

SEVERITY LEVELS OF ANGULAR LEAF SPOT IN COMMON BEAN CULTIVARS AND ELITE LINES

Sanglard, D. A.^{1*}; Souza, T. L. P. O.²; Machado, M. A. M.¹; Rocha, F. S.¹; Sanglard, N. A.³; Barros, E. G.⁴ and Moreira, M. A.⁵

¹ICA/UFMG, Montes Claros, MG 39.404-547, Brazil; ²Embrapa Arroz e Feijão (CNPAP), Santo Antônio de Goiás, GO 75375-000, Brazil; ³PPGM/UFES, Alegre, ES 29.500-000, Brazil; ⁴UCB, Brasília, DF 70.790-160, Brazil; ⁵BIOAGRO/UFV, Viçosa, MG 36.571-000, Brazil.

*E-mail: demerson.ufmg@gmail.com

In Brazil, among the most important economic disease of bean crop is the angular leaf spot incited by *Pseudocercospora griseola* (Sacc.) Crous and U. Braun. The objective of this study was to assess the reaction of various cultivars and elite lines bean to *P. griseola* isolates obtained by Balbi et al. (2009). Twenty-five genotypes including cultivars and strains from Common Bean Breeding Program of the Federal University of Viçosa (UFV) were evaluated for resistance to 24 isolates of *P. griseola*. Fifteen days after planting, these genotypes were inoculated with a suspension containing 2.0×10^4 conidia mL⁻¹. Twelve plants of each genotype were inoculated. The symptoms were evaluated at 15, 18 and 21 days after inoculation using a nine-point scale (notes of 1 to 3 were considered resistant; notes of 3 to 6 intermediate resistance; and notes of 6 to 9 susceptible). Eight Mesoamerican genotypes were susceptible to at least 12 isolated from fourteen genotypes tested (Table 1). However, genotypes 'Ouro Negro', 'Diamante Negro' and 'BRSMG Majestoso' were resistant to 17, 15 and 17 isolates, respectively, among the twenty-four isolates tested. These genotypes also showed the lowest levels of severity. The cultivar 'Ouro Negro' (black group) has high productivity and good cooking qualities, which was recommended in 1991 (Araújo et al., 1991), and introduced as Honduras 35 in Brazil. Alzate-Marin et al. (2004) reported that the cultivar 'Ouro Negro' was tested with 24 isolates of *U. appendiculatus* from ninety-four isolates retained by USDA ("Beltsville United States Department of Agriculture"), showing resistance reaction to 22 races, intermediate resistance to one race, and susceptibility only to race 108. Ouro Negro cultivar has also good combining ability in crosses with cultivars like "carioca" (Faleiro et al., 2002). In addition, it has a resistance to anthracnose gene designated Co-10 (Alzate-Marin et al., 2003). Sartorato (2006) evaluated the reaction of 28 bean genotypes for resistance to eight races of *P. griseola*, and noted that 'Ouro Negro' showed higher degree of resistance. In summary, we showed greater resistance of 'Ouro Negro' cultivar to isolates of *P. Griseola* tested, than previously reported. These results confirm the great difficulty in the identification of genotypes with broad resistance to angular leaf spot.

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Table 1. Reaction of twenty-five genotypes of common bean to 24 isolates of *P. griseola* collected in the state of Minas Gerais, Brazil.

