Linkage Mapping of Powdery Mildew and Greenbug Resistance Genes on Recombinant 1RS from 'Amigo' and 'Kavkaz' Wheat-Rye Translocations of Chromosome 1RS.1AL. (C01-mater185156-Poster)

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Abstract:

Rye chromosome arm 1RS of Kavkaz translocation (1RSV) carries genes for disease resistance (e.g. Lr26 , Sr31, Yr9, and Pm8), while 1RS of Amigo translocation (1RSA) carries a single resistance gene for greenbug biotype B and C and also carries disease resistance genes. The purpose of this research was to study the recombination of 1RSV.1AL and 1RSA.1AL using molecular and phenotypic markers. A cross between Nekota (1RSA.1AL)and Pavon 76 with 1RSV.1AL was made to generate homologous recombination between the two 1RS sources. Eighty BC1F2 families <(Nekota 1RSA.1AL X Pavon 1RSV.1AL) X Nekota 1AL.1AS> were genotyped based on the secalin-gliadin grain storage protein banding pattern using polyacrylamide-gel electrophoresis to detect 1AL.1AS/1AL.1RS heterozygotes from the 1AL.1RSA+V and 1AL.1AS homozygotes. Segregation of secalin locus and PCR markers based on the R173 family of rye specific repeated DNA sequences demonstrated the presence of recombinant 1AL.1RSA+V families. Powdery mildew and greenbug resistance genes on the recombinant 1RSA+V arm of chromsome 1AL.1RSA+Vwere mapped in relation to Sec-1 locus, two additional protein bands, three SSRs and 11 RFLP markers.

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