Field Evaluation of French bean (*Phaseolus vulgaris*) Genotypes Against Angular Leaf Spot Caused by *Phaeoisariopsis griseola*

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French bean (*Phaseolus vulgaris* L.) is an important pulse and vegetable crop of India. It is subjected to attack of a number of fungal, bacterial and viral diseases, which take away a heavy toll of the crop every year. Among the fungal diseases, angular leaf spot caused by *Phaeoisariopsis griseola* is an important disease in Jammu and Kashmir and other French bean growing states of India. In India, Srinivasan (1953) had first reported the prevalence of angular leaf spot of beans from various parts of Nilgiri plateau. Yield losses caused by this disease can be quite severe. It was up to 50% in USA (Hagedorn and Wade 1974) and 30-65% in Brazil (Dhingra and Kushalappa 1980). Since host resistance offers cost-effective and ecofriendly method for disease management, a field study was made to identify resistant genotypes available in Kashmir against *Phaeoisariopsis griseola*.

Materials and Methods

Forty two French bean genotypes were evaluated against angular leaf spot at Wadura, Sopore during 2005 and 2006. These genotypes were sown in the field during the last week of May in two row plots of 4.0 m length at a spacing of 40 x 20 cm in Randomized block design and recommended package of practices were adopted. Observations on disease severity were recorded under natural conditions and on the basis of disease severity, the genotypes were categorized by adopting the evaluation system given by Gupta et al 2000 for French bean with a slight modification as: highly resistant (HR) = 0%, resistant (R) = 0.1 to 10%, moderately resistant (MR) = 10.1 to 20%, moderately susceptible (MS) = 20.1 to 30%, susceptible (S) = 30.1 to 50% and highly susceptible (HS) = >50%. The genotypes were scored for disease reaction 15 d before leaf senescence by counting the number of spots on 10 leaflets at random from the same height of the plant.

Results and Discussion

None of the genotypes was found to be highly resistant against this disease (Table 1).

Only one genotype (EC-285559) showed a resistant disease reaction. Genotypes, viz, Sel-irradiated, EC-285582, Ladakhi, L-21, Uri-red and Sel-7 showed moderately resistant reaction. Genotypes L-29 and Hose-I were moderately susceptible and the rest were found to be susceptible.

Table 1. Disease reaction of French bean genotypes against angular leaf spot (pooled mean of 2005 and 2006)

Categories	Genotypes
Highly resistant (0)	Nil
Resistant (0.1-10%)	EC-285559
Moderately resistant (10.1-20%)	Sel-irradiated, EC-285582, Ladakhi, L-21, Uri-red, Sel-7
Moderately susceptible (20.1-30%)	L-29, Hose-I
Susceptible (30.1-50%)	EC-285582, Master bean, Exotic pink-I, L-9, French yellow, Contender, Local-red, EC-285578, EC-285569, Local-8, Gurez, EC-285570, Mutant yellow, Glemies, TR- 60, Black shaded yellow, Bountifull, Exotic pink-II, Pusa parvati, Him-I, EC-285572, EC-285565, EC-285579, EC- 285580, SL-4-PL-1, L-8, Red dwarf, IHR-9, Sel-5, Dofas, EC-285550, EC-285558, EC-285581
Highly susceptible (>50%)	Nil

Singh and Sharma (1975) reported that only four lines viz, EC- 0037, EC-10039, EC-44781, EC-77007 showed a high degree of resistance to angular leaf spot of beans. Kotwal (1994) observed that some bean cultivars such as Arka Komal, Kentuchy Wonder, PDR-22, Banihal Local and Bhaderwahi-red were resistant against angular leaf spot of french bean caused by *Phaeoisariopsis griseola*. Breeders may consider the lines identified in this study for use as parental lines.

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