

## RESISTANCE OF ANDEAN AND MESOAMERICAN COMMON BEAN GENOTYPES TO *Phaeoisariopsis griseola*

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In Brazil, common bean is the most important protein source for the low-income people. In this country, this leguminous crop is the host of innumerable fungus diseases including angular leaf spot caused by the fungus *Phaeoisariopsis griseola*. Losses due to this disease can be as high as 70% depending on the cultivar genetic background, environment conditions and the pathogenicity of its causal agent. Earlier studies have demonstrated that this fungus is pathogenically highly variable. In Brazil it has already been identified about 51 pathotypes. This disease can be controlled by cultural practices, fungicide spraying and host resistance. The objective of this study was to determine the resistance of 179 bean genotypes of both Andean and Mesoamerican origin to eight pathotypes of *P. griseola* under greenhouse conditions.

Bean seeds were sown in aluminum pots containing 2.0 kg of soil and five seeds per pot, 14 to 16 days before inoculation. Spores for inoculation were obtained by culturing the fungus on bean leaf-dextrose-agar medium in a Biochemical Oxygen Demand chamber at  $24 \pm 2^\circ\text{C}$ . After 14 days, inoculum was prepared by adding 5-10 ml of sterile distilled water to each plate and scraping the surface of culture. The obtained spore suspension was then filtered through a double layer of cheesecloth and the inoculum concentration adjusted to  $2 \times 10^4$  conidia  $\text{ml}^{-1}$ . Bean plants were then inoculated at the V3 development stage. Inoculated plants were incubated in a moist chamber (>95% RH) for 36-48 h. Plants were transferred to greenhouse benches for another 14-18 days and evaluated for symptoms according to the 1-9 descriptive scale. Plants rating from 1 (no visible disease symptoms) to 3 (a few small non-sporulating lesions) were considered as resistant and from 4 (presence of several small sporulating lesions) to 9 (presence of abundant large sporulating lesions) as susceptible. When inoculated plants in the greenhouse showed symptoms but no sporulation, they were transferred to a moist chamber for 20-24 h. After this period of time, plants exhibiting non-sporulating lesions were considered resistant.

From the 179 genotypes tested, only 39 (Table 1) showed resistance to one or more pathotypes. Most genotypes were resistant to a few pathotypes. However, genotypes Ouro Negro, LM 202202530, Ecuador 299, Requite and Cornell 49242 were resistant to 8, 7, 6, 5 and 4 pathotypes, respectively. Only the variety Ouro Negro presented resistance to all *P. griseola* pathotypes used. Most germplasm showed resistant/susceptible (R/S) reaction to the majority of the pathotypes. If any of these germplasm show other agronomic characteristic of interest to the breeders, they could be selected for their angular leaf spot resistance and could be introduced in the breeding program again to generate new common bean cultivar.

Table 1. Reaction of 39 genotypes to *Phaeoisariopsis griseola*, the causal agent of angular leaf spot in common bean. Embrapa Rice and Beans, Goiânia, GO, Brazil.

GENOTIPE	PATHOTYPES							
	63-39	63-23	63-15	31-31	63-55	63-63	63-31	63-47
AND 061	S <sup>1</sup>	S	S	S	S	R <sup>2</sup>	S	S
AND 081	S	S	R	S	S	S	R	S
AND 083	S	R	S	R	S	S	S	S
AND 135	S	R/S <sup>3</sup>	S	X <sup>4</sup>	S	R	X	X
AND 137	S	R	S	R	S	S	R	S
AND 139	S	R	S	R	S	S	S	S
AND 141	S	R	S	S	S	S	S	S
AND 163	S	S	R	R	S	S	R	S
AND 181	S	R/S	S	R	S	S	R	S
AND 240	S	S	R/S	R	S	S	R	S
AND 667	R/S	S	R/S	X	X	X	X	X
AND 673	R/S	S	S	R	S	S	R	S
AND 696	R/S	R/S	R/S	X	X	X	X	X
CNFC 9504	S	S	S	S	S	S	R/S	S
CORNELL 49242	S	R/S	R/S	R	S	S	R	S
ECUADOR 299	S	R	R/S	R/S	R/S	S	R	R
GRAFITE	S	R	S	S	S	S	R/S	R/S
LM 202202530	R/S	R/S	R/S	R/S	R/S	S	R/S	R/S
LM 202202858	R/S	S	S	S	S	S	R	S
LM 202204185	S	S	S	S	S	S	R/S	R/S
LM 202204189	R	S	S	S	S	S	R/S	S
LM 202204502	R	S	S	S	R	S	R/S	S
LM 202204503	R	S	S	S	S	S	R	R
LM 202204511	S	S	S	S	R/S	S	R	R/S
LM 202204518	R	S	S	S	R	S	R	S
LM 202204525	R/S	S	S	S	S	S	R	R/S
LM 202204595	R/S	S	S	S	R/S	S	R/S	S
LM 202204612	S	S	S	S	S	S	R	R/S
LM 202204614	R/S	S	S	S	S	S	R/S	S
LM 202204624	S	S	S	S	R/S	S	R/S	R/S
LM 202204641	R/S	S	S	S	S	S	S	R
LM 202204676	S	S	S	S	R	S	R	R/S
MAR 002	R	S	S	S	S	S	S	S
MAR 003	R	R	S	R	S	S	S	S
MÉXICO 168	S	S	R	S	S	S	S	S
OURO NEGRO	R/S	R	R/S	R	R	R/S	R	R/S
PIATÁ	S	R/S	S	S	R/S	S	S	S
PONTAL	S	R	R	S	S	S	R	S
REQUINTE	S	R	R/S	R/S	S	S	R	R/S

<sup>1</sup>S=Susceptible; <sup>2</sup>R=Resistente; <sup>3</sup>R/S=Resistente/Susceptible; <sup>4</sup>No information available.