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Screening of linseed genotypes for seed yield against *Alternaria* blight

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SUMMARY

A set of four hundred forty linseed germplasm lines accessions and three improved check varieties (Neelam, T 397 and Kiran) were screened to identified to extent of promising genotypes at the yield level against *Alternaria* blight. Of these germplasm lines, one hundred forty lines were identified with significantly lower disease intensity of *Alternaria* blight (PDI-AB) on leaves than checks varieties. The genotypes A-225B, A-75, A-226, A-364, A-232, A-66, A-202 and A-184 showed lowest per cent disease intensity of disease of 12.67, 21.50, 22.34, 22.54, 23.25, 24.25, 24.77 and 25.00 per cent, respectively. These lines also showed better response to seed yield and can be used as good donor to improvement for resistant varieties against *Alternaria* blight in linseed breeding programme.

Key words : Linum usitatissimum, *Alternaria* blight, Seed yield.

Alternaria blight is one of the important disease of linseed (*Linumum usitatissimum* L.). This disease attacks on all the aerial parts of the plants and causes heavy loss from 28 to 60 per cent depending upon the variety/genotype and date of sowing (Chauhan and Srivastava, 1975 and Singh *et al.* 2003). All the available commercially grown varieties present in the linseed are highly susceptible to the disease. Therefore, it becomes essential to evaluate large number of available germplasm lines for seed yield alongwith the prevailing diseases of the area. In view of this fact, 440 lines were evaluated for seed yield and *Alternaria* blight incidence to find out higher yielding genotypes resistant to this disease which may be used as resistant donor in linseed breeding programme.

MATERIALS AND METHODS

Four hundred forty elite germplasm lines were sown at Main Experiment Station of N.D. University of Agriculture and Technology, Kumarganj, Faizabad during *rabi* 1998-1999 and 1999-2000 in augmented design with three checks (Neelam, T 397 and Kiran) repeated after 40 lines of the test entries. Each entries and checks were grown in single row of 5m length and spaced 30cm apart. Distance between plants within rows were maintained at 15cm by thinning. Replications were followed by three rows of susceptible check, Chambal, to spread the disease uniformly. Observations on intensity of *Alternaria* blight incidence was recorded at peak infestation stage following 0-5 standard scale (0=0%, 1=1-10%, 2=11-25%, 3=26-50%, 4=51-75%, 5=76-100%,). Per cent disease intensity (PDI) was calculated by the following formula :

$$PDI = \frac{\text{Sum of total numerical rating}}{\text{Total number of leaves observed x maximum grade}} \times 100$$

Mean data for seed yield per plant was recorded on the basis of 5 plants randomly selected and tagged from each row. Statistical analysis was done by using techniques of analysis of "augmented block design" by Federer (1956).

RESULTS AND DISCUSSION

Seed yield per plant and *Alternaria* blight incidence amongst linseed germplasms have been discussed on the basis of pooled analysis. The appearance of *Alternaria* blight was noticed in the field after IInd week of November to Ist week of January during the crop season. Severity become highest in the month of February during both the years. Per cent disease intensity (PDI) ranged from 12.67 to 88.13 per cent in different test entries. However, the maximum number (80 nos) of germplasm were in 61.03 to 67.83 per cent diseases intensity (PDI) followed by 54.25 to 61.03% (65 nos). The minimum ten germplasm had 12.67 to 27.15% followed by 13 entries with 27.15 to 33.93 per cent disease indensity (PDI) of *Alternaria* blight infestation. One hundred forty germplasm lines were significantly superior over the checks in respect of disease intensity.

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