

The Monitoring of the Phytosanitary Status on the Plum Tree Plantations from Reghin Area

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Abstract. The plum tree is a fruit tree with fruits that have a very complex content of nutrients many of them still undetermined. In the Reghin area and in Romania this fruit has a significant importance in both industrial units and in smaller households. The present paper has as main purpose the monitoring of the plum plantations and evaluation of frequency (F%), intensity (I%) and the degree of attack (GA%) of the main pathogens observed at that time (2012) in different plantations from Reghin area. The monitoring took place on four plantations with different surfaces by visually estimating four varieties of plum trees De Bistrita, Stanley, Anna Spath and Silvia, with different percentage in the plantations. The symptoms followed on the plum trees were viral symptoms (mottling on the leaves), red spots (caused by *Polystigma rubrum*) and shot-hole bacterial symptoms (produced by *Pseudomonas campestris* pv. *Plum* or *Pseudomonas syringae* pv. *Morsprunorum*). These symptoms are very common and damaging in Reghin area, often exceeding the economic damage threshold.

Keywords: plum tree, monitoring, phytosanitary status

Introduction. The plum tree fruits have a very complex content of nutrients many of them still undetermined. In the Reghin area and in Romania this fruit has a significant importance in both industrial units and in smaller households, Romania ranking among the top producing countries in the world, on the third place as production (FAO Production Yearbook, 2003) and being the number one producer in Europe. The exploitation forms have changed after 1990 and so the treatments applied in different farms influenced the biology of certain plum pathogens.

Aim. The present paper has as main purpose the plum plantations monitoring and the evaluation of frequency (F%), intensity (I%) and the attack degree (DA%) of the main pathogens observed at that time (2012) in different plantations from Reghin area, that have different exploitation forms and different care work, meaning a different treatment plan. The plantations monitored from geographically point of view, had NW, W and S-W exposition and in terms of the exploitation method, they received different care works against diseases and pests. The monitoring indicates the spread and effects of some plum pathogens on the prevalent varieties in the Reghin area.

Material and method. The monitoring took place on four plantations with different surfaces by visually estimating four cultivars of plum trees: de Bistrita, Stanley, Anna Spath and Silvia. The data were collected from 195 plum trees of Bistrita variety, 470 plum trees of Stanley variety, 221 plum trees of Anna Spath variety and 54 plum trees of Silvia variety.

The symptoms observed on the plum trees were viral symptoms (mottling on the leaves), red spots (caused by *Polystigma rubrum*) and shot-hole bacterial symptoms (produced by *Pseudomonas campestris* pv. *pruni* or *Pseudomonas syringae* pv. *morsprunorum*). These symptoms are very common and damaging in Reghin area, often exceeding the economic damage threshold.

Results and discussions. In Tab. 1 we can see that the most affected cultivar is Bistrita – the viral symptoms were observed on 98.44% trees and the attack of *Polystigma rubrum* were recorded on 6.20% trees, the highest value from all the cultivars.

Tab. 1

The frequency of the diseases symptoms on the plum trees from Reghin area

The cultivar	Frequency (%)		
	Viral symptoms	<i>Polystigma rubrum</i>	<i>Pseudomonas sp.</i>
Bistrita	98.44	6.20	3.87
Stanley	85.15	4.53	3.91
Anna Spath	42.12	1.06	0
Silvia	11.11	7.40	5.55

The symptoms of red spot had the lowest degree of attack, less than 1% in the case of all the varieties, the symptomatology being only encountered in the plantations. The cultivar that showed the highest percent of red spot was Bistrita with a degree of attack five times higher than the attack on Silvia, seven times higher than that on Stanley and 30 times higher than that observed on Anna Spath.

Shot-hole bacterial symptoms due to the attack of the *Pseudomonas sp.* pathogen have a low degree of attack, under 1%, and the cultivar in which these were frequently found is Silvia with a six times higher degree of attack than Bistrita and Stanley cultivars. In the case of cultivar Anna Spath no symptoms were found (Tab. 2).

Tab.2

The intensity (I%) and the degree of attack (D.A.%)
for *Polystigma rubrum* and *Pseudomonas sp.*

The cultivar	<i>Polystigma rubrum</i>		<i>Pseudomonas sp.</i>	
	Intensity (I%)	Degree of attack (D.a.%)	Intensity (I%)	Degree of attack (D.a.%)
Bistrita	5.62	0.34	2.20	0.08
Stanley	1.22	0.05	2.10	0.08
Anna Spath	1.0	0.01	0	0
Silvia	1.0	0.07	9.0	0.49

In the present research work, we can say that only viral symptoms were seen in all four plantations with the higher attack on plum trees and in two plantations were observed the pathogens *Polystigma rubrum* and *Pseudomonas campestris* pv. *morsprunorum* causing red spot disease respectively shot-hole symptoms.

Conclusions: Following the monitoring we can assert that in Reghin area, in all four studied plantations the highest degree of attack was recorded by the viral infections. Red spot symptoms caused by the pathogen *Polystigma rubrum* and the punching caused by *Pseudomonas campestris* pv. *morsprunorum* occur sporadically with a low intensity which indicates the presence of the pathogens in the area and imply that they have to be taken under consideration as potential pathogens and must be monitored and maintained below the economic damage threshold.

REFERENCES

- 1.*** FAO Production Yearbook, 2003