

Research Note

REACTION OF LANDRACE POMPADOUR BEANS TO MACROPHOMINA PHASEOLINA ISOLATES

In recent years, ashy stem blight (*Macrophomina phaseolina*) has caused reductions in experimental and commercial plantings of beans in Puerto Rico and the Dominican Republic.² Stem rot symptoms have been observed in the field when bean plants were in the seedling stage, and more frequently in older plants near senescence.^{2,3}

Therefore, the genotypes with resistance to *M. phaseolina* should be identified. Thirteen bean genotypes from the Pompadour landrace collection were used in a factorial arrangement of a randomized complete block with four replications. Three bean seeds per genotype were planted in 15-cm diameter plastic pots containing Promix and

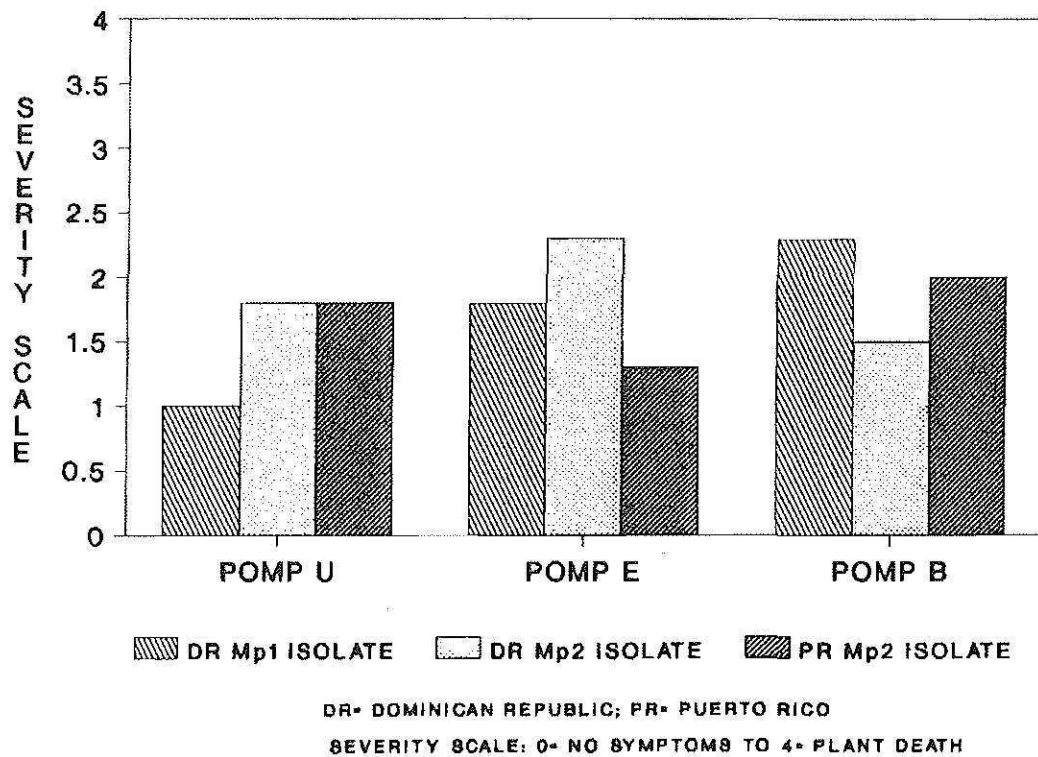


FIG. 1.—Pompadour (Pomp) genotypes with moderate resistance to *M. phaseolina*.

¹Manuscript submitted to Editorial Board 25 January 1991. We thank James S. Beaver for his help in statistical analysis.

²Anonymous, 1985. Annual Technical Report Dominican Republic/University of Puerto Rico Bean/Cowpea CRSP Project.

³Echávez-Badel, R. and J. S. Beaver, 1987. Resistance and Susceptibility of Beans, *Phaseolus vulgaris* L., to Ashy Stem Blight, *Macrophomina phaseolina* (Tassi) Goid. *J. Agric. Univ. P. R.* 71(4): 403-405.

