

RESULTS REGARDING ON THE DYNAMICS OF THE ATTACK OF THE PATHOGEN *PLASMOPARA VITICOLA* IN THE CLIMATIC CONDITIONS OF THE YEAR 2021, IN THE SEGARCEA WINE FARM - ARCHDIOCESE CRAIOVA, DOLJ COUNTY

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ABSTRACT

*The Archdiocese of Craiova cultivated 40 ha with vines within in the locality of Segarcea, the main varieties being both varieties for Merlot, Cabernet Sauvignon, Sauvignon Blanc, Romanian Tămâioasă and Chardonnay. The phytopathogenic agent of the wine *Plasmopara viticola*, was monitored in terms of the evolution of the attack on the crop, in correlation with the climatic conditions and the way of reaction of the varieties to the attack of the phytopathogen was observed.*

The National Phytosanitary Authority, through the Dolj Phytosanitary Office, in the climatic conditions of year 2021, issued warning bulletins based on the basic criteria: biological, phenological, and ecological of the vine.

INTRODUCTION

In our country, the disease was first observed in 1887 (in the Buzău vineyards), but after Viala, it seems to have penetrated earlier, it being reported since 1881 in neighboring countries (Rădulescu et al. 1972).

The pathogen *Plasmopara viticola* is considered the most damaging disease of the vine, manifesting itself on the upper organs of the plant, but the most common is the attack on the leaves, with a well-defined symptom of stains undelemnii.

The damages caused by the pathogen *Plasmopara Viticola* are very large, with remanence in the following years, the losses can vary depending on the climatic conditions of the respective year.

The attack of this phytopathogen on the vine culture increases the acidity, depreciating the quality of the harvest.

The epidemic character of the disease is conditioned by the aggressiveness and virulence of the pathogen, the stage of development of the pathogen, its speed of spread and the way of survival from one vegetation period to another, the number of pathogens (Rodi Mitrea, 2006).

Establishing the optimal terms for applying the treatments is done taking into account the recommended type of control and the type of disease (Ioan Roșca, 2018).

Bădărău et al., 2007, recommends, in order to obtain high and good quality harvests, that the treatments against harmful organisms from the vine plantations be carried out in strict compliance with the recommended doses and application techniques.

In 2021, the intensity, frequency and degree of attack of the phytopathogenic agent *Plasmopara viticola* were followed, in correlation with the climatic factors.

MATERIAL AND METHOD

In order to control the previously reported pest, in the Segarcea Arhiescopia Craiova vineyard, 6 phytosanitary treatments were carried in 2021, according to the warning bulletins issued by the National Phytosanitary Authority, through the Dolj Phytosanitary Office and a number of products were applied under the treatment scheme

Table 1

Treatment scheme applied in 2021 in the Segarcea winery, Craiova Archdiocese

No. treatment	Used product	Active substance %	Dose/ha	Target organism
1	Dithane M45	Mancozeb - 80%and Hexamethylenetetramine <5%	2 kg	<i>Plasmopara viticola</i>
2	Zorvec Zelavin	Oxathiapiprolin -10%	0,25 l	<i>Plasmopara viticola</i>
3	Zorvec Zelavin	Oxathiapiprolin -10%	0,25 l	<i>Plasmopara viticola</i>
4	Mikal flash	Fosetylal - 50% and Folpet - 25%	3 kg	<i>Plasmopara viticola</i>
5	Cabrio Top	Metiram - 55% and Piraclostrobin – 5%	2 kg	<i>Plasmopara viticola</i>
6	Funguran	Copper hydroxide -77%	2 kg	<i>Plasmopara viticola</i>

The 6 treatments within the treatment scheme were applied to the following dates: 25.05.2021; 12.06.2021; 28.06.2021; 15.07.2021; 3.07.2021; 28.10.2021.

The estimation of the attack produced by the micromycetes *Plasmopara Viticola*, was performed on the leaves and bunches as appropriate, according to the methodologies used in the Forecast and Warning Stations.

