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The Significance Species of Fungi Identified From the Seeds of Melon and Watermelon Crops and the Significance in the Spread of Diseases

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Annotation: In this article, the cultural-morphological, biological, ecological characteristics of the types of fungi that cause diseases of rice crops, the laws of distribution, the damage caused to rice cultivation, the pathogens, the diseases that occur in melon and watermelon plants, fusarium wilt, fusarium root rot, alternariosis, spotting and powdery mildew diseases were determined and effective fighting measures have been determined.

Keywords: Fusarium disease, fungal diseases of rice crops, fungicides, microorganisms, pathogens, powdery mildew disease, pathogenic microorganisms.

INTRODUCTION. Today, even in the advanced countries of the world, due to diseases caused by fungi and other microorganisms, the productivity of agricultural crops, including rice crops, is sharply reduced and their quality is decreasing. Taking this into account, the scientists of scientific research institutes of a number of developed countries are studying root rot, fusarium and verticillosis, powdery mildew, false powdery mildew and other diseases of melons and watermelons, and effective measures are being developed to combat them. As a result, the amount of harvest from polys crops is increasing year by year, and the quality is also being improved.

It was noted in the scientific-research works carried out by our scientists that Fusarium wilt, verticillosis wilt, powdery mildew, spotting, rotting of roots and fruits and other diseases are widespread in the polys crops grown in our republic [1,2].

RESEARCH METHODS. M.K. Khokhryakov's methods for collecting herbarium samples from melons and watermelons infected with diseases caused by fungi, M.A. Litvinov, A.I. Dudka, S.P. Wasser, A.A. From the methods of Ellanskaya, Z.Z. Koval; by the method of N.G. Kholodnoi in the isolation of fungal species from the rhizosphere of crops growing in the fields planted with rice crops; from the methods of N.N. Naumova, N.A. Naumov, A.Ya.Semenov, A.P.Abramova, M.K. Khokhryakov in the separation and identification of fungal species from the seeds of polys crops; V.I. Bilay, P.N. Golovin, T.A. Dobrazrakova, M.F. Letova, K.M. Stepanov, M.K. Khokhryakov, N.S. Novatelnova, M.A. Identifiers of Litvinov, N.I. Gaponenko, N.P. Helyuta and other scientists were used, names and systematic positions of identified fungi were given based on Ainsworth, Bisby. To determine the degree of damage caused by the disease-causing fungus, the degree or intensity of plant disease is determined. For this, the points in the sheep were used. The percentage of infected leaves was determined and evaluated in a 5-point system (0 points - no damage is observed; 1 point - damage in 1/5 of the leaf area or up to 10%; 2 points - damage covers 1/3 of the

leaf area or up to 25%; 3 points -damage occupies 2/3 of the leaf or up to 50% of the surface; 4 points -damage covers 2/3 of the leaf surface in plants or more than 50%).

In addition to studying the order of species of fungi, the purpose of our research was to determine the prevalence of diseases. Therefore, the prevalence of diseases was determined based on the following formula.

