The Saprophytic and Pathogenic Microflora from Local Tomato Cultivars Seeds

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ABSTRACT

The quality of the local population of tomato seeds has a significant role in obtaining of healthy plants and tomato fruits of superior quality. In this paper it was monitored the quality of the tomato seeds using the blotted paper method and also by the identification of the pathogenic and saprofitic mycroflora from the surface of the seeds. The highest frequency was recorded by the pathogen *Cladosporium fulvum*.

Keywords: *Alternaria, Cladosporium, local populations, seeds, tomato.*

INTRODUCTION

The local tomato cultivars named also local population or traditional varieties are characterized by the fact that they are naturally improved from a generation to another, having the capacity to tolerate hard environmental conditions with a high and constant efficiency without needing chemical input. The quality of the seeds has a great role in the success of a vegetables culture (Hoza Gheorghita, 2011). The main pathogens that can affect the quality of the tomato seeds are: *Alternaria solani*, *Corynebacterium michiganensis*, *Didymella lycopersici*, *Fusarium oxysporum*, *Phytophthora infestans*, *Xanthomonas vesicatoria* (Agarwal and Sinclair, 1996). Some pathogens such as *Sclerotinia sclerotiorum* are transmitted with the seeds and can remain in soil a large period of time in a saprophytic state of resistance (sclerotia) after that it can germinate and infect the plants. Also the seeds can be contaminated by saprophytes: *Aspergillus* sp., *Rhizopus* sp., *Penicillium* sp., *Alternaria* sp. (Raicu Cristina and Doina Baci, 1978).

AIMS AND OBJECTIVES

The main purpose of this research was the monitoring of the quality of tomato seeds by determination of the germination and also by the identification of the pathogenic and saprophytic microflora of the seeds.

MATERIALS AND METHODS

The biological material used in the experiment was represented by the seeds of three local populations of tomatoes: Hostăti, Roz și Inimă de bou. The research method for the monitoring of the seeds microflora was the test on blotting paper (Raicu Cristina and Doina Baci, 1978). The germination energy was determined after five days and after 14 days also the germination capacity. The phytosanitary observations were made with the stereomicroscope and optic microscope after five days.

RESULTS AND DISCUSSION

On the seeds of the three local tomato cultivars were identified *Cladosporium fulvum*, *Alternaria* sp. and *Aspergillus niger* (Fig.1).

Fig.1. *Cladosporium fulvum*, *Alternaria sp.*, *Aspergillus niger*

Tab. 1. Fungi developed on the tomato seeds

Variety	<i>Cladosporium fulvum</i> %	<i>Alternaria sp.</i> %	<i>Aspergillus niger</i> %
Inimă de bou	16.66	3.33	3.33
Hostăti	6.66	3.33	3.33
Roz	16.66	10

Fig. 2. The germination of the seeds

Analyzing the seeds of Inimă de bou variety the highest frequency had the pathogen *Cladosporium fulvum* with a percent of 16.66% followed by *Aspergillus niger* with 3.33%. Also on the others two varieties, Hostăti and Roz the highest frequency was recorded by *Cladosporium fulvum* with a percent of 6,66% respective 16,66% and in the case of the last variety the pathogen *Alternaria sp.* had a high frequency of 10% (Tab. 1).

The Hostati variety had the highest germination percent of 93% (Fig. 2), folowed by the Roz variety with a value of 90% and the lowest germination percent was reached by Inimă de bou variety (87%)

CONCLUSION

On the seeds of the local populations of tomato taken under study were identified *Cladosporium fulvum*, *Alternaria sp.* and *Aspergillus niger*. As a conclusion it can be said that the seeds of the local cultivars must be disinfected before sowing.

REFERENCES

1. Agarwal VK, Sinclair JB (1996). Principles of Seed Pathology, Agriculture Plant Science.
2. Hoza G (2011). Legumicultură generală, București.
3. Raicu C, Baci D (1978). Patologia seminței, Ed. Ceres, București.