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MICROMYCETES OF ONION CAUSING ROT AND MOLD WHEN DURING STORAGE

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ANNOTATION

The article presents materials on the identification of the composition of micromycetes developing in vegetable stores during storage of onions. A total of 32 species of micromycetes from 15 genera and 5 fungal families were identified.

The revealed mycobiota can be divided into several ecological groups: developing mainly in the field, developing both on crops and during storage, and species that affect products mainly during storage.

Damage to products begins already from the first month of storage, mainly rotting and appearing with increasing average daily temperatures and lengthening the shelf life, mainly mold.

KEY WORDS: *onions, vegetable storehouse, fungal diseases, gray rot, bacterial rot, black aspergillus rot, gray rot, degree of damage.*

INTRODUCTION

Agriculture and other sectors of the national economy face major tasks to improve the supply of the population with good quality food, and industry - with raw materials. One of the factors affecting the quality of crop production, along with seed, growing conditions, harvesting and transportation is the storage of crops.

It is known that quality deterioration and losses during the storage period can be caused by many reasons (lack of storage conditions, non-observance of storage conditions, as well as the development of pests - diseases and pests). Thus, according to the FAO, annual crop loss from diseases and pests in the world reaches an average of 30%, from 20 to 80% of the product is lost during storage, in particular the loss of potatoes, vegetables and fruits is 30% or more of the harvest (Trisvyatsky et al., 1983).

Consequently, the reduction of losses during storage is an important reserve for increasing the provision of the population and the national economy with food, and therefore, it is proposed to improve measures to combat the development of pests during storage.

PURPOSE AND OBJECTIVES

The purpose of this study is to improve the protection system for agricultural products, in particular onions, stored in vegetable stores in Tashkent and the Tashkent region.

Based on the goal, the objectives of the study included:

1. the identification of the total composition of pests and the identification of the main economically significant harmful species (developing exclusively in storage facilities and recorded when laying products), the study of bioecological features of their development;

2. development of a system to reduce losses of fruits and vegetables during storage, which includes the technological part (disinfection, preventive measures to reduce the introduction of harmful organisms from the field and compliance with the storage parameters of products) and biological (development of harmful organisms in storages, the possibility of replenishment due to the introduced with the production of species, suppressing the development of pests by various methods of protection, including modern chemicals).

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RESEARCH METHODS

In our studies, we adhered to the basic methods for identifying and supporting cultures adopted in mycology and phytopathology (Dudka et al., 1982, Litvinov, 1969, Chumakov et al., 1974, etc.). Identification was carried out according to the determinants N.I. Vasilievsky, B.P. Karakulin (1937), N.M. Pidoplichko (1977)) and others.

The studies were carried out in 2018-2019. in the vegetable storehouse of LLC Osiyodontayyorlovsavdo of the Almazar district of Tashkent, the Uzbek Research Institute of vegetable and melon crops and potatoes.

Onions were stored in bulk in vegetable containers with a capacity of 420-450 kg or in polypropylene bags with a capacity of 25-30 kg. The storage period is from October to June. From October to February 2018-2019 About 300 tons of products were loaded. The vegetable store is equipped with forced-air and exhaust ventilation. The average storage temperature from October to March is +10 - 120C. Humidity 80 - 85%.

The affected samples were analyzed and studied at the Department of Plant Protection and Quarantine of Tashkent State Agrarian University.

RESEARCH RESULTS

As a result of the studies, a total of 32 species of phytopathogenic micromycetes were identified. The composition of the identified onion mycobiota during storage is shown in table 1.

Table 1
The composition of the identified onion mycobiota during storage

Family	Genus	Form
Mucoracea	*Mucor* Mich. ex Fr.	*M. racemosus* Fres.
	Rhizopus Ehr. ex Cda	*R.stolonifer* (Ehrenb. Ex Fr.) Vuill.
		R.nigricans Ehr.
Moniliaceae	*Acremonium* Lk. ex Fr.	*A. murorum*(Cda.) Gams
	Aspergillus Mich.	*A. clavatus* Desm.
		*A. niger*v.Tiegh.
		*A. candidus*Lk.
		A. ochraceus Wilhelm
		A. sclerotiorum Huber
	Botrytis Mich. ex Fr.	*B.cinerea* Pers. ex Fr.
		*B.squamosa*J.C.Walker
		B.allii Munn
	Cephalosporium Cda.	*C. acremonium* Cda.
	Cladosporium Lk. ex Fr.	*C. Herbarum* Pers ex. Lk.
		C. Fasciculare Fries
	Penicillium Lk.	*P. chrysogenum* Thom.
		P. expansum Link

