Study of the Behavior of Black Currant Varieties and Elites against Diseases under the Climatic Conditions of Baia Mare

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ABSTRACT

Current trends exhibited worldwide to replace some food and therapeutic products that were synthetically obtained with similar extracts from fruits and plants, put fruit shrubs into a new light. They are relatively easily adapting to various culture conditions and systems. Fruits of fruit shrubs are an important provider of raw material that is valuable for obtaining some natural products with high food value. The aim of this experimental study was to estimate the resistance of 17 elites of black currants versus the attack of the pathogen agents, in order to expand them in culture. The experimental study was performed at a farm in Coltau, located 12 km of Baia Mare. Their behavior against mildew, anthracnose and rust was monitored. The inspections were made during the years of 2011 and 2012, observing the leaves and calculating the frequency, intensity and attack degree. Among the 17 studied variants, the most resistant to mildew, anthracnose and rust proved to be the variant no.4, followed by the variants no.7, 8, 9, and 17, which are recommended to be extensively used in culture. The most sensitive plants were the variants 5 and 6 which had over 60% of leaves attacked on 25-50% of their surface. Higher anthracnose attack appeared at the elites no.10, 13, 15, 16, having over 20% of leaves attacked with the intensity of over 50%.

Keywords: *attack, disease, resistance, sensitive, variants.*

INTRODUCTION

Black currant fruits are a source of important raw material for obtaining natural products (Chira *et al.*, 2006). Although it prefers light, black currant grows and has a good development too on northern exposed terrains in the regions with strong insolation (Badescu *et al.*, 1984). The shrub is easily multiplied and maintained in culture, early yields, and gives rich fruits per area unit (Mihut, 2004).

AIMS AND OBJECTIVES

The aim of the study was to assess the resistance of some elites of black currant against the attack of pathogenic agents, in order to

cultivate them extensively. The followed objectives were based on the appreciation of resistance to mildew, anthracnose and rust, respectively; the behavior versus the pedoclimate conditions of the region of the 17 studied elites. They were analyzed versus the Tsema and Record control varieties.

MATERIALS AND METHODS

The experimental study was performed at a farm in Coltau, located 12 km South of Baia Mare, where the climatic conditions are identical with those in the city. The black currant plantation comprises of 17 variants in four repetitions each, randomly set. Their behavior against mildew, anthracnose and rust was monitored. The inspections were made

during the years of 2011 and 2012, observing 100 leaves, as 25 leaves/repetitions each, calculating the frequency, intensity and degree of attack. The agrometeorological data were recorded using the AgroExpert with the Baia Mare phytosanitary inspectorate.

RESULTS AND DISCUSSION

For reaching these objectives, a series of monitoring and research both in the farm and in the laboratory were carried out during the two research years of 2011-2012. The climate conditions during the summer of 2011 with temperatures of July of 35.5-37.4°C and medium precipitations during the first part of the year, favored a pretty much strong attack of rust. The most sensitive plants were the variants 5 and 6 which had over 60% of leaves attacked on 25-50% of their surface. The variants no.4, 7, 8, 9, 17 were the most resistant to rust. There were no records of strong mildew attack; the variant no.4 had the best behavior. The elites no.10, 13, 15, 16 presented anthracnose symptoms, having over 20% of leaves attacked with the intensity of over 50%. The highly dry conditions of the year 2012 did not favor the development of the rust attack. As about the mildew and anthracnose attack, we found that

the frequency as well as the intensity of the attack on leaves had lower values, comparatively with those recorded in 2011. Higher sensitivity was signaled at anthracnose, where the elites no.13, 16 registered an attack with the intensity of 20% on over 15% of their leaves. So, taking account of the behavior of the 17 elites during the two research years, we found that the most resistant to mildew, anthracnose and rust proved to be the variants no.4, 7, 8, 9, and 17, which are recommended to be extensively used in culture. The other monitored variants presented medium or high sensitivity.

CONCLUSION

Obtaining resistant varieties, including shrubs, is a necessity both for the great fruit growers and the private farms. Among the 17 studied variants, the variants no. 4, 7, 8, and 17 proofed to be the most resistant to mildew, anthracnose and rust; they are recommended to be cultivated.

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