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Short Communication

EVALUATION OF MUNGBEAN GENOTYPES FOR RESISTANCE TO POWDERY MILDEW

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Two hundred and sixty nine mungbean genotypes were tested for reaction to powdery mildew (*Erysiphe polygonii* DC) under natural epiphytotic conditions. Genotypes DHMC 9601, DHMC 9602 and DHMC 9603, DHMC 9604 were rated as high resistant and resistant respectively where 3 genotypes (DHMC 9605, DHMC 9606 and DHMC 9607) were scored as moderately resistant. These can be utilized in mungbean breeding programme.

Key words : Greengram, *Vigna radiata* L. Wilzek, powdery mildew *Erysiphe polygoni* DC. resistant sources

Powdery mildew (*Erysiphe polygoni* D.C.) is one of the major diseases predominant in most mungbean (*Vigna radiata* L. Wilezek) growing areas (Park and Yang, 1978). In India, it is a serious problem in Southern and Central regions (Grewal, 1978). The grain yield reductions could range from 20 to 40 per cent (Legaspi *et al.*, 1978) if the infection is at pod formation stage. However, there can be complete loss of the crop when the disease occurs at the seedling stage. The powdery mildew resistance in mungbean is reported to be governed by two dominant genes designated as Pm-1 and Pm-2 (Reddy, *et al.*, 1994). There can be additional genes for resistance in mungbean other than the two identified earlier. Thus there is a need to identify additional sources showing high degree of resistance to powdery mildew, not only for studying the genetics of powdery mildew but also for developing powdery mildew resistant cultivars through introgression of resistance genes.

The present study included screening of 269 mung genotypes maintained at IARI, Dharwad, for their reaction to powdery mildew under natural epiphytotic conditions in *kharif* 1996. The highly susceptible cultivar, K851, was planted after every ten test entries in an augmented design. Each entry was planted in single row plots, 3 m long and spacing of 0.45 m between rows and 0.1 m between plants. Visual observation on powdery mildew incidence was recorded at maximum pod formation stage adopting 0-5 scale (Reddy, *et al.* 1994) based on per cent leaf area infected.

The promising lines showing resistance/ moderately resistant reactions were reexamined for powdery mildew incidence in *kharif* 1998. The test entries were inoculated by shaking conidia from heavily infected leaves of the highly susceptible cultivar (K851) over young and older leaves at seedling and flowering stage. Visual scoring for powdery mildew was recorded as suggested above.

The lines showing resistance/moderate resistance were also evaluated for few important agronomic characters in *kharif* 1997. The material was grown in Randomised Block Design replicated

Table 1. Performance of mungbean genotypes resistance/moderately resistant to powdery mildew, *kharif*, 1997

Genotype	Grain Yield per plant (g)	100 seed weight (g)	Days to flowering	Days to maturity
Highly Resistant				
DHMC 9601	7.51	4.3	42	69
DHMC 9602	10.73	4.8	40	69
Resistant				
DHMC 9603	7.95	4.4	40	60
DHMC 9604	10.82	2.7	38	62
Moderately resistant				
DHMC 9605	6.16	2.2	43	71
DHMC 9606	9.42	2.3	42	70
DHMC 9607	8.13	2.3	44	72
Checks				
PS 16	5.70	2.9	37	60
Chinamung	8.28	4.9	38	62
Pusa 105	9.56	2.9	45	72
ML 5	8.24	2.8	43	70
ML 131	8.33	2.8	39	65

two times. Each entry was planted in single row plots in each replication, 3 m long, 0.3 m between rows and 0.1 m between plants. Observations were recorded on five competitive plants selected randomly from each plot in each replication.

Among the genotypes screened for powdery mildew, two genotypes consistently rated highly resistant (R_0), two resistant (R_1 or R_2) and three moderately resistant (MR). The remaining 141 lines were rated susceptible (S) while 121 lines showed highly susceptible (HS) reaction.

The performance of the resistant to moderately resistant genotypes for days to flowering, days to maturity seed size and grain yield per plant is given in Table 1. The resistant sources identified can be used in the mungbean breeding programme to enhance the productivity of genotypes in an economically and environmentally sustainable way by developing cultivars resistant to powdery mildew.

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