$$R = \frac{P_к \cdot 100}{N}$$

Here, R is the prevalence of the disease, in %

N is the number of plants in the experiment, pcs

P_k is the total number of infected plants in the experiment, pcs

Determining the degree of damage caused by the identified fungi was carried out by the method of artificial infection of melon and watermelon crops with phytopathogenic micromycetes. In order to determine the pathogenic properties of the species belonging to the genus Thilelaviopsis basicola, Fusarrium and Verticillium and the damage caused by them, it was done by planting healthy plant seeds on an artificial infection background created in pots with a capacity of 5 kg of soil. In order to create an infection background, we added 0.5 kg of barley grain infected with fungi to 5 kg of sterilized soil and mixed it. Seedlings grow in 5-6 days. Accounts were returned every 3 days and symptoms appeared on 15 days. In order to study the bioecological characteristics of the species of fungi that cause wilting diseases, healthy plant stems were cut at 10-14 mm in the shape of a "T" and grown there in Petri dishes or test tubes and inoculated with the prepared pathogen. In order to study the pathogenic properties of the species of fungi that cause spotting diseases, 10-14 samples are taken from the leaves taken from the middle layer of the plants during the formation of buds, and they are infected with representatives of Alternaria, Cladosporium and other species based on the disc method. It is placed on a filter paper in a chamber with a prepared moist environment, then 1 drop of inoculum-chamber according to Goryaeva ($3x10^3$ conidia / ml concentration of 5 mm volume) is dripped on the leaves. Then they are stored in thermostats (20-24^{O}S) for 5-7 days. To study the pathogenicity of powdery mildew and false powdery mildew pathogens, we carried out the collected fungal spores by spraying the plants with a sprayer [2,4,6].

RESEARCH RESULTS AND THEIR ANALYSIS. Every researcher who has studied the diseases of melon and watermelon crops, regardless of which country and region they live in, certainly studied the importance of seeds in the spread of existing diseases in melon and watermelon crops and came to clear conclusions. In other words, it has been proven that the seeds of the khujain plant are the main source of infection in the spread of diseases of polys crops. In the researches of Rapilly Frantz (2001), as early as 1755 in the field of phytopathology, for the first time in the process of studying the stages of development of disease-causing fungi, chemicals against disease-causing fungi were used in the seeds of the host plant. From this period until now, researchers have been paying great attention to this problem. N.A. Naumova, S.T.Pestsova, S.Z.Muhammadalieva, A.Ya.Semenov, A.P.Abramova, M.K.Khokhryakov and others fusarium and verticillosis wilt diseases, alternaria, cladosporiosis spotting and many other diseases through seeds studied their distribution [8,7,10].

As a result, scientists have proven that seeds collected from infected plants are considered a very dangerous source of infection in their turn. Therefore, in the course of our scientific research work, we paid special attention to identifying the types of fungi that cause disease in melon and watermelon crops and their transmission through seeds.

1-table Infection rate of melon and watermelon seeds with disease-causing fungi, in % (2019-2020)

№	Fungal species isolated from internal tissues of seeds	Infection rate of melon and watermelon seeds with fungal species, %	
		Melon	Watermelon
1	Alternaria humicola	12,3	10,0
2	Aspergillus fumigatus	-	6,3
3	Aspergillus ochrouceus	9,1	7,8
4	Botrytis cinerea	11,1	6,7
5	Chaetomium globosum	6,0	-
6	Fusarium gibbosum	5,3	3,4
7	Fusarium heterosporium	2,4	4,0
8	Fusarium moniliforme	5,4	4,5
9	Fusarium oxysporum	-	7,3
10	Fusarium solani	2,0	11,3
11	Fusarium semitectum	8,1	-
12	Gliocladium roseum	13,6	10,7
13	Gliocladium verticilloides	7,1	8,2
14	Mucor circinelloides	-	9,1
15	Penicillium claviforme	4,5	3,7
16	Penicillium expansum	10,0	-
17	Penicillium notatum	6,3	12,0
18	Rhizoctonia solani	3,4	-
19	Verticillium dahliae	10,0	-
Total:		**16**	**14**

When determining the degree of infection of melon and watermelon seeds with fungal species, it was found that the melon plant was infected with 16 fungal species, and the watermelon was infected with 14 fungal species (see Table 1).[7, 9].

CONCLUSION. Gliocladium roseum – 13.6%, Alternaria humicola – 12.3% have the highest incidence in melon and watermelon seeds; Penicillium expansum and Verticillium dahliae - from 10.0%; the lowest incidence in Fusarium heterosporium – 2.4%; Fusarium solani made - 2.0%.

The highest incidence of Penicillium notatum in watermelon seeds is 12.0%; Gliocladium roseum – 10.7%; Alternaria humicola – 10.0%; the lowest morbidity was 3.4% in Fusarium gibbosum and 3.7% in Penicillium slaviforme.

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