RESEARCHES CONCERNING THE CARYOPSES MICOFLORA OF WHEAT TO THE VARIETIES GROWN IN MODELU LOCATION, CALARASI COUNTY

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Abstract: *The researches has been conducted on seeds of common wheat, durum fall wheat (Auradur) and durum spring wheat Floradur grown in SC" Probstdorfer Saatzucht" Romania SRL, location Modelu, Calarasi County. The biological material was represented by wheat seeds with black-point attack and frees of this attack, of the following varieties: Capo, Pedro, Atrium, Astardo, Arnold, Balaton, Pireneo, Bitop, Fulvio, Fabula, Ludwing, Midas, Phillip, Josef, Peppino, Auradur, Floradur. The observations on the black-point attack on wheat seeds led to determine the frequency of attacks to the monitored varieties. Research has been performed in the laboratory of Phytopathology of the Faculty of Agriculture of the University of Agricultural Sciences and Veterinary Medicine of Bucharest.The macroscopic and the microscopic identification of fungi in biological studied material was done by isolating and repeated sub culturing procedure of the pathogens on PDA (potato-dextrose-agar) culture medium and incubating them at thermostat at 24˚C. There were identified fungi of the genus Alternaria, Stemphylium, Fusarium, Aspergillus, Cladosporium, Rhizopus, Penicillium. It was remarked high incidence of Alternaria spp species (60-68%), Stemphylium spp (17 to 20.5%), Fusarium spp (10-12%) for seeds black-point attack. In was found present in complex micromycetes Alternaria and Stemphylium. The pathogen Cladosporium herbarum had a frequency between 1-2%. Of the varieties of common fall wheat, to the variety Capo was recorded most frequently the black - point attack (F = 8%). The variety Auradur had a low frequency of black-point attack (2%) while to the variety Floradur the black-point attack incidence was 6.5%.*

Key words: *winter wheat, durum wheat, variety, fungus*

INTRODUCTION

Seed health is an important factor in getting superior yields quantitatively and qualitatively (Cristina R. et colab,1978). The knowledge of the impact of pathogenic fungi on wheat seed is necessary for determining its quality indicators. The researches regarding the black-point attack to wheat shows the special importance to both indices on seeds attack implications and determining the micoflora associated with the production of this attack (Gheorghies C, S Cristea et colab. 2004). Also pathogenic fungi species involved in the production of black-point can cause the transmission of attack to the next crop. Specialized researches suggest that the occurrence of black-point attack is attributed to the influence of environmental factors and can be also attributed to varietal characteristics (Gheorghies C. et colab, 2006). Also specialized literature suggest the black-point attack on seed of durum wheat (Orsi et colab, 1994).

MATERIAL AND METHOD

The research has been on winter wheat, spring wheat and durum wheat varieties grown in SC "Probstdorfer Saatzucht" Romania SRL, Modelu location. The biological material consisted in samples of wheat caryopses with black-point attack and free from the attack. In Phytopathology

Laboratory of the Faculty of Agriculture of UASVM of Bucharest were identified fungi species involved in the development of black-point and the present fungi on the seeds of wheat without attack. It was used potato-glucose-agar culture medium (PDA). Identification of the fungal species was performed by morphological characteristics of vegetative mass (colonies) and pathogens detected fructifications. It was established the incidence of the attack of various fungi identified species.

RESULTS AND DISCUSSIONS

Mycological load was identified in the case of the black-point attack (table 1).

Table 1

Phytopathogenic fungi associated with black point attack in wheat

The variety	Involved micoflora						
	Alternaria sp	*Fusarium* sp	*Stemphyllium* sp	*Rhizopus* sp	*Aspergillus* sp	*Cladosporium herbarum*	*Penicillium* sp
Atrium	+	+	+	+	-	-	+
Astardo	+	+	+	-	+	+	-
Arnold	+	+	+	-	-	-	-
Balaton	+	+	+	-	+	-	-
Capo	+	+	+	+	-	-	-
Fabula	+	+	+	-	-	+	+
Fulvio	+	+	+	+	-	-	+
Bitop	+	+	+	+	-	-	-
Ludwing	+	+	+	-	-	+	+
Midas	+	+	+	-	+	-	-
Josef	+	+	+	-	-	-	-
Peppino	+	+	+	-	-	+	-
Pireneo	+	+	+	-	-	+	-
Phillip	+	+	+	-	-	-	+
Pedro	+	+	+	-	+	-	-
Auradur	+	+	+	-	-	-	-
Floradur	+	+	+	+	-	-	-

Table 1 data shows that the species of fungi associated with *Alternaria* sp., *Fusarium* sp., *Stemphyllium* sp black-point attack are present in all investigated black-point varieties cases (fig. 1, fig.2). For Atrium, Fulvio, Capo and Bitop varieties were observed also the presence of *Rhizopus* sp fungus. The *Aspergillus* sp pathogen was associated with black-point attack at Astardo, Balaton and Midas varieties.

