

Characterization and mapping of a gene component for durable leaf rust resistance in chromosome arm 7BL

S. A. HERRERA-FOESSEL (1), R. P. Singh (1), J. Huerta-Espino (2), E. S. Lagudah (3)

(1) CIMMYT, Mexico D.F., MEXICO; (2) INIFAP, Mexico D.F., Mexico;

(3) CSIRO Industry, Clayton South, Australia

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Durable resistance to leaf rust (*Puccinia triticina*) is governed by genes that confer slow rusting and have small to intermediate effects but act additively. Identification of individual slow rusting resistance genes is limited to two catalogued genes *Lr34* and *Lr46*. 'Parula' is known to confer high levels of durable leaf rust resistance. Previous QTL analysis using a F6 population from the cross with susceptible 'Avocet' showed that the resistance in Parula involved three independent loci on chromosome arms 1BL (*Lr46*), 7DS (*Lr34*) and 7BL. Two F6 lines from the above population, identified to carry the single resistance allele on 7BL, were crossed with a highly susceptible line and single gene based mapping populations containing 396 F5 RILs developed for further mapping studies. The populations were characterized for resistance for two years in Cd. Obregon, Mexico, under high leaf rust pressure and polymorphic SSR and other 7BL markers used for genotyping. Leaf rust resistance in RILs could be classified as a simply inherited Mendelian trait and confirmed the location of resistance gene based on close linkage with several markers on 7BL. Deletion mutants are being developed for fine mapping to develop tightly linked molecular markers.