The frequency (F%), intensity (I%) were established and the degree of attack (DA%) was calculated, the data collected being processed according to the usual formulas (Dumitriu D.G,Mitrea R.,2021).

RESULTS AND DISCUSSIONS

In the climatic conditions of the year 2021, following the 6 treatments, as shown in table 2, the degree of attack of the *Plasmopara viticola* fungus registered different waves depending on the variety and the attacked organ,as seen in table no.2

Table 2

Biological efficacy of some products in combating *manna* in some vine varieties

Variety	Attack on the leaf			Attack on the bunches		
	F%	I%	DA%	F%	I%	DA%
Merlot	20,43	6,52	1,36	12,83	5,60	0,72
Cabernet Sauvignon	22,30	7,34	1,64	15,24	5,77	0,88
Sauvignon Blanc	35,30	9,10	3,23	24,02	7,41	1,78
Romanian Tămâioasă	49,90	11,25	5,61	25,81	11,39	2,94
Chardonnay	40,79	10,50	4,31	28,32	8,96	2,57

The incidence of the attack on the leaves recorded values ranging from 20,43% in the Merlot variety to 49,90% in Romanian Tămâioasă, while the virulence of the attack had values between 6,52% and 11,25% in the same varieties.

After calculating the degree of attack (DA%), it can be seen that the varieties with the best reaction to the attack on the leaves of the *Plasmopara viticola* fungus were Merlot and Cabernet Sauvignon, at the opposite pole being the varieties for white wines, in which the maximum value of the degree of attack was 5,61% (Romanian Tămâioasă). The attack on the bunches manifested with a lower incidence and virulence, the maximum degree of attack being 2,94% (Romanian Tămâioasă), and the minimum 0,72% (Merlot).

