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Microflora Of Wheat Grain

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Abstract: The article provides information on fungi found in wheat grain and their damage. The studies were conducted on 10 varieties of wheat grown in the central and southern regions of the republic. In this study, the types of fungi were determined by taking samples from seeds during the storage period of seed wheat, planting them in a nutrient medium and monitoring them from the outside. It was found that the fungi found in wheat seeds belong to the genera Bipolaris, Alternaria, Fusarium, Tilletia (Tilletia lives and Tilletia caries) Penicillium Aspergillus, Trichotecium, Cladosporuum. It was found that up to 10.8% of seeds are infected with these fungi during storage.

Keywords: Wheat, seeds, fungi, microflora, Bipolaris, Alternaria, Fusarium, Tilletia (Tilletia lives and Tilletia caries) Penicillium Aspergillus, Trichotecium, Cladosporuum, soil, species.

Introduction: Fungi found on the surface of seeds: Bipolaris, Alternaria, Fusarium, Tilletia (Tilletia lives and Tilletia caries). These fungi infect the plant during the growth period and have the property of spreading to the seeds [4,6,7].

Fungi isolated from seeds can be divided into the following groups from an ecological point of view: fungi found in the soil, fungi found during storage, and fungi causing seed mold. Fungi that occur during seed storage include fungi of the genera Botrytis, Trichotecium, Cladosporum, and Fusarium [1,2,3,5].

Table 1

Results of phytopathological examination of wheat grain of wheat varieties planted in the central and southern regions of the Republic for analysis of the mycoflora of wheat grain

T/p	Wheat varieties	The number of analyzed seeds, pcs	Number of grains infected with fungi, grains	Incidence, %
1.	Alexeyevich	100	11	11
2.	Asr	100	10	10
3.	Veha	100	12	12
4.	Grom	100	8	8

5.	Krasnodarskaya-99	100	13	13
6.	Bunyodkor	100	10	10
7.	Tanya	100	12	12
8.	Shukrona	100	9	9
9.	Hisorak	100	10	10
10.	Ghazgon	100	13	13
	Total	1000	108	10,8

The data show that saprotrophic and pathogenic species were found in a total of 10 varieties planted in the southern and central regions of the republic. During mycological analysis of 1000 samples taken, 108 were found to contain fungal infection. That is 10.8% of the grains produced in the region were found to be infected with fungi to varying degrees.

Studies have shown that the occurrence of saprotrophic and facultative parasitic fungi on the surface of seeds is the main factor contributing to the expansion of their range.

Mycological analysis of seed samples collected at different times showed that fungi belonging to the genera Fusarium, Penicillium, Alternaria develop mainly on the seed coat, and increased humidity in storage conditions causes seed rot . Among the facultative parasites found on the surface of wheat seeds, fungi belonging to the Fusarium and Alternaria genera are of great interest. Since many species of these genera have shown aggressive properties towards annual and perennial plants and weeds in the conditions of our Republic and their pathogenicity evolution is increasing, the incidence of Alternaria and Fusarium diseases is increasing. These data require a comprehensive study of the pathogenicity evolution of these genera (Table 1).

Seedlings sprouting from wheat seeds infected with fungi begin to turn yellow and dry, the disease begins with root rot, and yellow spots appear on the leaves. The plant begins to turn yellow and wither, the stems turn brown. The seeds of diseased plants are small, underdeveloped, and have lost their germination.

The fungus overwinters in the soil and on plant debris in the form of conidia and mycelia. The mycelia formed from them produce macro and microconidia.

The pigments they produce, the mycelia, and the conidia, which are divided into septa of various shapes, are the basis for identifying the species of fungi of the Fusarium genus.