Also, it has been observed the presence of *Cladosporium herbarum* and *Penicillium* sp.micromycetes.

To durum, Floradur and Auradur wheat varieties was found a low micoflora spectrum consisting of *Alternaria* sp, *Fusarium* sp and *Stemphyllium* sp micromycetes and *Rhizopus* sp.on Floradur(fig.3).

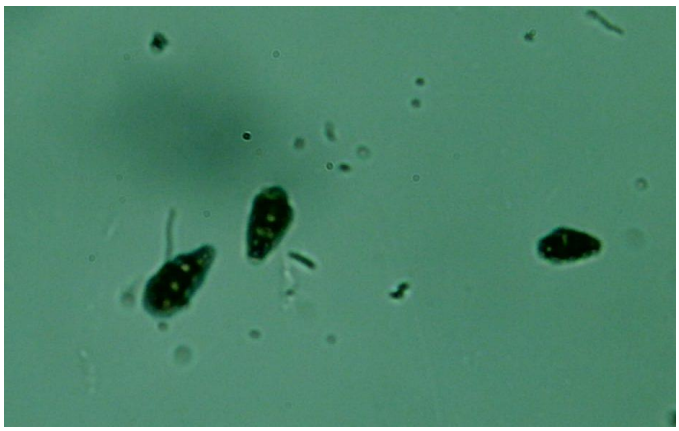

Fig 1. *Alternaria* sp. and *Stemphyllium* sp. fructifications (Balaton)

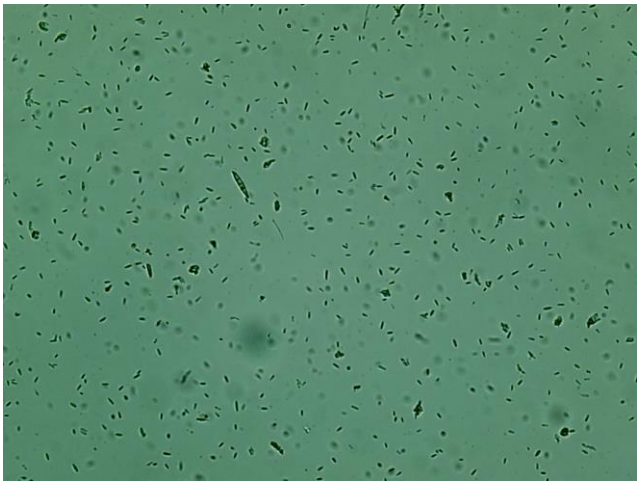

Fig 2. *Fusarium* sp. fructifications (Capo).

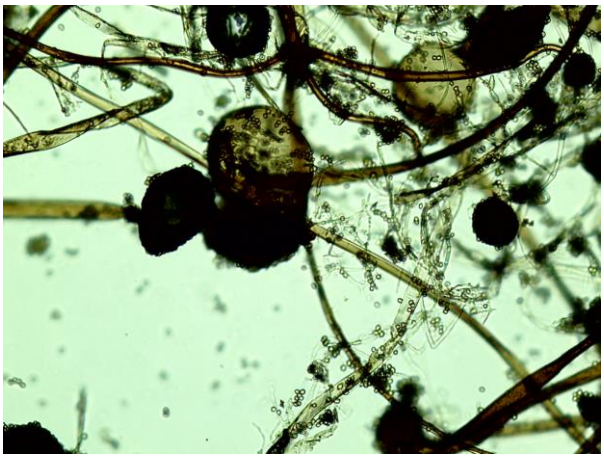

Fig 3 *Rhizopus* sp fructifications (Floradur)

The black-point attack frequency was between 2% at Ludwig variety and 8% at Capo variety. A low attack it was found at Josef (F = 2.5), Fabula, Bitop and Astardo (F = 3%) varieties. In the case of durum wheat varieties the frequency of black-point attack was 2% to Auradur variety and 6.5% to Floradur variety (table 2).