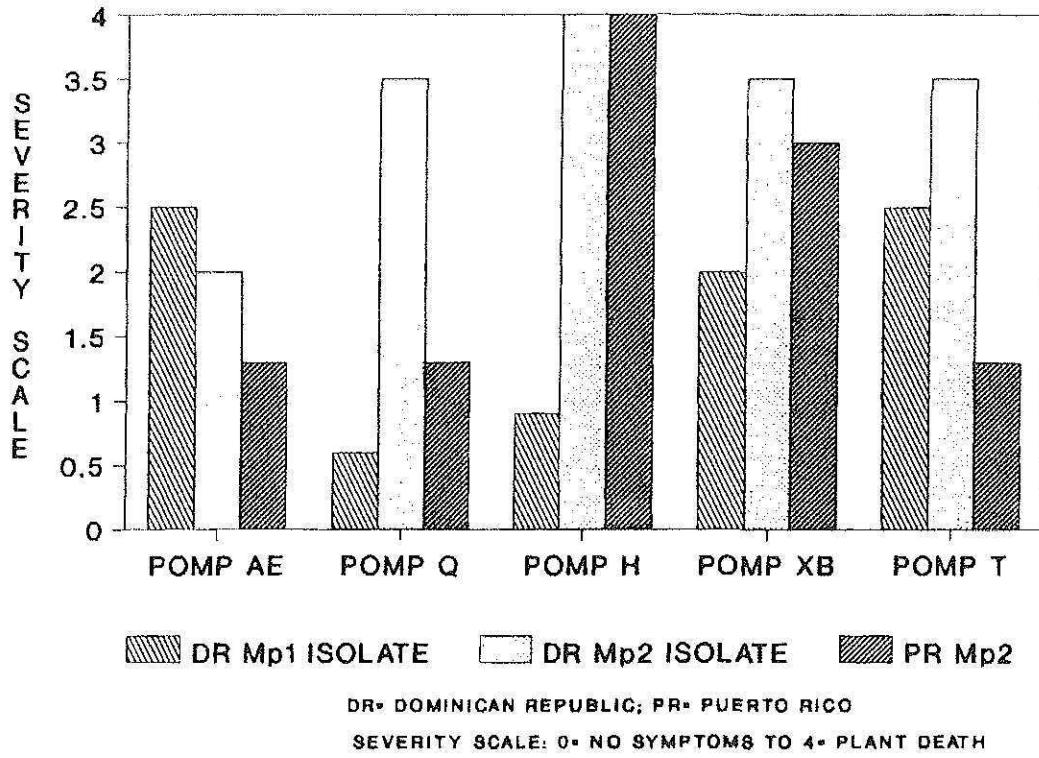


FIG. 2.—Reaction of Pompadour (Pomp) beans to *Macrophomina phaseolina* (Mp) Isolates.

