATURII OPTIME DE CONGELARE A FRUCTELOR DE ZMEUR ÎN CULTURA INTENSIVĂ PE BAZE ECOLOGICE

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Abstract. We studied the influence of temperature -16C, -18C and -20C on the degree of modification of biochemical indicators, technological fruits of raspberry and mycological culture obtained intensive ecological basis for a period of 123 days of storage. Experimental data were obtained on the change of sucrose, titratable acids, ascorbic acid, total carbohydrate and fruit tissues monosaccharides. Optimum temperatures were determined by freezing raspberry fruit crop obtained organic bases.

Key words: raspberry, organic fruit, storage, biochemical indicators, technological and mycological.

Rezumat. S-a studiat influența temperaturilor de -16°C; -18°C și -20°C asupra gradului de modificare a unor indicatori biochimici, tehnologici și micologici ale fructelor de zmeur obținute în cultura intensivă pe baze ecologice pe durata unei perioade de 123 zile de păstrare. S-au obținut date experimentale referitoare la modificarea conținutului de zaharoză; acizilor titrabili, acidului ascorbic; glucidelor totale și monoglucidelor în țesuturile fructelor. S-a stabilit temperatura optimă de congelare a fructelor de zmeur obținute în cultura pe baze ecologice.

Cuvinte cheie: zmeur, fructe ecologice, păstrare, indicatori biochimici, tehnologici și micologici.

INTRODUCTION

Berry crops have an important role in feeding the human body with vitamins, organic acids, carbohydrates, minerals etc. Due to the biological properties of raspberries, the fruit consumption of this species is only possible on a relatively short period of the year. Extending the period of consumption of these fruits is only possible by keeping them in cold storage. In present days, there are two methods for keeping wild berry fruit: keep the refrigerated and frozen fresh.

In the present project, along with the development and implementation of technology for growing and obtaining organic fruit Razzie was important to determine the optimum storage temperature of fresh and frozen fruit.

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MATERIAL AND METHOD

Raspberry fruit variety were harvested Fertöd Zamalos Mollnasarjai during "ripening harvest" in the plastic packaging with a volume of 0.7 to 1.0 kg. For developing technology for keeping fruit cultivated raspberry frozen organic bases, it was necessary to research the influence of temperature -16C, -18C and -20C on the degree of change in biochemical indices, technological and mycological a period of 123 days of storage. By the storage of plastic packaging raspberry fruit were weighed, their weight causing further appreciation of the initial degree of tissue dehydration during the entire period of frozen storage. Also in the same day as when determining the optimal period of storage of fresh raspberry fruit, samples were selected for the determination of sucrose, moncarbohydrates and their sum, and the titratable ascorbic acid. The degree of modification of the content of plastic substances, aids and mycological index was measured every 30 days to retain raspberry fruit frozen and stored at three temperatures -16C, -18C and -20C.

Along with raspberry fruit Fertöd Zamalos Mollnasarjai variety, grown on organic bases during shock freezing fruits were investigated and the same variety, grown under known technology. Freezing food shock unlike traditional freezing processes has many advantages, the main ones being: reduction in weight loss product and time to set freezing temperature, maintaining a high level of flavoring substances and plastic, minimizing the conditions for the development of pathogen agents.

Findings of the plastic changes in the content of substances raspberry fruit stored at three freezing temperatures was carried out after every 30 days the period of freezing dynamics. The frozen food biochemical substances resulting changes in the content much more slowly than those kept fresh. However, during the 123 days retention raspberry fruit, was able to determine the influence of the three freezing temperatures (-16, -18 and -20C) on the intensity of these processes.

RESULTS AND DISCUSSIONS

Studying the influence of freezing temperatures on the modification applied raspberry fruit sucrose content (fig. 1) moncarbohydrates (fig.2) and their total amount (fig. 3) was obtained, that they have influence.

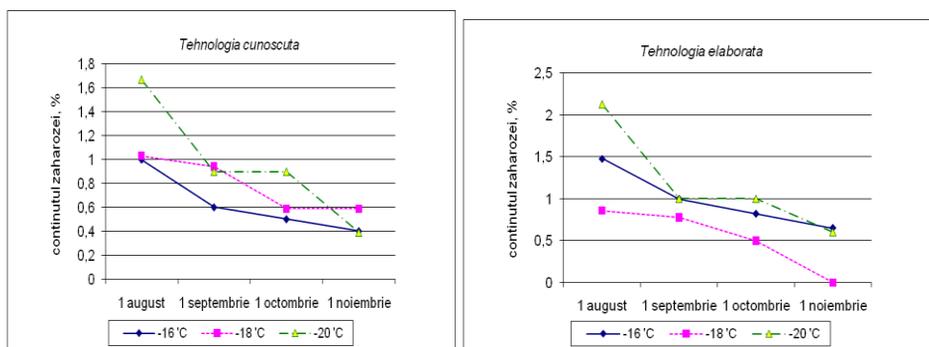


Fig.1 - Assess the degree of change in sucrose content in raspberry fruit variety Fertöd Zamalos Mollnasarjai the temperature of freezing applied.

The lowest consumption of sucrose during the 123 days of storage was recorded raspberry fruit storage at freezing temperature of -16°C , both bases grown organic fruits and in those obtained according to known technology.

During the storage period, under the influence of temperature increase in raspberry fruit polysaccharide hydrolysis processes (cellulose, hemicellulose, pectic substances), located in cell membranes. Intensification of these processes leads to a weakening of the structure of tissues, their deformation and release the juice of monosaccharides cell (glucose).

