SUMMARY

IDENTIFICATION OF GENES LINKED TO THE RESISTANCE IN ANGULAR STAIN (*Phaeoisariopsis griseola* Sacc. Ferraris) IN RECOMBINANT LINES OF BLACK BEAN

Angular leaf spot is a disease caused by the fungus *Pheoisariopsis griseola*, Sacc., Ferraris, which mainly affects common bean (*Phaseolus vulgaris* L.). It has been reported in the states of Veracruz and Chiapas, causing yield losses up to 80%. Molecular assisted selection (MAS) is an alternative for obtaining genetic materials resistant to the angular leaf spot and thus maintain good yield performance. The objective of this work was to identify breeding lines resistant to angular leaf spot bean using the SH13, SN02 and PV-atct 001 molecular markers. Sixty six bean genotypes were evaluated, of which 50 were advanced recombinant lines (RL) from three crosses Negro Papaloapan/SEN-46 (Pob1), Negro Citlali/XRAV-187-3 (Pob2) and Jamapa Plus/XRAV-187-3 (Pob3); as well as 16 commercial varieties (Pob4), where the presence of the genes *Phg-1*, *Phg-2* and *PV-atct 001* was sought. The molecular results were compared with the severity index of the RL observed in seven different environments by using analysis of molecular variance (AMOVA), genetic distance of Nei and test of estimated population diversity. Gene *PV-atct 001* was absent in all genotypes evaluated; while gene *Phg-1* was present in 17 genotypes. Gene *Phg-2* was absent only in two RL, Negro Citlali/XRAV-187-3-2-5, Jamapa Plus/XRAV- 187-3-4-1 and the improve cultivar Negro Cotaxtla-91. RL that showed high or intermediate resistance levels to angular leaf spot in the field had both genes, *Phg-1* and *Phg-2*; so, with the use of these molecular markers it is possible to identify if a genotype will behave resistant to the angular spot. The only RL that showed resistance and that does not have the desired genes was Jamapa Plus/XRAV-187-3-1-8; so it is advisable to use more molecular markers to identify other resistance genes in these LRs and thus strengthen the MAS technique. The study of diversity indicated that *Phg-1* gene was present in 17 % of population; 25 % in Pob2; 50 % in Pob3; and 37 % in Pob4; while *Phg-2* gene was 100 % present in Pop1; 91 % in Pob2; 75 % in Pob3; and 93 % in Pob4. The AMOVA indicated that there was a difference in genetic diversity among populations, but, diversity was reduced within them. The calculated Nei distance suggests that the RL populations are separated from each other.

Key words: Angular leaf spot, *Phaeoisariopsis griseola*, *Phaseolus vulgaris* L., MAS.