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ISOLATION OF PATHOGENIC FUNGI IN MELON AND WATERMELON CROPS AND IDENTIFICATION OF THEIR PATHOGENIC PROPERTIES

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ABSTRACT

This article presents the results of our research in the Kashkadarya region, the isolation of pathogenic fungi in melon and watermelon crops and their pathogenic properties.

KEYWORDS: *melon, watermelon, disease, fungus, pathogenicity, strain, downy mildew, mildew, alternarium, cladosporium, fusarium, verticillium, wilting, rot, rhizoctonium.*

INTRODUCTION

Melons belonging to the group of melons *Cucumis melo* L. and watermelon - *Citrullus lanatus* (Thunb.) Matsum. et Nakai, whose plants like agricultural crops, have been cultivated in all countries since ancient times. Because they are rich in nutrients that are very important for the human body. That is why they have been loved and consumed by the entire population of our planet and are still consumed today. Melon has a wonderful taste and unique properties. It contains 85.0-92.0% - water, 8.0-15.0% dry matter, 0.8% protein, 1.8% fiber and 6.2% other carbohydrates, 20.0 - 30 mg% of the drug, 0.03-0.7 mg% of other drugs and trace elements such as Zn, Fe, Cu, Mg, K, P, organic and mineral salts [1; 3].

Fungal species with plant disease properties are common in many countries of the world. Because with the right conditions for their growth and development, they have the ability to grow and develop

in all environments. Their propagation occurs by wind in the air stream through the host plant seeds, diseased plant remains in soil conditions, and other means.

The entry of pathogenic fungal species into plant tissues is also different. They can enter mainly from the host-plant tissue organs, the root system, the places where various mechanical injuries that occur in the plant are cracked [5].

Biological injuries are caused by sudden changes in weather conditions, strong winds, hailstorms, or plant diseases caused by pests and disease-causing microorganisms. Infected leaves and other diseased organs dry out, shedding leaves become bare. This group of diseases is caused by species belonging to the genus *Fusarium*, *Botrytis*, *Alternaria*, *Aspergillus*, *Cladosporium* and others [4; 6].

**MATERIALS AND METHODS**

To study the pathogenicity of pathogenic fungal species in melons and watermelons, 10-14-volume samples were taken from leaves taken from their middle tier during the flowering period of plants and infected with *Alternaria*, *Cladosporium* and other genera. The prepared moist medium is placed on the filter paper in the chamber, then 1 drop of inoculum on the leaves - drip on the chamber Goryaeva (5 mm volume 3×10^3 conidia / ml concentration). Then they are stored in thermostats (20–24OS) for 5–7 days.

To study the pathogenicity of mildew and downy mildew pathogens, we carried out by spraying the collected fungal spores on plants with a spray apparatus [2].

RESULT AND DISCUSSIONS

According to our research, 199 strains of 10 pathogenic fungal species were isolated from melon and watermelon crops, of which 100 were isolated from melon and 99 from watermelon diseases. Their morbidity rates for melons and watermelons were 51.2% and 41.8%, respectively.

The largest number of strains were isolated from the species of fungi that cause fusarium wilt in melons - 26, followed by *alternarium* - 22, downy mildew - 20, a small number of strains - *verticillium* wilt - 11, mildew- 8, the rest 1 to 6 strains were recorded.

Table 1.
Number of strains isolated from common diseases in melon and watermelon crops grown in Kashkadarya region of Uzbekistan and the incidence rate of the host plant,%. (2018-2020 y)

Names of diseased plants:		Names of diseases								The total number of strains and the degree of plant disease
		<i>downy mildew</i>	<i>mildew</i>	<i>Alternarium</i>	<i>Cladosporium</i>	<i>fusarium</i>	<i>verticillium</i>	<i>rhizoctonium.</i>	<i>Botrytis</i>	
melon	Number of isolated strains, pcs	8	20	22	6	26	11	2	7	100 pcs
	The degree of disease of the plant, %	4,3	10,0	11,0	3,0	13,1	5,6	1,0	3,6	51,2%
watermelon	Number of isolated strains, pcs	7	19	22	6	28	9	1	8	99 pcs
	The degree of disease of the plant, %	2,9	8,0	9,0	2,5	11,9	3,7	0,6	3,8	41,8%



In the separation of fungal species into pure cultures, it is important to select the most active strains from them. This is because if the plant has been artificially infected, it is only when the diagnostic description of the disease is shown that it is certain that the species that caused the disease is the cause.

During the research, herbarium samples were collected from infected members of melon and watermelon crops grown in Kashkadarya region of Uzbekistan, and 3 classes, 6 orders, 8 families, 15 genera, 26 species and 7 species of fungi were identified. Most species are representatives of the Deuteromycota department 21 species 6 forms; then Oomycota - 3 rounds; Ascomycota - 2 species, Mycelia steria - 1 species. The most common pathogens belong to the family Fusarium, 5 species 6 forms; 3 species were identified from the Alternaria family, 2 species from the Erysiphe family, and 1-2 species from the remaining family; Of the identified species, 22 species and 7 forms were separated from melons, 19 species and 2 forms from watermelon.

Alternaria alternata from the melon plant. Aspergillus clavatus. Erisiphe cichoracearum. f.cucurbitacearum, Fusarium gibbosum, f.sp.melonis, Fusarium moniliforme f.sp.melonis, Fusarium oxysporum, Fusarium oxysporum f.sp.melonis, Fusarium semitectum f.sp.melonis, Fusarium solani f.sp.melonans, Penicillin, Pythium sp., Rhizoctonia solani, Verticillium nigrans lar;

Alternaria cucumis, Cladosporium herbarum, Erisiphe sichoriaciarum, Fusarium oxysporum f.sp.niveum, Trichothecium roseum and others were identified from the watermelon plant.

When determining the degree of morbidity of melon and watermelon crops of fungal species that are common and cause a lot of damage to horticulture, it was found that the strongest disease is caused by fusarium wilt. Then there is fusariosis root rot, alternariosis staining and flour-dew. The least common disease is ascocytosis, a disease that occurs only in watermelons.

CONCLUSIONS

The main biological feature of the pathogenic fungal species is the study of their distribution patterns, their ability to continue to grow and develop, located on top of the host plant tissue. As a result of our observations and experiments, it became clear that conidia or spores of fungal species that caused the disease were used to infect the plant from injuries caused by mechanical or biological processes at the top of its tissues.

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