

## SCREENING OF SUNFLOWER GERMPLASM ACCESSIONS FOR RESISTANCE TO ALTERNARIA LEAF SPOT

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Leaf spot of sunflower caused by *Alternaria helianthi* (Hansf.) Tubaki & Nishihara is a serious disease in India and under favourable conditions yield losses may go upto 80 per cent (Agrawath *et al.*, 1979; Balasubrahmanyam and Kolte, 1980). Though destructive levels of *Alternaria* leaf spot have been reported in India, no concerted efforts to screen systematically the available germplasm is made to locate field resistance (Morris *et al.*, 1983). However, significant genetic variability for *Alternaria* leaf spot has been reported in sunflower (Agrawath *et al.*, 1979; Nagaraju *et al.*, 1992a, 1992b). It is in this context, that further studies were carried out to screen the available sunflower germplasm and to determine and document the variability existing, if any, against this disease under field conditions.

One hundred and four sunflower germplasm accessions selected from the Germplasm Unit, GKVK, Bangalore were evaluated for *Alternaria* leaf spot under natural epiphytotic conditions in the *kharif* seasons of 1990 and 1991 alongwith the susceptible checks, Morden and L 101. The selected germplasm entries were seeded in third week of July during the tested season of 1990 and 1991 in a randomised complete block design with two replications. Each entry was grown in a single row of 3.0 m length with a spacing of 60 cms between rows and plants spaced 30 cms apart. *Alternaria* leaf spot severity was monitored in the field from germination and the final observations were recorded at 50 per cent grain filling stage of the crop. Disease severity was determined on the basis of visual rating as per cent area affected using 0-9 scale (Nagaraju *et al.*, 1992a and 1992b).

The occurrence of *Alternaria* leaf spot is the highest on sunflower during rainy season (*kharif*) under Bangalore conditions. The selected germplasm lines showed varied levels of resistance and none exhibited either immune or highly resistant reaction to this disease. Similar results were obtained in our earlier studies also (Nagaraju *et al.*, 1992a and 1992b). In the present studies, among the tested genotypes, the leaf spot severity ranged from 4.00 to 37.5 per cent during 1990 and 2.50 to 47.50 per cent in 1991 *kharif* season, whereas it was 32.50 per cent and more than 50.00 per cent on susceptible checks, Morden and L 101, respectively. Hence, keeping this in mind, we concentrated on the best lines among the available germplasm for further resistance development. The lines expressing less than 5.00 per cent leaf spot severity among the tested genotypes. The differential reactions, over years could probably be due to the difference in environmental conditions prevailing around the experimental area during the respective seasons. Most of the genotypes tested fell into moderately resistant to susceptible category. Similar types of results were obtained earlier when another set of 100 genotypes was tested (Nagaraju *et al.*, 1992a) during *kharif* 1988 and 1989.

The results indicated that a wide variability to *Alternaria* leaf spot exists in the germplasm collections and a few lines are highly promising against this disease. The lines showing resistant reaction in both the seasons namely, Accessions 708, 765, 810, 829, 860, 886, 889, 1040, 1050, 1052 and 1053 will be re-tested for further confirmation and subsequent utilization in crop improvement and disease management programmes.

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