Genotypes	Races (isolates) of <i>P. griseola</i>																							
	15.7 (A ₁ 13)	63.7 (A ₂ 4)	63.63 (A ₂ 12)	63.63 (B ₁ 46)	63.47 (B ₃ 8)	47.39 (B ₄ 4)	31.4 (B ₄ 6)	63.63 (B ₇ 50)	63.63 (C ₁ 1)	3.23 (C ₁ 17)	63.6 (C ₂ 28)	23.23 (C ₂ 10)	63.63 (CM ₁ 2)	63.31 (CM ₃ 11)	63.7 (Cb20)	31.7 (Cb21)	63.63 (SM ₂ 11)	63.63 (SM20)	63.63 (SM28)	63.23 (SM32)	63.23 (Vic3)	63.63 (Vic7)	63.23 (Ma14)	63.63 (AJ12)
BI-1	3.4*	5.8	5.5	5.0	4.0	6.6	2.5	5.3	4.8	6.0	6.0	7.2	2.6	3.2	4.2	3.0	4.6	7.7	3.1	4.0	2.5	5.2	3.8	4.2
BI-2	2.5	7.3	5.9	5.6	2.8	4.0	3.8	5.4	6.1	5.0	3.5	4.1	4.0	3.5	5.2	4.9	6.2	5.5	2.5	1.4	7.9	5.0	4.6	3.6
BI-3	6.0	2.5	3.6	3.4	7.1	5.5	4.0	5.0	3.2	2.1	3.1	6.0	4.6	5.5	4.1	5.9	7.2	7.1	1.7	3.7	3.7	4.0	5.8	7.0
BI-4	3.7	3.8	4.9	6.7	5.4	3.5	1.9	4.1	1.9	3.8	3.4	5.5	7.4	3.0	7.6	4.0	4.0	3.6	2.6	7.0	5.6	3.8	6.0	4.2
BI-5	5.5	6.1	6.0	3.5	3.1	7.9	3.9	3.1	4.0	3.0	1.7	5.1	3.3	4.7	5.1	3.8	4.2	3.6	2.6	1.1	4.0	3.1	6.2	3.1
BI-6	3.1	5.0	6.0	7.0	4.8	5.5	7.2	5.0	7.1	2.2	3.4	3.1	4.6	1.9	6.0	5.5	3.5	8.6	4.2	5.0	4.3	6.0	2.7	3.5
BI-7	4.2	4.5	4.2	3.8	8.5	4.7	3.3	5.6	4.5	4.3	3.7	5.2	4.2	2.9	7.1	3.1	4.4	3.6	1.6	4.5	4.3	3.5	5.1	1.5
BI-8	3.0	7.0	3.9	4.4	2.0	4.6	2.9	5.7	3.3	8.0	3.8	2.5	3.6	3.1	4.5	5.5	8.4	4.5	2.4	4.1	8.0	3.5	4.9	5.1
Jalo EEP 558	1.5	4.5	4.1	2.8	5.0	7.5	3.0	2.5	6.6	4.7	2.1	3.8	2.0	5.4	6.1	3.2	7.5	5.8	5.5	4.9	3.0	6.0	3.8	3.4
Jalo MG 65	3.5	5.4	5.3	5.0	6.5	3.0	2.2	6.0	5.0	4.5	3.9	3.7	5.2	6.1	2.0	3.4	7.0	6.6	3.5	2.2	6.3	4.1	5.0	3.5
CAL 143	4.3	2.5	5.5	3.3	4.0	4.0	7.0	5.9	4.1	2.3	4.5	1.2	4.6	3.9	4.0	6.0	3.6	4.3	2.3	3.7	4.0	1.1	7.7	2.8
Rudá	8.0	9.0	7.2	7.9	8.3	7.5	8.2	5.6	8.6	7.5	6.7	7.8	8.0	5.0	6.4	8.9	6.0	8.8	5.5	7.5	8.1	8.9	6.6	9.0
Rudá R	8.6	7.0	6.9	7.2	8.3	8.7	7.2	6.5	7.7	7.1	8.2	6.9	8.0	7.5	6.8	4.8	7.8	8.6	7.4	7.6	8.7	4.6	7.0	6.8
Pérola	4.2	4.0	6.4	4.4	3.6	4.3	6.2	5.3	2.9	3.1	7.0	5.3	5.4	6.2	4.2	3.2	3.6	2.5	6.6	7.9	6.2	1.1	4.4	5.0
Pérola R	6.0	6.6	5.0	5.7	5.3	7.8	4.1	5.1	6.7	4.0	4.5	6.3	2.6	5.3	5.0	7.0	7.6	5.0	5.8	3.0	8.6	7.1	1.7	5.9
BRSMG Talismã	3.5	3.9	3.7	7.0	2.9	1.7	4.2	3.0	5.5	3.0	2.8	6.1	4.4	7.7	2.7	4.3	3.5	3.3	5.2	1.5	7.1	7.3	2.9	8.8
VC-6	2.8	7.5	8.2	2.2	6.4	8.0	6.7	4.9	3.1	6.8	7.2	6.1	4.1	7.0	3.9	8.0	8.0	4.3	7.0	1.4	6.0	5.1	2.0	5.0
BRSMG Madrepérola	3.0	4.2	7.6	8.0	8.9	2.2	3.5	6.1	6.5	4.2	7.0	8.2	3.0	7.6	2.6	3.4	8.7	4.7	6.4	3.5	7.1	7.2	1.1	8.0
BRSMG Majestoso	1.9	1.2	4.0	1.2	1.8	6.2	2.9	1.0	1.7	2.0	3.1	1.1	2.0	3.5	1.7	1.1	1.2	1.2	1.8	6.5	3.2	1.9	2.4	7.0
Diamante Negro	3.4	6.9	2.5	1.5	4.0	1.2	1.9	2.7	4.0	2.2	2.1	3.0	4.3	2.1	6.0	2.0	1.1	2.8	6.5	5.0	6.7	3.5	2.0	1.1
Ouro Negro	1.9	1.4	2.5	3.5	2.5	2.7	5.5	1.2	2.7	6.8	1.3	2.9	2.5	3.4	1.2	4.4	1.8	3.0	2.0	6.1	1.7	2.6	3.0	6.6
Meia Noite	7.9	6.4	8.6	7.2	4.2	9.0	8.2	6.0	6.7	2.8	2.0	8.5	5.5	5.9	3.1	7.6	7.8	7.5	5.8	8.0	7.7	5.0	4.7	6.0
Valente	6.5	4.1	8.0	1.5	7.2	7.5	3.0	6.2	2.9	7.3	8.0	3.3	4.1	6.6	5.0	1.2	5.3	5.5	7.3	6.0	4.4	7.1	5.4	7.7
Ouro Vermelho	9.0	8.7	7.0	4.6	9.0	8.2	7.6	8.7	7.0	9.0	8.6	9.0	9.0	7.7	6.6	5.0	7.2	8.2	5.6	9.0	8.6	2.9	7.0	7.3
Vermelhinho	8.2	8.4	7.9	8.2	6.7	7.6	9.0	7.7	8.6	9.0	4.4	2.8	7.7	8.1	9.0	9.0	9.0	8.8	7.1	8.5	8.4	6.4	6.0	8.2

* Severity averages were calculated by evaluating twelve plants of each genotype.