



WILSONOMYCES CARPOPHILUS (LÉV.) AND BLUMERIELLA JAAPII THE MOST HARMFUL CHERYTREES PATHOGENS

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Abstract: *Wilsonomyces carpophilus* (Lév.) is a common pathogen of stone fruit trees and produce the leaf shot hole. *Blumeriella jaapii* on the other hand is a pathogen just for cherry trees and produce cherry leaf spot but this disease affect also the fruits because the main symptom are small spots which cold be both on leaf's and fruits. Taking from this point of view, both pathogens affect the leaves and because they could attack in the same time, they are considered to be extremely dangerous for cherry trees because the main effect on the leaves are a rapid necrosis of some large parts of the infected leaves. After that the leaves are falling to early, at the end of the end of August and beginning of September. All this long process of cherry trees leaves decay bring with it some physiological problems like reducing possibility the trees resistance to some periods of drought which may appear any time in the reference are during the summer and also of a normal preparing for winter. For what it is known for the moment, both pathogens could be stop from their development on cherry trees just by some foliar treatment but in this case it is essential to monitor all the way in the orchard the stage of leaf infection with this pathogens. This cases the key to a high efficiency of the treatment against those pathogens. By the present paper we bring a comprehensive evaluation of this cherry tree diseases in the interest area.

• Introduction

The management of different technological links included in the integrated protection management (IPM) are directly dependent on the values of aggressiveness and virulence of plants diseases and pests. It is also necessary to take into account the variation in the values of the existing inoculum reserve in each location where it is necessary to apply a set of integrated control measures that also include the two pathogens, pitting of pitted leaves and anthracnose of cherry and sour cherry. For a more accurate approximation of the situation of the inoculum reserve, a measurement of the aggressiveness values of the pathogens should be taken into account, followed by the follow-up of the correlation of the aggressiveness values of the two pathogens in order to observe the evolution of both the aggressiveness of the pathogen and the tolerance of the cherry and sour cherry cultivars which are of interest.

• Material and method

The evaluation of the evolution of the aggressiveness of the fungi, one that produce the leaf shot hole disease in stone fruits, produced by the phytopathogenic fungus *Wilsonomyces carpophilus* and the second one that produce anthracnose of cherry and sour cherry which is the phytopathogenic fungus *Blumeriella jaapii*, was carried out in the period 2020-2023. All these evaluations take place on the area located in the south-west of Romania between in the area of localities Berzovia, Grădinari, Cărbunari and Moldova Nouă. The area covered by those four locations can be considered favorable from a climatic point of view for cherry trees. From the point of view of the geography, it is a combined area of high plain, hill and a small mountains area. Thus, from this point of view, all the important landforms of the area are covered.

Isolated cherry trees located on public space in all indicated locations were taken into account for the evaluation. For this reason, we considered that an assessment of the intensity of the attack can lead to the formation of a clear picture of the presence of the agents as well as the situation of the pathogen reserve in the researched area.



• Results and discussions

Tabelul 1.
 Variația intensității de atac ale ciupercii *Wilsonomyces carpophilus* în funcție de localitate

Nr crt	Factorul A Localitatea	Factorul B Luna	Factorul C Anul			Media factorului A	Diferența	Semnificația
			2021	2022	2023			
1	Berzovia	Aprilie	20	35	25	32.72	7.44	**
		Mai	24	35	35			
		Iunie	30	40	35			
		Iulie	25	35	30			
		August	30	40	40			
		Septembrie	35	40	35			
2	Grădinari	Aprilie	15	20	20	21.94	-3.33	-
		Mai	15	15	25			
		Iunie	20	25	20			
		Iulie	20	25	25			
		August	20	20	25			
		Septembrie	25	30	30			
3	Cărbunari	Aprilie	10	15	5	16.39	-8.89	ooo
		Mai	10	20	5			
		Iunie	15	20	15			
		Iulie	15	20	15			
		August	15	20	15			
		Septembrie	25	35	20			
4	Moldova Nouă	Aprilie	15	20	20	25.28	Control	-
		Mai	20	25	20			
		Iunie	20	30	25			
		Iulie	20	30	25			
		August	20	30	25			
		Septembrie	40	40	30			

Tabelul 2.
 Variația intensității de atac ale ciupercii *Blumeriella jaapii* în funcție de localitate

Nr crt	Factorul A Localitatea	Factorul B Luna	Factorul C Anul			Media factorului A	Diferența	Semnificația
			2021	2022	2023			
1	Berzovia	Aprilie	5	10	5	13.33	-4.72	o
		Mai	5	10	5			
		Iunie	10	15	10			
		Iulie	10	15	20			
		August	10	20	20			
		Septembrie	15	25	30			
2	Grădinari	Aprilie	5	5	10	12.50	-5.56	oo
		Mai	5	10	10			
		Iunie	10	10	10			
		Iulie	15	15	10			
		August	15	15	15			
		Septembrie	20	25	20			
3	Răcășdia	Aprilie	5	5	5	12.78	-5.28	oo
		Mai	5	10	5			
		Iunie	5	10	10			
		Iulie	15	20	15			
		August	15	20	15			
		Septembrie	20	25	25			
4	Cărbunari	Aprilie	10	15	10	18.06	0.00	-
		Mai	15	20	10			
		Iunie	15	20	10			
		Iulie	15	20	20			
		August	15	25	25			
		Septembrie	25	25	30			

DL 5% = 2.72 DL 1% = 5.12 DL 0.1% = 8.45

The recorded values of the attack intensities of the *Wilsonomyces carpophilus* fungus, as shown in table 1, in the 4 localities, during the period between April and September, varied between a minimum of 5% in the year 2023 in the Cărbunari locality and a maximum of 40% in the town of Berzovia in the year 2022. At this point it can be noted that the pathogen was present every year in all four locations during the entire period between April and September.

The differences in the intensity of the existing pathogen between the localities is relatively small, being, as can be seen, a maximum of 8.89% between Moldova Nouă and Cărbunari (table 1). Looking to this difference it could be explained only by the relief difference between the two locations which is quite important. Cărbunari is located on a mountain plateau at almost 700 m altitude and Moldova Nouă at an altitude of approximately 250 m, on the bank of the Danube. So there are some climatic peculiarities that make a difference in the behavior of cherry leaf spotting produced by *Wilsonomyces carpophilus*.

Following the development of the anthracnose (*Blumeriella jaapii*) attack, it can be seen that at the beginning of the period, in April, the attack was well below the average limit of the credit period (table 5). Then the intensity of the attack of the *Blumeriella jaapii* fungus began to increase, reaching in the August-September period to be well above the three-year average of the April-September period.

Looking into the distribution of the attack intensity over the three years of observations (table 6), it can be observed that there is a total similarity between the evolution of the two pathogens of the foliar system of the cherry, the most favorable year from all points of view being 2022 and the most unfavorable year was 2021.

• Conclusions

- Both pathogens were recorded in all four locations which means that they cover the entire relevant territory where the locations are located.
- The attack of the two phytopathogenic fungi is continuous throughout the growing season having intensity records in each of the 6 months in which records were made for all locations.
- The reserve of the two pathogens is ensured, a fact demonstrated both by the constant attacks recorded in April and by the relatively high intensities in September (the last month in which we made observations).
- Considering the above, the recommendation is that those who have young cherry trees or cherry orchards in the area covered by the four locations where determinations were made, must be prepared to carry out a treatment with a systemic product but with a relatively short downtime (since cherries ripen quickly and must be harvested), as soon as the first spots or points appear as a symptom of one of the two pathogens.