SCAR MARKER LINKED TO ANGULAR LEAF SPOT RESISTANCE GENE IN COMMON BEAN

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The broad geographic distribution of bean angular leaf spot in Brazil, where it has been the cause of severe crop losses in several areas, places it among the most destructive bean diseases. The development and use of resistance cultivars currently offer the only economical means of disease control, mainly to medium and small size farmers. However, the pathogenic variability of *Phaeoisariopsis griseola* complicates the development of such cultivars.

RAPD markers have been used to monitor disease resistance genes in a variety of crops. However, this technique has been known for its sensitivity to many factors that reduce reproducibility mainly among different laboratories. Sequence Characterized Amplified Regions (SCAR) are highly specific genetic markers which may overcome this problem.

The objective of this study was to develop a SCAR marker linked to the resistance gene *Phg*-2 present in cultivar Mexico 54. The RAPD band was excised from the agarose gel, purified with the Glass max^{tm} DNA Isolation Matrix System (BRL) and cloned in the vector pGEM-T Easy (Promega). Colonies were grown in LB medium containing 100 μg/mL ampicilin and the plasmid was purified with the QIA Prep Spin Miniprep kit (Qiagen). The clone was partially sequenced by the ABI PRISM 310 Genetic Analyzer (Perkin-Elmer) using the M13 universal primers. Two primers of 20 nucleotides each were synthesized based on the sequencing data: SCAROPN 02F (5' **ACCAGGGGCA**TTATGAACAG 3') and SCAROPN 02R (5' **ACCAGGGGCA**ACATACTATG 3'). These primers were tested in the F_2

population of the cross Mexico 54 x Ruda. The polymorphism revealed by the SCAR primers (Fig. 1) is identical to the one revealed with the RAPD marker.

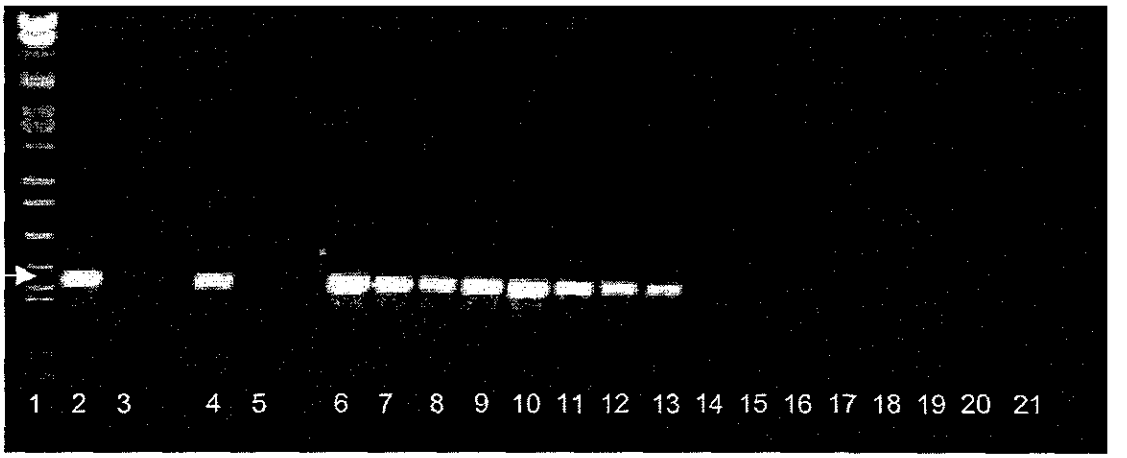

Fig. 1. Electrophoretic analyses of amplification products of DNA obtained with the OP N02 SCAR primers. Lanes are as follows: 1, lambda phage DNA digested with *Eco*RI, *Bam*HI and *Hind* III (size markers); 2, resistant cultivar (Mexico 54); 3, susceptible cultivar (Ruda); 4, resistant bulk; 5, susceptible bulk; 6-13, resistant F_2 plants; 14-21, susceptible F_2 plants. Arrow indicates the polymorphic DNA band.

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