In terms of the involved pathogens spectrum and their share it could be seen that table 2 data show that the pathogen *Alternaria* sp recorded a frequency of 60% to Atrim variety and 68% to Pedro, Josef, Capo and Arnold varieties. The *Fusarium* sp fungus recorded the rate of 10% for Atrium, Bitop, Ludwig, Fabula varieties and 11-12% in other monitored. To the *Stemphyllium* sp micromycete it has been observed an incidence between 17% to Atrim, Arnold, Pedro, Ludwig varieties and 20.5% in Fabula and Fulvio varieties. A low incidence was noted for the *Cladosporium herbarum* fungus (1-2%). The highest frequency of the *Aspergillus* sp fungus was 4% at Midas variety. For the black-point attack at durum wheat varieties the incidence of associated pathogens for that attack was forthcoming, although the frequency of attacks was different in the two species (table 2). The researches will continue.

Table 2

The incidence of attacks with black-point and with involved micoflora in wheat varieties grown in Modelu location, Calarasi County

The variety	The black-point frecquence (%)	Involved micoflora incidence (%)
Atrium	6.0	*Alternaria* sp. -60 ; *Fusarium* sp- 10; *Rhizopus* sp- 20; *Penicillium* sp-3; *Stemphyllium* sp-17;
Astardo	3.0	*Alternaria* sp -63.5; *Fusarium* sp- 12; *Aspergillus* sp -5 *Stemphyllium* sp-18.5; *Cladosporium herbarum*-1;
Arnold	5.0	*Alternaria* sp. - 68 ; *Fusarium* sp- 12; *Stemphyllium* sp -17 ;*Penicillium* sp- 3%

Balaton	4.5	*Alternaria* sp. -62 ; *Fusarium* sp- 12; *Stemphyllium* sp-20; *Aspergillus* sp-3; *Penicillium* sp- 3;
Capo	8.0	*Alternaria* sp-68 ; *Fusarium* sp- 11.5; *Stemphyllium* sp-17.5; *Aspergillus* sp-3;
Fabula	3.0	*Alternaria* sp. -67.5 ; *Fusarium* sp- 10; *Stemphyllium* sp-20.5; *Aspergillus* sp-2;
Fulvio	4.0	*Alternaria* sp. -61 ; *Fusarium* sp- 12; *Stemphyllium* sp-20.5; *Penicillium* sp-8,5;
Bitop	3.0	*Alternaria* sp. -63 ; *Fusarium* sp- 10; *Stemphyllium* sp-19; *Rhizopus* sp-8;
Ludwing	2.0	*Alternaria* sp. -61 ; *Fusarium* sp- 10; *Stemphyllium* sp-17; *Cladosporim herbarum* -1;*Penicillium* sp-10
Midas	3.5	*Alternaria* sp. -64.5 ; *Fusarium* sp- 12; *Stemphyllium* sp-19.5; *Aspergillus* sp-4;
Josef	2.5	*Alternaria* sp. -68 ; *Fusarium* sp- 12; *Stemphyllium* sp-20;
Peppino	3.0	*Alternaria* sp.-67;Fusarium sp-11;*Stemphyllium* sp-20;*Cladosporium herbarum* - 2;
Pireneo	3.0	*Alternaria* sp.-67; *Fusarium* sp-12;*Stemphyllium* sp-20; *Cladosporium herbarum* - 1;
Phillip	5.0	*Alternaria* sp.-67; *Fusarium* sp-11;*Stemphyllium* sp-18; *Penicillium* sp- 2;
Pedro	7.5	*Alternaria* sp- 68-; *Fusarium* sp-11;*Stemphyllium* sp-17; *Aspergillus* sp-2; *Penicillium* sp-2;
Auradur	2.0	*Alternaria* sp-68-; *Fusarium* sp-11.5;*Stemphyllium* sp-20.5;
Floradur	6.5	*Alternaria* sp -68; *Fusarium* sp-10;*Stemphyllium* sp-19;*Rhizopus* sp.-3%

CONCLUSIONS

The black-point attack to the studied varieties ranged between 2 and 8%. The most affected variety was Capo variety.

The durum wheat varieties recorded a black-point attack by 2% (Auradur) and 6.5% (Floradur).

Mycological cargo to all varieties with black-point included micromycetes: *Alternaria* sp. and *Fusarium* sp.

Mycological composition also included: *Rhizopus* sp., *Cladosporium herbarum*, *Aspergillus* sp., *Penicillium* sp.

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