

## CONTRIBUTION TO INCREASE THE USEFULNESS OF THE PRESENT DIFFERENTIAL SERIES FOR COMMON BEAN ANGULAR LEAF SPOT

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Common bean is among the two most important cultivated leguminous crops in Brazil. It is the host of a large number of diseases including fungi, bacteria, viruses and nematodes. Among them, angular leaf spot, caused by the fungus *Phaeoisariopsis griseola* (Sacc.) Ferr., is one of the most important. Losses due to the disease can be as high as 70%. Although it can be controlled by fungicides, the safest and most effective way to control the disease is through genetic resistance. However, the pathogen has demonstrated to be highly variable showing a large number of pathotypes. As a result, the breeding programs need to constantly monitor the pathogen variability and to identify new resistance genes to be transferred into local cultivars.

In an effort to standardize the methodology for pathotype identification, CIAT (International Center for Tropical Agriculture) held, in 1995, the First International Angular Leaf Spot Workshop when a set of 12 differential cultivars was established. However, three of these cultivars, the mesoamerican cultivar Mexico 54 and the andean cultivars G 11796 and Bolón Bayo cannot reproduce in some environments, such as the states of Central Brazil, probably due to sensitivity to day length. As a consequence, this set of differential cultivars cannot be adopted worldwide. At least two alternatives can be proposed to solve this problem: (i) replacement of the differential series with a new set of cultivars or (ii) transfer of the resistant genes present in the three genotypes mentioned to cultivars with broader environmental adaptation.

In Brazil, Nietsche *et al.* (1997) inoculated the differential series proposed by CIAT with more than 60 *P. griseola* isolates. The results showed that cultivar G 11796 was susceptible to all of them and that cultivar Bolón Bayo was resistant to only one of them. On the other hand, our group verified that the andean line AND 277 is a novel resistance source that could be added to the differential series. In the cross between AND 277 and the mesoamerican cultivar Ruda the RAPD marker OPH 13 co-segregated with resistance gene *Phg-1* which is present in AND 277 (Carvalho *et al.*, 1997). The absence of this marker in the 12 differential cultivars for angular leaf spot suggests that this gene is present only in line AND 277. Therefore, we propose that AND 277 replaces the andean cultivar G 11796 as a differential line. We understand that México 54 and Bolón Bayo should also be replaced by cultivars with better adaptation to different environmental conditions and better discrimination capabilities to different pathotypes. We suggest that those interested on the common bean angular leaf spot should concentrate efforts to replace the three mentioned differentials. Our group at the Universidade Federal de Viçosa/BIOAGRO, Viçosa - MG and at Embrapa - Arroz e Feijão, Goiania, GO, Brazil is presently testing different genotypes for that purpose.

#### REFERENCES

- CARVALHO, G.A., NIETSCHKE, S.; ALZATE-MARIN, A.L.; FERREIRA, C.F.; PAULA JR., T.J.; FALEIRO, F.G.; BARROS, E.G.; MOREIRA, M.A. Identificação de marcadores RAPD ligados a genes de resistência à mancha-angular do feijoeiro. *Fitopatologia Brasileira*, 22:255. 1997. (Supplement)
- NIETSCHKE, S.; CARVALHO, G. A.; BORÉM, A.; PAULA Jr., T.J.; FERREIRA, C. F.; BARROS, E. G. & MOREIRA, M. A. Variabilidade patogênica de *Phaeoisariopsis griseola* em Minas Gerais. *Fitopatologia Brasileira* 22:289. 1997. (Supplement)