

Research Article

Inheritance of Field Resistance to Rust (*Uromyces viciae fabae*) in Lentil

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Abstract

Inheritance of field resistance to rust (*Uromyces vicia fabae*) was studied in eight lentil genotypes viz., Markanday (EC 1), Vipasha (HPL5), Precoz, DPL 61, L 7107, IPL 131, IPL 138, and L 101. The F₁s from the crosses of the test genotypes with highly susceptible cultivar L 830 were resistant, indicating that resistance was controlled by dominant genes. The F₂ plants in crosses L 830 x L 101, Markandey x L 830, L 830 x Vipasha and Precoz x L 830 segregated into 15:1 resistant (R): susceptible (S) ratio inferring that resistance in genotypes L 101, Markandey, Vipasha, and Precoz was governed by two independent dominant genes. The F₂₋₃ plant progenies from these crosses except L 830 x Vipasha segregated into 7 Homozygous Resistant (HR): 8 segregating (Seg): 1 Homozygous Susceptible (HS) ratio thereby, confirming the presence of two independently inherited dominant genes for resistance in genotypes L 101, Markandey and Precoz. In crosses, DPL 61 x L 830 and IPL 138 x L 830 the F₂ plants segregated for rust reaction into 3 R: 1 S and F₂₋₃ plants segregated into 1 HR: 2 Seg.: 1 HS ratio, confirming the presence of a single dominant gene for rust resistance in genotype DPL 61 and IPL 138. The F₂ plants in cross L 830 x L 7107 segregated into 9 R: 7 S ratio and F₂₋₃ plants segregated into 1 HR: 8 Seg. : 7 HS ratio showing that resistance in L7107 was governed by two dominant complementary genes. Among the resistant x resistant crosses, no segregation was recorded in most of the crosses involving parents, Precoz, DPL 61, L 7107, IPL 131, IPL 138, and L 101 indicating that one or more resistance genes in these genotypes were common. However, crosses Markandey x Precoz, Markandey x IPL 131, Markandey x L 7107 segregated for resistance and susceptibility, indicating that resistance in genotype Markanday (EC 1), was governed by different genes.

Key words: Genetics of field resistance, inheritance, lentil, rust, *Uromyces viciae fabae*

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