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INHERITANCE OF FIELD REACTION TO WHITE RUST IN INDIAN MUSTARD

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Inheritance of field reaction to white rust [*Albugo candida* (Pers) Kuntz] was studied in four intervarietal crosses of mustard [*B. juncea* (L.) Czern and Coss]. The only strain Pl-15, isolated from DIRA-313 population, was found resistant under field condition both in Delhi and Wellington (Nilgiri Hills). This strain was immune to white rust under conditions where other lines showed high degree of susceptibility. Scoring of white rust infection was done on 0-5 scale [1].

The susceptible parents used in crosses were: No. 686, Nc 57687, Nc 59019 and Nc 62571. The F_1 and F_2 generations of these four crosses along with parent genotypes were grown at the Regional Research Station, Wellington, in the off-seasons (June-September) during 1990 and 1991, respectively. The climatic conditions of Wellington were congenial for heavy incidence of white rust in both the seasons. In all these four crosses, resistance was found to be dominant in F_1 generation (Table 1).

Tiwari et al. [2] also observed resistance to be a dominant trait in the crosses between resistant and susceptible varieties in *B. juncea* under controlled conditions. Verma and

Table 1. Field reaction to white rust in four intervarietal crosses of Indian mustard

Cross	F_1 plants		F_2 plants		χ^2 (3:1)	P
	R	S	R	S		
No. 686 x Pl-15	20	0	58	17	0.214	0.50–0.95
Nc 57687 x Pl-15	20	0	56	16	0.293	0.50–0.95
Nc 59019 x Pl-15	20	0	52	16	0.080	0.50–0.95
Nc 62571 x Pl-15	20	0	63	27	1.200	0.20–0.30
Pooled	80	0	229	76	1.787	0.50–0.95
Heterogeneity test						0.50–0.95

Bhowmik [3] reported resistance to be dominant in the crosses between resistant and susceptible types of *B. napus*.

In all the four crosses (Table 1), the pattern of F_2 segregation was monogenic, i.e. 3R:1S. The χ^2 test indicated good fit to this ratio. Different families were homogeneous for segregation. Tiwari et al. [2] also observed under glasshouse conditions that resistance was monogenic dominant as observed in our study. However, Verma and Bhowmik [3] observed that resistance was controlled by dominant duplicate genes in *B. napus* crosses. This could be due to difference in the infection pattern of *B. juncea* pathotype of *Albugo candida* in *B. napus* background.

Breeding for resistance against white rust in mustard is one of the major approaches to check yield loss. The resistant source Pl-15 had been identified in mustard (*B. juncea*). It would help the breeders to transfer the genes for white rust resistance in the high yielding cultivars of mustard. It can be easily transferred to susceptible types through backcrossing as resistance is controlled by a single gene.

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