



Varietal Screening of Leaf Spot of Gerbera (*Gerbera jamesonii* H. Bolux ex J. D. Hook) Caused by *Alternaria alternata* (Fr.) Keissler under Controlled Conditions

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ABSTRACT

The present investigation was carried out at Green house of floriculture, N.A.U., Navsari-396450. Out of thirteen varieties screened under greenhouse conditions minimum percent disease intensity was recorded in Kento (7.50), Jaffana (8.00), Venezia (7.67) proved resistant, while Binaka (15.50), Torbin (19.50), were found moderately resistant. Ice queen (34.50), Lion (32.33), Diego (27.17), Fana (35.83), Stanza (23.67) found moderately susceptible and C.F. orange (44.00), Cherany (47.67), C.F. gold (55.17) were found susceptible. Bedi and Singh (1972), Crisan and Szenyei (1987), and Hilal and Kamel (1990) have screened the varieties of ornamental and flowering plant other than gerbera against *Alternaria* sp. They have indicated the presence of resistance or susceptibility in the various genotypes. Based on the result of varietal screening, it is suggested to grow resistant to moderately resistant varieties in this area to maximize the production.

Key word: Gerbera and Screening of varieties

INTRODUCTION

Gerbera (*Gerbera jamesonii* H. Bolux ex J. D. Hook) is one of the important crop primarily grown for cut flower in India. Gerbera is native to South Africa and Asiatic regions. In India, they are distributed in the temperate Himalayas from Kashmir to Nepal at the altitude of 1300 to 3200 meters. In Gujarat mostly South region is dominant for cultivation of gerbera. A well- drained, rich,

light, neutral or slightly alkaline soil is most suitable for gerbera production. Now a days it is being cultivated in polyhouses also for better yield and quality. In Gujarat, the production of gerbera under polyhouse condition is increasing. Thus, gerbera is becoming one of the most important cut flower crops in both fields as well as in polyhouse conditions.

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Leaf spot of gerbera is caused by several species of *Alternaria* (Jacob and Folk, 1986; Saini *et al.*, 1989; Sunita *et al.*, 1996 and Mirkova, 1998); *A. alternata*, *A. dauci*, *A. porri*, *A. solani* (Pape, 1964; Kulibaba, 1972; Jacob & Folk 1986), *A. gerberae* (Wick and Disklow, 2000). *A. alternata* was noticed causing leaf spot on all the varieties of gerbera in greenhouse (Ghosh *et al.*, 2002).

MATERIALS AND METHODS

1. Different varieties used for screening.

Table-1: Different varieties of Gerbera evaluated for resistance to *Alternaria alternata*

| Sr. No | Varieties | Colour |
|--------|-------------|-----------|
| 1. | Stanza | (Red) |
| 2. | Fana | (Red) |
| 3. | C.F. Gold | (Yellow) |
| 4. | Diego | (Orange) |
| 5. | Cherany | (Pink) |
| 6. | C.F. Orange | (Orange) |
| 7. | Lion | (Yellow) |
| 8. | Venezia | (Violet) |
| 9. | Torbin | (white) |
| 10. | Binaka | (White) |
| 11. | Kento | (Yellow) |
| 12. | Jaffana | (Orange) |
| 13. | Ice Queen | (White) |

2. Varietal screening against leaf spot of gerbera

The main object of this study was to find out the relative resistance or susceptibility of the selected varieties of gerbera against *Alternaria alternata*. The experiment was laid out in complete randomized design with three repetitions. Plants of gerbera varieties were raised in earthen pots having diameter 18 (cm). These earthen pots were kept in green house. These varieties of gerbera were inoculated

with the spore suspension (1×10^6 conidia/ml) of test culture with the help of automizer and kept under polythene moist chamber for 48hrs after inoculation for providing sufficient humidity. The different varieties screened against *A. alternata* are shown in (Table-1). The observation on disease incidence will be recorded. These varieties will be grouped under different degrees of resistant on the basis of 0-5 scale (Mathur *et al.*, 1972).