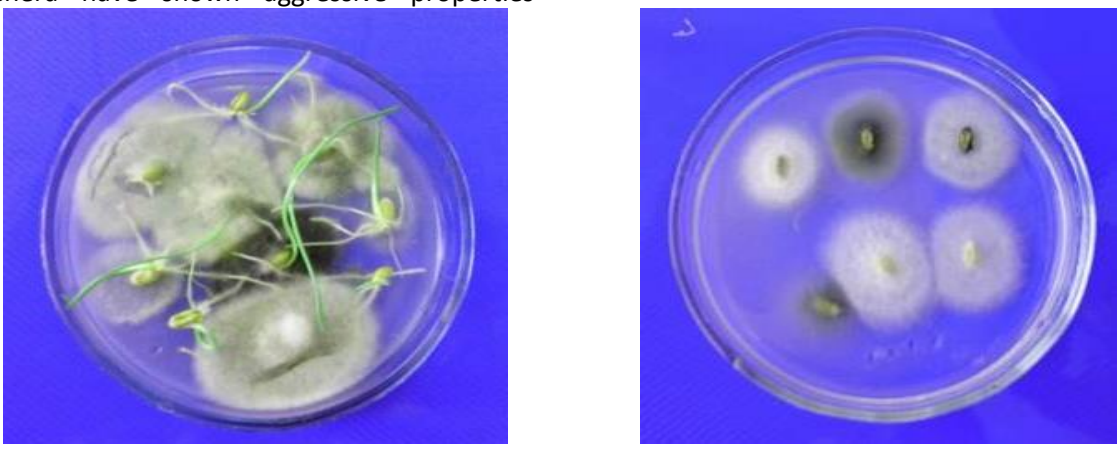

Figure 1. Microorganisms isolated from infected wheat grains

In this picture, we can see that fungi belonging to the genera Fusarium and Alternaria were isolated from seeds stored for sowing and from seeds that were damaged by fusarium disease. These fungi damage the seeds when they are sown, reducing their germination.

The genera that cause grain mold during long-term storage in warehouses include fungi belonging to the genera Fusarium, Mucor, Aspergillus, and Penicillium. It was found that the vegetative bodies of these fungi are preserved on the surface of the seeds in the form of mycelium or conidia. The mycelium of the fungus often penetrates the epidermis or the awn of the seed and develops during storage or when the seeds are planted in the soil.

Also, Mucor racemonsus, M.mucedo, Penicillium Aspergillus fumigatus, A.niger, A.flavus and other species can cause increased damage to seeds if the storage conditions for seed materials are not met or if humidity changes during storage.

The appearance of these diseases in the fields not only

leads to an increase in the amount of infection in the soil, but also leads to a decrease in crop yields in the future. Therefore, it is being determined that black rot, spotting, helminthiasis, septaria, and fusarium diseases are becoming widespread in some farms where untreated seeds are planted.

Studies have shown that the presence of fungi on the surface of wheat seeds that are found in the soil, infect plants, and damage grains during storage proves that chemical treatment of seeds against infections is an important measure.

The average arithmetic value was determined from the total number of analyzed samples, and the average level of disease of the seed was derived.

Table 2

Effects of grain storage periods on mycoflora of wheat grain

S/n	Sample number	The number of seeds analyzed, pieces	Observation periods	Types of fungi detected in wheat grain	Incidence rate, %
	• **Microflora of wheat grain**				
1.	12	100	September	*Fusarium, Alternaria*	7,0
2.	10	100	November	*Fusarium, Penicillium, Alternaria*	6,0
3.	18	100	October	*Fusarium, Penicillium, Alternaria*	7,0
4.	23	100	December	*Alternaria alternata* *Tilietia tritici Fusarium.sp*	8,0
5.	25	100	January	*Alternaria alternata* *Tilietia tritici Fusarium.sp*	6,0

The data show that out of 500 wheat seeds taken for analysis at different times, 6.8% of the wheat was found to be infected with Fusarium, Penicillium, Alternaria alternata, Tilietia tritici, species. These pathogens, due to their presence in the seed, reduce germination and cause seed rot after planting in the soil. As a result, the number of seedlings in crops decreases and productivity is affected.

The most effective methods of protecting wheat from fungi that are present in the soil and seeds are the treatment of seeds with chemical fungicides during storage.

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