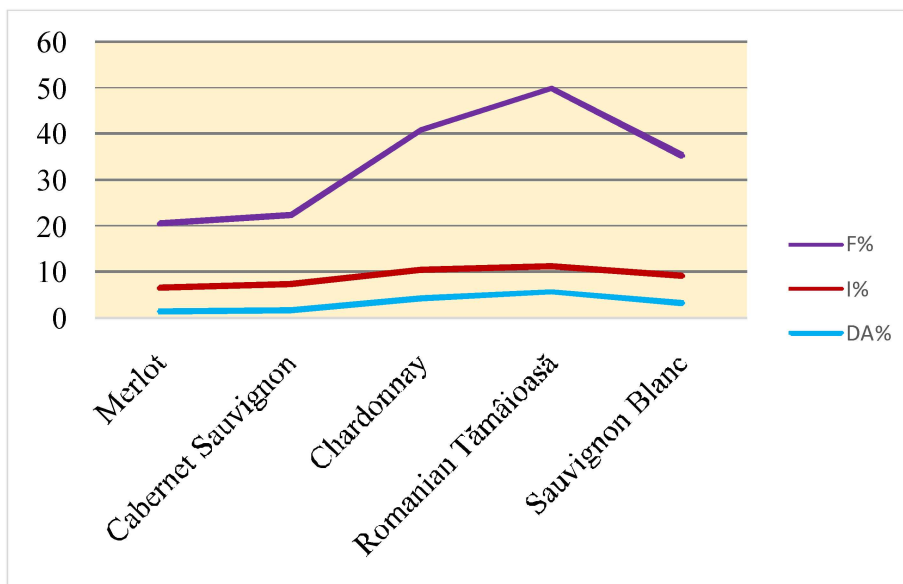


Figure 1 - Manna attack on leaves in 2021-Graphical Representation

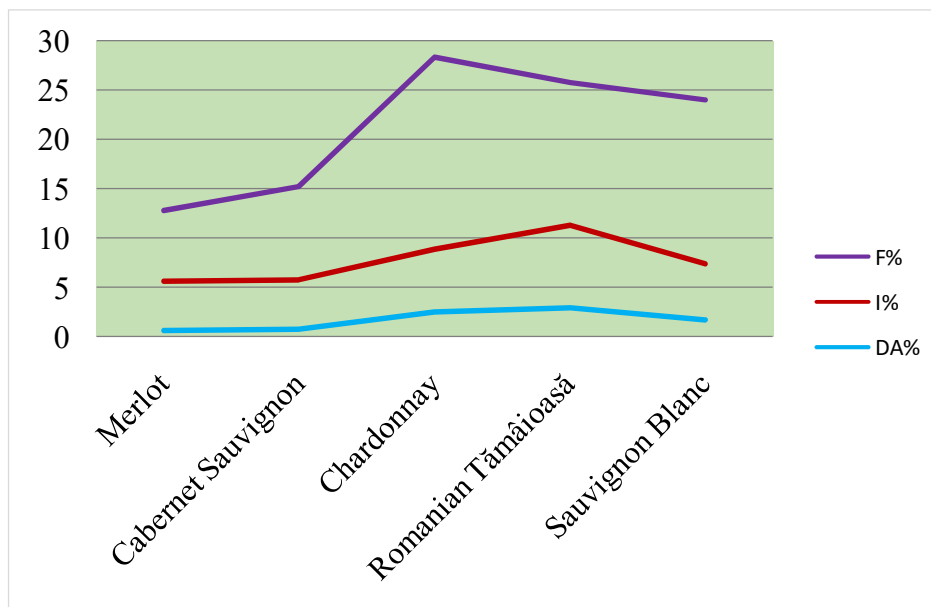


Figure 2 - Manna attack on bunches in 2021 - Graphical Representation

CONCLUSIONS

The location of the experience is characterized by ecopedological conditions favorable to the cultivation of vine but also to the development of the pathogen *Plasmopara viticola*,

The 5 varieties of vines studied and the treatments applied in specific climatic conditions, behaved differently from attack of this pathogen.

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Of the group of varieties with higher values of the degree of attack in the case of the phytoparasite *Plasmopara viticola*, they are part of Romanian Tămâioasă, with 5,61% attack on the leaves and Chardonnay with 4,31% attack on the leaves and attack the bunches with values between 2,94% and 2,57%, respectively

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Zorvec Zelavin fungicide was introduced into the treatment scheme, is a new product with long-term preventive, curative and antispore action.

It is a product compatible with other fungicides, resistant to washing and which completely inhibits the germination of zoospores.

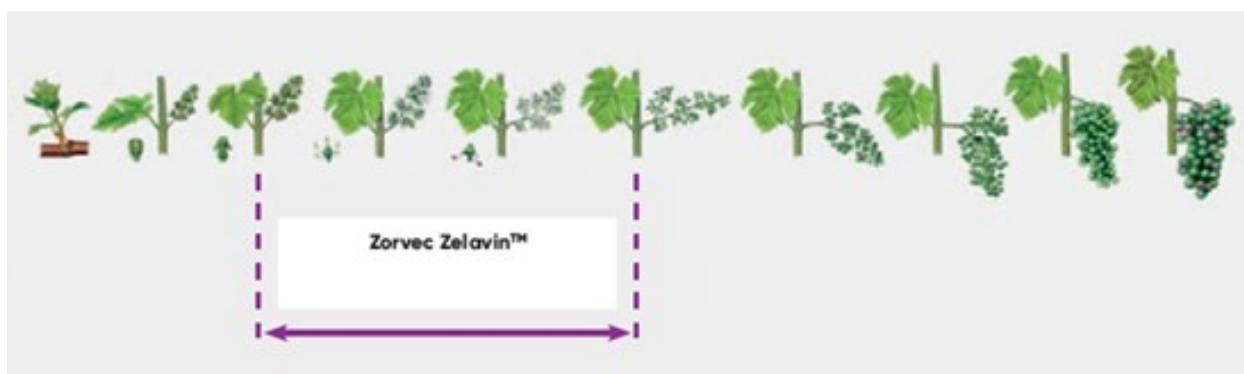


Figure 3 - Zorvec Zelavin -period of application - Corteva Agriscience



Figure 4. *Plasmopara viticola* –the vegetative apparatus-original

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