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Changes in the Microflora of Carrot Roots in Different Storage Regimes

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Abstract: in the article, the results of the research conducted to study the microflora of carrot roots in different storage regimes are presented with an in-depth analysis.

Keywords: Different storage regimes, carrot, carrot roots, microflora.

Introduction

The covering tissue of carrot roots is not strong, the thin epidermis is easily damaged, even weak mechanical effects lead to their disease, which reduces the quality of the product and makes it unfit for consumption.

Carrots with a higher percentage of peel and less core are considered to be of the highest quality. Even with clear colored carrots, the quality of the core is inferior to the fleshy skin. It has a lower content of carotene, sugar, and dry matter, and the smell and taste are less pleasant. In individual rhizomes, the ratio of peel to core in one variety can vary significantly more than the average in other varieties. There is a positive correlation between root specific gravity and skin-to-core ratio, and roots with higher specific gravity and skin-to-core ratio have higher carotene and sugar content, including sucrose.

The external color clarity of the root fruit does not serve as an indicator of the amount of carotene in it. The color of the inner tissue is significantly different from the outer color. Due to the air in the root tissue, the color of the covering tissue is often pale.

Depending on the length of the roots, carrot varieties are divided into muscle carrot (5-8 cm), semi-long (10-20 cm) and long (more than 20 cm) varieties.

Carrot roots contain many microorganisms that appear during the process of collection, transportation and storage.

Materials and Methods

In conducting research "Методика опытного дела в овощеводстве и бахчеводстве" OST 4671-78 B.J. Azimov, B.B. Azimov's "Methodology of conducting experiments in vegetable growing, rice growing and potato growing", (2002) " Методика Государственного сортоиспытания сельскохозяйственных культур: вып: IV Картофель, овощные и бахчевие культуры", V.F.Belik, " Методика физиологических исследований в овощеводстве и бахчеводстве " (1992) J.S. Sattarov's "Практикум по агрохимии", "Методика агрохимических анализов". The statistical analysis of the data was carried out using the Microsoft Excel program based on the dispersion method B.A. Dospekhov (1985).

Results and Discussion

During storage, resistance to diseases gradually decreases as a result of weakening of physiological processes. In addition, disruption of its processes leads to physiological diseases.

During storage, carrot roots interact with each other, facilitating the spread of infection. In our experiments, the level of infection with various diseases during the storage of carrot roots was studied. Table 1.

When storing carrot roots in a gross way, it was found that Shantane 2461 had the following damage levels: Black rot 30-35%, Gray rot 5-10%, Bacterial rot 20-30%, Phomosis tendency 20-40%, Sclerotinia 5-10%. The most optimal storage method was shown to be covered with onion skins. Black rot 10-15%, Gray rot 10-20%, Bacterial rot 20-30%, Phomosis tendency 10-20%, Sclerotinia 10-20%. The same situation was observed in other varieties.

It is known that in the conditions of Khorezm region, carrot roots are harvested in October, when the soil temperature is about 10-15 °C, and therefore it is necessary to quickly cool carrots during storage (0 - +2 °C). All this leads to the growth of microflora and the significant formation of mold during storage.

Table 1 The degree of damage to various diseases in the traditional method of storage of roots and roots of carrot varieties (2020-2021 yr.)

Storage methods	Damage rate, %				
	Black rot	Gray rot	Bacterial rot	Propensity to phomeus	Sclerotinia
Shantane 2461					
In a general way	30-35	5-10	20-30	20-40	5-10
Cover with onion peel	10-15	10-20	20-30	10-20	10-20
Cover with slaked lime	35-40	10-15	20-30	30-40	-
Cover with ordinary clay	50-60	5-10	40-50	5-10	-
Nantskaya 4					
In a general way	25-30	5-10	15-25	15-35	5-10
Cover with onion peel	10-12	8-15	45-55	8-15	15-20
Cover with slaked lime	30-35	8-15	10-25	25-35	-
Cover with ordinary clay	40-501	5-10	35-45	5-10	-
Nurli 70					
In a general way	25-30	5-10	15-25	10-20	5-10
Cover with onion peel	10-12	10-15	45-55	10-15	10-15
Cover with slaked lime	30-35	10-12	15-20	20-30	-
Cover with ordinary clay	40-50	5-10	30-40	25-30	-

There is a certain way to quickly cool the root mass. That is, watering with cooled water at a temperature of 2 °C 1-3 times a day. The disadvantage of this method is that due to the consumption of a large part of the water and the high humidity of the air, microflora grows intensively in the roots between waterings.

We are investigating a method to effectively reduce the amount of surface microflora by using EAV for hydro irrigation.

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