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INHERITANCE OF RUST RESISTANCE IN LENTIL

CHUNI LAL, S. K. SHARMA AND R. K. CHAHOTA

Department of Plant Breeding & Genetics, Himachal Pradesh Agricultural University Palampur 176 062

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Seven pure breeding lines of *microsperma* (Dwarf I, ILL 6824, L 259, L 830, SKL 259 and EC 158867) and *macrosperma* (Precoz) lentils were tested in glasshouse for their reaction to rust (*Uromyces fabae* f. sp. *lentis*). Only the *macrosperma* genotype Precoz was found to be resistant. All *microsperma* genotypes showed susceptible reaction. The cv. Precoz was crossed with six susceptible lines. The F_1 and F_2 generations of these crosses along with parental genotypes were also grown in glasshouse. Spore suspension of lentil rust was sprayed periodically on the plants. Temperature and humidity conditions in the glasshouse were kept congenial for heavy incidence of lentil rust. The disease reaction was observed by classifying all the disease-free plants as resistant and those with varying degree of fungal growth as susceptible. In all crosses, resistance was dominant in the F_1 generation (Table 1). The pattern of F_2 segregation in the six crosses revealed resistance to be controlled by duplicate dominant genes in Precoz (15 resistant : 1 susceptible). The χ^2 test indicated good fit to this ratio (Table 2). However, Singh and Singh [1] studied the inheritance of rust

Table 1. Segregation pattern of rust reaction in six intervarietal crosses of lentil

Cross	F_1 phenotype	Number of F_2 plants		χ^2 (15:1)	$P_{0.05}$
		resistant	susceptible		
Dwarf I x Precoz	Resistant	259	13	1.00	0.30–0.50
ILL 6824 x Precoz	Resistant	57	4	0.01	0.90–0.95
L 259 x Precoz	Resistant	34	2	0.03	0.80–0.90
L 830 x Precoz	Resistant	42	2	0.22	0.50–0.70
SKL 259 x Precoz	Resistant	67	4	0.05	0.80–0.90
EC 158867 x Precoz	Resistant	69	4	0.70	0.70–0.80
Pooled	Resistant	528	29	1.03	0.30–0.50
Homogeneity test				χ^{2d}	0.17 (Not significant)

resistance in crosses involving *microsperma* resistant lines (PL-406, PL-639, LG-120 and UPL-175) and susceptible parent (Rau 101). The inheritance was controlled by a single dominant gene. Similar conclusions were drawn by Sinha and Yadav [2] in the crosses of *microsperma* genotypes. The duplicate dominant type of inheritance for rust resistance could be due to the genetic background of the *macrosperma* lentil resistant variety Precoz used in the present study.

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