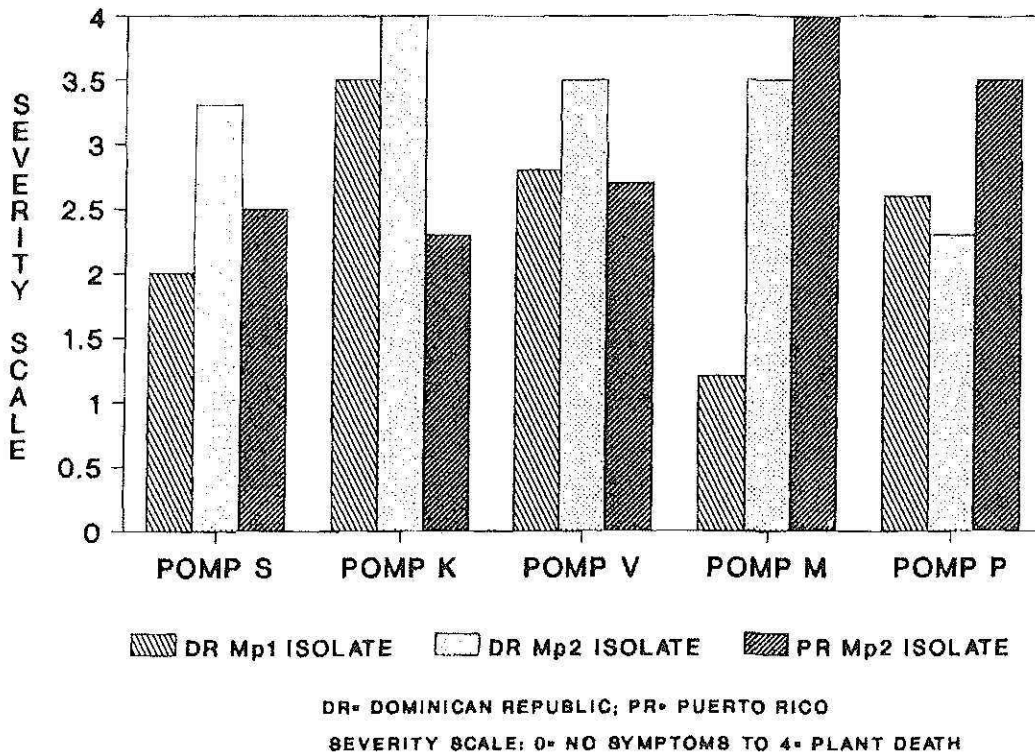


FIG. 3.—Reaction of Pompadour (Pomp) beans to *Macrophomina phaseolina* (Mp) Isolates.

sandy-loam sterile soil (1:2) under greenhouse conditions. Plants were watered twice per week; temperature ranged from 28°C to 32°C. Two *M. phaseolina* isolates from the Dominican Republic (DRMp1 and DRMp2) and one from Puerto Rico (PRMp2) were cultured from diseased stems in acidified potato-dextrose-agar. Each inoculum was applied on toothpicks soaked with sterile-maize meal dextrose broth. Inoculations were made 30 days after planting by inserting infested toothpicks into stems near the cotyledonary nodes.³

A visual scale of 0 (no symptoms) to four (plant death) was used to measure the ashy stem blight severity. The *M. phaseolina* susceptible RIZ 44 genotype was also used as an indicator in order to evaluate for disease symptoms on Pompadour germplasm. Readings were made at 10, 20 and 30 days after the inoculation. All data were statistically analyzed.

Genotype-disease severity interactions were highly significant ($P < 0.01$). This demonstrates that distinct host variation existed among the Pompadour genotypes (fig.

1,2,3). This finding agrees with varietal differences in resistance to ashy stem blight reported in common beans.^{4,1} Pompadour U, Pompadour E, and Pompadour B genotypes have shown moderate levels of resistance to *M. phaseolina* isolates (fig. 1). Pathogenicity was highly variable among the different isolates. The Dominican isolate DR Mp2 was most pathogenic (fig. 1,2,3). It is important to note that the latter isolate attacks bean plants in soils with high moisture in the Dominican Republic. In contrast, *M. phaseolina* has been reported attacking bean in drought-stressed areas of Latin America⁶ and Puerto Rico.³ Apparently, the DRMp2 could be another race of *M. phaseolina*. Further epidemiological and biological studies of the three isolates are necessary for confirmation of this finding.

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⁴Pastor-Corrales, M. A. and G. S. Abawi, 1986. Evaluation of selected bean accessions for resistance to *Macrophomina phaseolina*. *Phytopathology* 76: 1064 (Abst.).

⁵Sanders, J. H. and H. F. Schwartz, 1980. Bean production and pest constraints in Latin America. In: H. F. Schwartz and G. E. Gálvez, eds., *Bean Production Problems: Diseases, Insect, Soil, and Climatic Constraints of Phaseolus vulgaris L.* CIAT, Cali, Colombia.