PATHOGENIC VARIABILITY OF CAUSAL AGENT OF COMMON BEAN ANTHRACNOSE

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INTRODUCTION

The high variability of *Colletotrichum lindemuthianum* has resulted in continuous breakdown of resistance in commercial cultivars. Studies on the variability of *C. lindemuthianum* are needed to direct breeding efforts towards long-term resistance to anthracnose. The objective of this work was to investigate the pathogenic variability in isolates collected in different counties in Brazil in the last 4 years.

MATERIAL AND METHODS

Fifty three isolates collected in different counties in Brazil in the last four years (2004-2007) were inoculated on 12 differential cultivars proposed by CIAT (1990). Forty eight isolates were collected in the state of Minas Gerais (Lavras, Lambari, Nepomuceno, Ijaci, Madre de Deus, Patos de Minas, São Vicente de Minas, Cana Verde, Guarda Mor e Viçosa), three isolates in Paraná (Pinhão, Guarapuava e Turvo) and two isolates were from São Paulo (Campinas). Fungus was isolated from infected plant tissues. Monosporic cultures were grown in M3 medium. To obtain high sporulation, each one isolate was inoculated in pods culture medium and were incubated at 22± 2°C for 10-15dias in darkness. Seedlings with fully expanded primary leaves were sprayed with the conidial suspension (1.2×10^6 conídios.mL^{-1}).

Inoculated plants were incubated in a humidity chamber (20 ± 2°C) for 72 h with a 12 h photoperiod. After 7-10 days of inoculation, seedlings were evaluated for their disease reaction using a scale from 1 to 9 (Schoonhoven and Pastor-Corrales, 1987). Plants with disease reaction scores from 1-3 were considered resistant, whereas plants that were scored from 4-9 were considered susceptible.

RESULTS AND DISCUSSION

The 53 isolates were classified into 12 different pathotypes (Table 1). Pathotype 65 was the most frequent (43.4%) and widely distributed in Minas Gerais State. These results confirm the wide pathogenic variability in *C. lindemuthianum* in Brazil (Talamini et al., 2004; Damasceno e Silva et al., 2007). Talamini et al. (2004) used isolates collected between 2001-2002 and observed the pathotypes 65, 81, 337, 87, 73, 64, 0, 593, 83, 89 and 8. In the present study, we observed a higher frequency of pathotypes 65, 81, 73 and 64, but there was a reduction of pathotype 337. The pathotypes 83, 87, 89 and 593 were not observed. Different pathotypes that occurred in this state in the past (69, 83, 85, 87, 89 and 119) (Alzate-Marin & Sartorato, 2004) did not found in the present study. Similar results were obtained by Damasceno e Silva et al. (2007) that identified the pathotype 65, 81 and 73 were the most frequent of Minas Gerais. Isolates from Paraná were classified into pathotypes 321, 81 and 8. Alzate-Marin & Sartorato (2004) report pathotype 321 and 81 in this State. The two isolates from São Paulo belonging to pathotype 71 and 64. Knowledge of the variability of the fungus in each region is an important basis to establish a breeding program and to choose the main source of resistance.

Table 1. Pathotypes of *C. lindemuthianum* identified in the last four years (2004-2007) in Brazil.

	DIFFERENTIAL CULTIVARS[1]												
Pathotype	2^0	2^1	2^2	2^3	2^4	2^5	2^6	2^7	2^8	2^9	2^{10}	2^{11}	Number of isolates per Pathotype
0	-	-	-	-	-	-	-	-	-	-	-	-	1
8	-	-	-	+	-	-	-	-	-	-	-	-	1
9	+	-	-	+	-	-	-	-	-	-	-	-	1
64	-	-	-	-	-	-	+	-	-	-	-	-	7
65	+	-	-	-	-	-	+	-	-	-	-	-	23
71	+	+	+	-	-	-	+	-	-	-	-	-	1
72	-	-	-	+	-	-	+	-	-	-	-	-	2
73	+	-	-	+	-	-	+	-	-	-	-	-	5
81	+	-	-	-	+	-	+	-	-	-	-	-	8
321	+	-	-	-	-	-	+	-	+	-	-	-	1
329	+	-	-	+	-	-	+	-	+	-	-	-	1
337	+	-	-	+	-	-	+	-	+	-	-	-	2

[+] susceptible; [-] resistant; [1] Michelite (2^0), Michigan Dark Red Kidney (2^1), Perry Marrow (2^2), Cornell 49-242 (2^3), Widusa (2^4), Kaboon (2^5), México 222 (2^6), PI 207262 (2^7), TO (2^8), TU (2^9), AB 136 (2^{10}) and G 2333 (2^{11})

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