BEAN REACTIONS TO 24 PATHOTYPES OF *Colletotrichum lindemuthianum*

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Common bean is one of the most important leguminous crops in Brazil. The Embrapa Rice and Beans, together with others bean breeding programs, has developed several genotypes that show one or more relevant characteristic to the farmers. However, common bean has shown to be very susceptible to innumerous diseases. Anthracnose, caused by the fungus *Colletotrichum lindemuthianum* is one of the most important bean disease in Brazil. This disease can be controlled by several methods including cultural practices, chemicals and cultivar resistance. The objective of this test was to evaluate the reaction of bean cultivars/lines to *C. lindemuthianum*.

To accomplish this objective it was used the bean cultivars/lines Magnífico, Carioca Rubi, Perola, Talisma, Arua, Piata, CNFC 7806, CNFC 7813, CNFC 9504, CNFC 10276, CNFC 10281 (carioca), Uirapuru, Soberano, Diamante Negro, Valente, CNFP 7776, CNFP 10120, CNFP 10138, CNFP 10150 (black), Radiante (cranberry), Timbó (purple) and Marfim (small beige) and 24 pathotypes of *C. lindemuthianum* including 1, 7, 23, 55, 64, 65, 69, 71, 73, 77, 79, 81, 87, 89, 95, 97, 102, 117, 321, 343, 453 and 2047. The pathotypes 97 and 453 were represented, in this test, with two isolates each. Entries were sown in plastic tray, ten seeds/entry, 6 entries/tray + the susceptible control (IPA 7419). Monosporic cultures of each pathotype were grown in test tubes containing bean pods partially immersed in agar-agar cultures medium and incubated at 20 ± 2°C for 10-12 days. After this period of time pods were transferred to a Becker containing sterilized water to obtain a spore suspension. Each entry was inoculated by spraying (DeVilbiss no. 15) the bean leaves and stem with a spore suspension adjusted to a concentration of 1.2×10^6 spore mL^{-1}. After inoculation trays were transferred to a humid chamber for 48 hours and, then, moved to greenhouse benches. Symptoms were evaluated 8-10 days after inoculation by using a 1 (no symptoms) to 9 (dead plant) scale where 1 to 3 were considered resistant and 4 to 9 susceptible.

Among the 23 tested cultivars, only Arua, Piata, CNFP 10120, CNFP 10138 and CNFP 10150 showed resistant reaction to all pathotypes (Table 1). Even though these cultivars were considered resistant to all pathotypes to some of them they showed at least one susceptible plant. Cultivar Arua and lines CNFP 10120 and CNFP 10138 showed only one susceptible plant to the pathotypes 64, 65 and 453, respectively. CNFP 10150 and Piata presented at least one susceptible plant to the pathotypes 77, 79 and 89 and 1, 7, 77, 97, 117 and 321, respectively. This results indicate that for these pathotypes these genotypes are still segregating and need to undergo another selection phase. Others cultivars presented different reactions according to the pathotype tested (Table 1). DNA from each cultivar has already been extracted to test them with all the SCAR markers found in the literature.

Table 1. Number of pathotypes to which the 22 bean genotypes were R (resistant), R/S (resistant/susceptible), S/R (susceptible/resistant) and S (susceptible) to 24 pathotypes of *Colletotrichum lindemuthianum*.

Genotype	Grain type	R		R/S		S/R		S	
		NP	% P	NP	% P	NP	% P	NP	% P
Magnífico	Carioca	1	4.2	2	8.3	7	29.2	12	50.0
Carioca Rubi	Carioca	1	4.2	3	12.5	4	16.7	16	66.7
Pérola	Carioca			4	16.7	1	4.2	19	79.2
Aruã	Carioca	23	95.8	1	4.2				
Piatã	Carioca	18	75.0	6	25.0				
Requinte	Carioca	9	37.5	5	20.8	2	8.3	8	33.3
Pontal	Carioca	11	45.8	4	16.7	2	8.3	7	29.2
CNFC 9504	Carioca	6	25.0	13	54.2	3	12.5	2	8.3
CNFC 10276	Carioca	12	50.0	4	16.7	1	4.2	7	29.2
CNFC 10281	Carioca	13	54.2	4	16.7			7	29.2
Talismã	Carioca	5	20.8	10	41.7	2	8.3	7	29.2
Uirapuru	Black	6	25.0	8	33.3	2	8.3	8	33.3
Soberano	Black	9	37.5	12	50.0			3	12.5
Dia. Negro	Black			2	8.3			22	91.2
Valente	Black	12	50.0	3	12.5	2	8.3	7	29.2
CNFP 7776	Black	9	37.5	5	20.8	1	4.2	9	37.5
CNFP 10120	Black	23	95.8	1	4.2				
CNFP 10138	Black	23	95.8	1	4.2				
CNFP 10150	Black	21	87.5	3	12.5				
Radiante	Cranberry			2	8.3			22	91.7
Timbó	Purple	9	37.5	3	12.5	4	16.7	8	33.3
Marfim	Small beige	19	79.2	4	16.7	1	4.2		
IPA 7419								24	100.0

R = number of pathotypes with 100% resistant plants.
R/S = number of pathotypes in which there was more resistant than susceptible plants (segregating).
S/R = number of pathotypes in which there was more susceptible than resistant plants (segregating).
S = number of pathotypes with 100% susceptible plants.
NP = number of pathotypes.
% P = percentage of pathotypes.