Figure 2 and 3 shows that the increased hydrolysis process, followed by high amounts of monosaccharides and total carbohydrates were obtained from fruits stored at freezing temperatures of -18°C and -20°C .

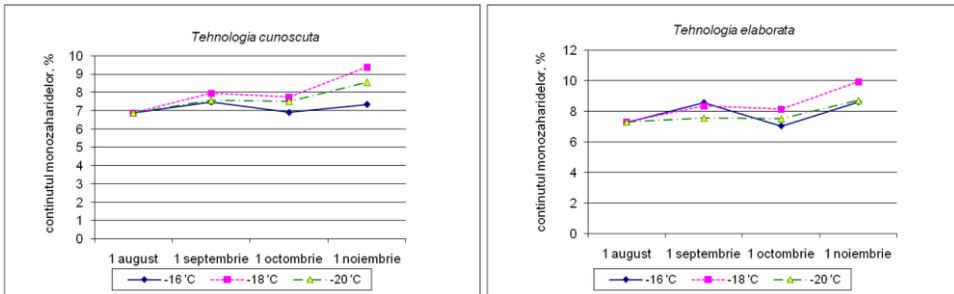


Fig. 2 - Determining the degree of change in tissue content monoglucidelor raspberry fruit variety Fertőd Zamalos Mollnasarjai the temperature of freezing applied.

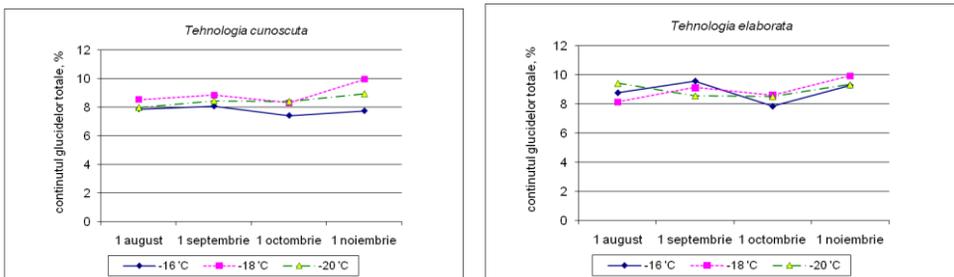


Fig. 3 - Determining the degree of change in total carbohydrate content in raspberry fruit tissues Fertőd Zamalos Mollnasarjai variety depending on the temperature of freezing applied

Studying the degree of biodegradation of ascorbic acid (fig. 4) and titratable acids (fig. 5) shows that these processes have also evolved differently. The lowest losses of ascorbic acid content and that of titratable acids, regardless of the technology of rearing were recorded in fruit stored at freezing temperature of -16°C (fig. 4 and 5).

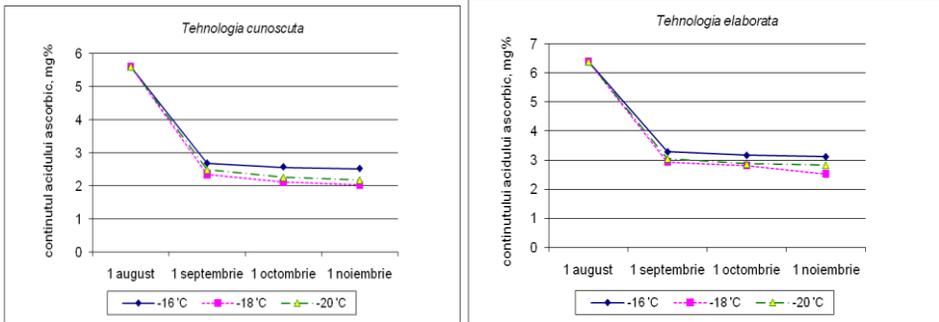


Fig. 4 - Biodegradation of ascorbic acid in raspberry fruit variety grown Fertöd Zamos Molnasarjai ecological basis and in accordance with known technology according to the freezing temperature applied.

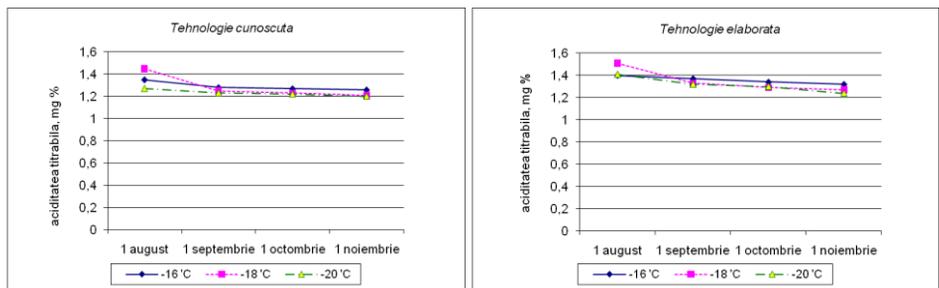


Fig. 5 - Biodegradation of titratable acid in raspberry fruit variety grown Fertöd Zamos Molnasarjai ecological basis and in accordance with known technology according to the freezing temperature applied.

CONCLUSIONS

Therefore, the result of the research degree of modification of the content of biodegradation of plastic substance raspberry fruit tissues stored at different freezing temperatures, it was found that the optimal temperature, was used for this purpose the -16C.

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