The Biology of *Botrytis Cinerea* Pers. Isolated from Different *Geranium* Varieties

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ABSTRACT

In our experiments we have identified and isolated the pathogen *Botrytis cinerea* Pers. from geranium plants, we have inoculated it on three types of culture media (PDA, Czapek – agar, MA) and studied its morphological and cultural characteristics. The results obtained consist in differences in the morphology, number and distribution of the sclerotia and the dimensions of the conidia. The isolates taken under study showed a great phenotypic diversity influenced by the host plant and by the culture medium where they was grown.

Keywords: *biology, Botrytis, geranium, gray rot.*

INTRODUCTION

Botrytis cinerea Pers. is an economically important plant pathogen that can attack more than 200 species in the field, greenhouses and storage. This fungus causes gray rot on soft fruits and also blight on flowers and it can be identified by the typical dense gray mold that appears on the decayed area. Symptoms of *Botrytis* vary greatly depending on the host and the attacked plant organ (Fukumori *et al.*, 2004). The pathogen has a very high phenotypic and genetic variability and adaptability. Morphological features together with DNA analysis are useful for the classification *Botrytis* species and isolates and also to ensure a better understanding of the genus diversity (Valiunskaitė Alma *et al.*, 2010).

AIMS AND OBJECTIVES

The main purpose of the paper was to study the morphological characteristics of *Botrytis cinerea* isolates from different varieties of geranium grown on three culture media.

MATERIALS AND METHODS

The biological material consisted of seven isolates of *Botrytis cinerea* Pers taken from the

following varieties of geranium: Cambi, Angeleyes Orange, Camdared, Campeye, Rainbow White, Balcon Imperial, Ville de Paris Lila. These isolates were phenotypically characterized. A seven day old colony was used for the inoculation of the fungus on three culture media Potato Dextrose Agar (PDA), Czapek – Agar and Malt – Agar (MA). The experiment was conducted in three replicates. Observations of the growth and development of *B. cinerea* colonies on the culture media were performed daily by measuring the diameter of the colony until they filled the Petri dishes. The surface of the colonies was calculated using the diameter measurements.

RESULTS AND DISCUSSIONS

Studying the cultural characters of *Botrytis cinerea* isolates grown on the culture media it can be affirmed that the fungus had a better development on PDA medium but a better sporulation on the Czapek medium (Tab. 1). The size of the conidia varied depending of the culture media and of the isolate and the data showed that the conidia from the culture media had higher values compared with the conidia from the infected plants (Tab. 2).

Tab. 1. The sporulation percent of the colonies on the 12th day

The culture media	Isolate						
	Cambi	Angeleyes Orange	Camdared	Campeye	Rainbow White	Balcon Imperial	Ville de Paris Lila
PDA	100.00	20.83	100.00	67.92	100.00	26.25	70.00
Czapek - Agar	100.00	86.25	100.00	8.33	100.00	92.92	100.00
MA	87.5	100.00	100.00	69.17	66.67	80.83	67.08

Tab. 2. The dimensions of the *Botrytis cinerea* Pers. conidia (µm)

Isolate	From plants		PDA		Czapek – agar		MA	
	Lenght	Width	Lenght	Width	Lenght	Width	Lenght	Width
Cambi	10.66	8.60	13.39	11.20	15.10	11.31	13.11	10.09
Angeleyes Orange	11.39	9.23	13.94	9.71	12.91	10.65	12.62	10.12
Camdared	11.57	8.32	12.96	10.49	12.45	11.25	13.25	10.87
Campeye	11.27	8.06	16.35	10.61	12.75	10.5	12.28	10.75
Rainbow White	11.26	8.74	12.47	9.31	11.88	10.88	13.40	11.46
Balcon Imperial	12.26	8.21	12.86	10.32	12.56	10.36	12.44	10.63
Ville de Paris Lila	10.95	7.85	13.29	11.33	12.90	10.80	11.11	10.04

*average of 100 measurements

Fig. 1. Sclerotia formed on PDA

(A - Rainbow White, B - Balcon imperial, C - Ville de Paris Lila)

The number of the isolates that recorded a maximum sporulation percent (100%) were three on PDA medium (Cambi, Camdared and Rainbow White), four on Czapek – Agar medium (Cambi, Camdared, Rainbow White and Ville de Paris Lila and two varieties on MA medium (Angeleyes Orange and Camdared).

The sclerotia were variables in size, shape, number and distribution; they were rare or abundant with different distribution patterns (Fig. 1).

After 12 days from the inoculation not all the isolates formed the resistant bodies; thereby formed sclerotia three isolates on PDA medium, only one isolate on MA medium and on Czapek-agar none of the isolates formed sclerotia. The last situation (on Czapek-Agar medium) it can be

related to the low rate of growth of the colonies and also to the high percentage of sporulation at that period after the inoculation.

CONCLUSION

In this study we found a great phenotypic diversity of the *Botrytis cinerea* isolates, diversity influenced by the host plant and by the culture medium where they were grown.

REFERENCES

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