3. Rating scale

| Rating scale | % Area infection |
|--------------|------------------------------|
| 0 | No infection |
| 1 | 1 to 20% necrotic leaf area |
| 2 | 21 to 40% necrotic leaf area |
| 3 | 41 to 60% necrotic leaf area |
| 4 | 61 to 80% necrotic leaf area |
| 5 | Above 80% necrotic leaf area |

4. Grading of varieties

| | | |
|--------------|---|-----------------------------|
| PDI | = | Reaction |
| 0.0 to 10.1 | = | Resistant (R) |
| 10.1 to 20.0 | = | Moderately Resistant (MR) |
| 20.1 to 40.0 | = | Moderately Susceptible (MS) |
| 40.1 to 60.0 | = | Susceptible (S) |
| Above 60.0 | = | Highly Susceptible |

RESULT AND DISCUSSION**1. Varietal Screening**

Thirteen varieties were selected for screening against leaf spot disease under artificial inoculation in pot condition. The result is

presented in (Table 2). The observation on leaf spot incidence was recorded on the basis of 0-5 disease scale (Plate-I); they were grouped under different degrees of resistance.

Table-2: Evaluation of different varieties of Gerbera against *Alternaria alternata*

| Sr. No | Variety | PDI | Grading Variety |
|--------|-------------|-------|-----------------|
| 1 | Stanza | 23.67 | MS |
| 2 | Fana | 35.83 | MS |
| 3 | C.F. gold | 55.17 | S |
| 4 | Diego | 27.17 | MS |
| 5 | Cherany | 47.67 | S |
| 6 | C.F. orange | 44.00 | S |
| 7 | Lion | 32.33 | MS |
| 8 | Venezia | 7.67 | R |
| 9 | Torbin | 19.50 | MR |
| 10 | Binaka | 15.50 | MR |
| 11 | Kento | 7.50 | R |
| 12 | Jaffana | 8.00 | R |
| 13 | Ice queen | 34.50 | MS |

2. Grading of varieties**PDI**

0.0 to 10.1

=

Reaction

Resistant (R)

10.1 to 20.0

=

Moderately Resistant (MR)

20.1 to 40.0

=

Moderately Susceptible (MS)

40.1 to 60.0

=

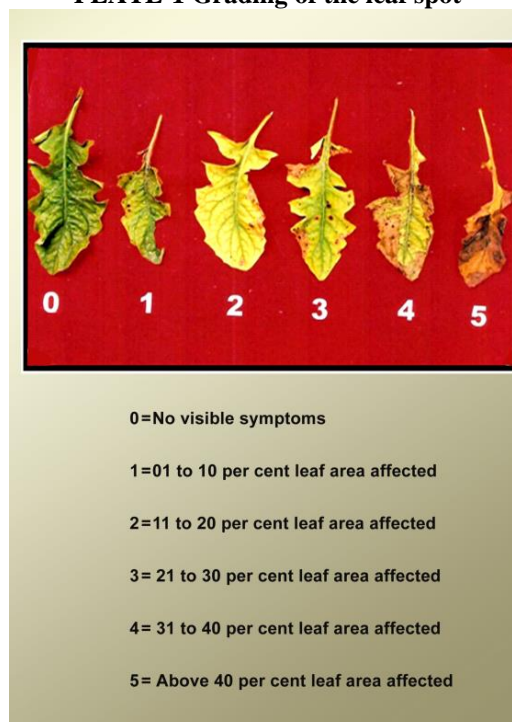
Susceptible (S)

Above 60.0

=

Highly Susceptible

PLATE-1 Grading of the leaf spot



Out of thirteen varieties screened under greenhouse conditions minimum percent disease intensity was recorded in Kento (7.50), Jaffana (8.00), Venezia (7.67) proved resistant, while Binaka (15.50), Torbin (19.50), were found moderately resistant. Ice queen (34.50), Lion (32.33), Diego (27.17), Fana (35.83), Stanza (23.67) found moderately susceptible and C.F. orange (44.00), Cherany (47.67), C.F. gold (55.17) were found susceptible.

Bedi and Singh (1972), Crisan and Szenyei (1987), and Hilal and Kamel (1990) have screened the varieties of ornamental and flowering plant other than gerbera against *Alternaria* sp. They have indicated the presence of resistance or susceptibility in the various genotypes.

CONCLUSION

Based on the result of varietal screening, it is suggested to grow resistant to moderately resistant varieties in this area to maximize the production.

Out of thirteen varieties screened under greenhouse conditions minimum percent disease index was recorded in Kento, Jaffana, Venezia proved resistant, while Binaka, Torbin, were found moderately resistant. Ice queen, Lion, Diego, Fana, Stanza found moderately susceptible and C. F. orange, Cherany, C. F. gold were found susceptible.

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