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		P. hirsutum Dierck.
		P.notatum Bain.
		P.purpurogenum Stoll
	Trichotecium Lk. ex Fr.	*T. roseum*Lk. ex. Fr.
Dematiaceae	*Alternaria* Nees ex Wallr.	*A.alternata* (Fr.) Keiss.
		A.tenuissima (Fr.) Wiltsh.
		A.porri(Ell.) Cif.
	Stachy botrys Cda.	*S. lobulata* Berk.
	Embillisia Simmons	*E. Clamidospora* (Hoes et al.) Simmons
	Stemphylium Wallr.	*S. botryosum* Wallr.
Tuberculariaceae	*Fusarium* Lk. ex Fr.	*F. javanicum* Koord
		F. lateritium Nees.
		F.sporotrichiella Bilai
		F. oxysporum Schlech.
Mycelia sterilia	*Sclerotium* Tode	*S. cepivorum* Berk.
Total: 5	15	32

According to literature data (Dementieva, Vygonsky, 1988) harmful organisms harmful to stored products can be divided into several environmental groups: developing only in the field; developing both at the gathering place and in storage facilities; developing exclusively in storage.

It is known that the main part of the microorganisms encountered during storage causes various rot (aspergillus, penicillosis, etc.), which are less common in the field. In contrast, the main diseases developing during the growing season (downy mildew, smut and rust) affect crops mainly in the field. Some pathogens that develop during storage (alternariosis, stemphyllosis, cladosporiosis, botritiosis, bacterial rot) enter the store from the field and, under favorable conditions, can cause various rot.

From the data presented it follows that the most common onion diseases are gray rot, bacterial rot, fusarium rot, aspergillic and penicillin rot.

Based on the available literature and our own observations, it is known that at lower temperatures various rot develops to a greater extent, while at higher values, molds caused by imperfect fungi are more abundant. So, starting with an increase in average daily temperatures and an extension of the shelf life, mushroom fungi, species of the R. cladosporium, Acremonium, Cephalosporium, Trichotecium, and Alternaria species begin to develop.

Each group of organisms has its own critical and optimal development parameters, and when preparing the material for laying, according to the technological map, the products must be prepared for storage. So, the harvested crop must go through certain stages of preparation before it is laid for storage (sorting, ripening) and after laying (treatment period, cooling period, main in spring), which differ in environmental conditions.

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CONCLUSION

1. Onion mycobiota during storage totals 32 species of micromycetes from 15 genera, 5 families of fungus.

2. There are 3 main ecological groups of fungi existing in vegetable stores: developing in the field; developing both at the gathering place and in storage facilities; developing exclusively in storage.

LIST OF REFERENCES

1. *Bilay V.I. Fusaria. - Kiev, Naukova Dumka, 1977 - 440 p.*
2. *Vanek G., Korchagin V.N., Ter-Simonyan L.G. Atlas of diseases and pests of fruit, berry, vegetable crops and grapes - M.-Bratislava, 1989 - p.272.*
3. *Ganiev M.M., Nedorezkov V.D. Protection of vegetables from diseases and pests. Handbook of the gardener - M., Kolos, 2005 - 184 p.*
4. *Dobrozrakova T. L., Letova M. F., Stepanov K. M., Khokhryakov M. K. The determinant of plant diseases. - M., - L., Selkhogiz, 1956 - p. 412-421.*
5. *Dobrozrakova T.L. Agricultural phytopathology - L., Kolos, 1966 - p. 244-245.*
6. *Pestsov V.I. The content of fungi of the genus Fusarium in vegetables and gourds // Sat.- Materials of the jubilee conf. On microbiology, algology and mycology, the 50th anniversary of the Uzbek SSR and the Communist Party of Uzbekistan - Tashkent, FAN, 1974 - p.199.*
7. *Sheraliev A. Fungal diseases of fusarium - Tashkent, FAN, 1992 - 108 p.*