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Screening of various varieties, cultivars and hybrids of marigold against *Alternaria* leaf blight disease caused by *Alternaria alternata*

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Abstract
In the present study, nine varieties of marigold were screened against *A. alternata* causing *Alternaria* blight of marigold. Among them a single variety (French marigold yellow) was found moderately resistant, five varieties were moderately susceptible and rest three varieties were susceptible to *Alternaria* leaf blight disease, under artificial epiphytotic of *A. alternata*.

Keywords: Various varieties, cultivars, hybrids, *Alternaria alternata*

Introduction
Marigold is one of the most popular and commercial cultivated annual ornamental plants. *Alternaria* leaf blight caused by *Alternaria alternata* has been observed in causing heavy losses in common cultivars of both African and French marigold. With a view to find out some resistant cultivars, the pot screening trial was conducted at the Department of Plant Pathology Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli during the year 2017-18.

Material and Methods
A total of eight germplasm lines cultivars varieties of marigold was sown (5 seed/pot) in pots (20 cm diameter) filled with stem sterilized potting mixture of soil, sand, FYM in 2:1:1 proportion, watered regularly and Maintained in screen house. Healthy growing three seedlings/pot were maintained and each cultivar replicated thrice. Thirty days old seedlings of each cultivar were inoculated with spore-cum-mycelium suspension of test pathogen, *A. alternata* and covered with polythene bags during evening hours to create high humidity (80 to 90%).
Disease intensity was recorded by using 0-9 disease grade scale (Mayee and Datar, 1986) [4] and disease intensity was calculated using formula given by McKinney (1923) [5].

$$PDI = \frac{\text{Sum of all numerical rating}}{\text{No. of leaves assessed} \times \text{maximum rating scale}} \times 100$$

Observation on *Alternaria* blight intensity was recorded fifteen days after inoculation of spore-cum-mycelium suspension of test pathogen by applying 0-9 grade disease rating scale (Mayee and Datar, 1986) [4]. A total three observations were recorded at interval of 15 days and the data was averaged, the disease intensity Based mean percent disease intensity, the marigold cultivars, germplasm lines were categorised as follows

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Scale	% Disease intensity	Disease Reactions
0	0	Immune
1	<1%	Highly resistant
3	1-10%	Moderately resistant
5	11-25%	Moderately susceptible
7	26-50%	Susceptible
9	>50%	Highly susceptible

Results and Discussion

Results (Table 1) revealed that the test varieties of marigold exhibited *Alternaria* blight intensity in the range of 9.33 to 29.67% However, French marigold yellow was moderately resistant with minimum disease intensity (9.33%). Five varieties *viz.*, African marigold Havaioarange (20.75%), French marigold Gulzari (13.13%), French marigold orange (15.36%), French marigold scarlet red (21.31%) and African marigold F2 orange (21.92%) were moderately susceptible, and three varieties *viz.*, African marigold double orange (29.67%), African marigold F2 dwarf yellow (27.56%) and African marigold cracker jack mix (26.07%) were susceptible.

These results are in conformity with the earlier results of many workers (Hotchkiss and Baxter, 1983 and Akoijam and Chandel 2010) [3, 1].

Similarly, Dhiman and Arora (1990) [2] reported three cultivars viz. Single, Single Line Yellow, Single Yellow more resistant than Giant Double African Orange and Single Yellow belonging to *T. erecta* group. According to Sohi (1983) [6], the varieties of *Tagetes erecta* were more susceptible compared to *T. patula* which were found either resistant or immune to leaf spot disease.

Table 1: Reaction of marigold varieties and hybrids against *Alternaria* blight

Sr. No.	Varieties	Mean PDI*(%)	Reactions
1	African marigold Havai orange	20.75	Moderately susceptible (MR)
2	French marigold Gulzari	13.13	Moderately susceptible (MS)
3	French marigold orange	15.36	Moderately susceptible (MS)
4	African marigold F2 dwarf yellow	27.56	Susceptible (S)
5	African marigold cracker jack mix	26.07	Susceptible (S)
6	French marigold yellow	9.33	Moderately resistant (MR)
7	French marigold scarlet red	21.31	Moderately susceptible (MS)
8	African marigold F2 orange	21.92	Moderately susceptible (MS)
9	African double orange	29.67	Susceptible (S)

References

1. Akoijam RS, Chandel S. Screening of some marigold cultivars (*Tagetes erecta* and *T. patula*) for resistance against leaf spot and flower blight caused by Alternaria zinniapape. Indian Phytopath. 2010; 63(3):354-355.
2. Dhiman JS, Arora JS. Occurrence of leaf spot and flower blight of marigold (*Tagetes erecta* L.) in Punjab. J Res. Punjab Agric. Univ. 1990; 27(2):231-236.
3. Hotchkiss ES, Baxter LW. Pathogenicity of Alternaria tagetica on Tagetes. Pl. Dis. 1983; 67:1288-1290.
4. Mayee CD, Datar VV. Phytopathometry: Technical Bulletin Published by Marathwada Agric. Univ., Parbhani (M.S.) India, 1986, 100-104.
5. McKinney. A new system of grading plant diseases. J Agric. Res. 1923; 26:195-218.
6. Sohi HS. Personal communication on disease of Marigold. IIHR. Bangalore, India, 1983.