

Screening Of Cultivars/Varieties Against Mango Anthracnose Caused by *Colletotrichum Gloeosporioides*

R. G. Bhagwat¹, B. P. Mehta², V. A. Patil³, H. Sharma⁴

^{1,2,3,4}Department of Plant Pathology, Navsari Agricultural University, Navsari. 396 450

Abstract— Thirty genotypes of mango screened against anthracnose (*Colletotrichum gloeosporioides*) under natural field condition during 2011-12 and 2012-13, only one genotype Keitt showed resistant reaction whereas, Himsagar and Ostin showed moderate resistant. Gajiria, Kishan bhog, Malvia bhog Kent Lily and Maya showed moderate susceptible reaction. The genotypes viz., Mahmood Vikarabad, Konkan Ruchi, Arka Anmol, Mankurad, Madhukrupa, Alphonso, Ambica and Kesar showed susceptible reaction whereas, Mallika, Vellai Kolumban, Ratna, Goa Mankur., Totapuri X Vanaraj, Arka Neelkiran, Palmer, Muvandan, Ajod Sindurio, Karel (Reva), Kensington, Bombai and Sensation exhibited highly susceptible reaction against anthracnose of mango.

Keywords— Mango, Varietal screening, *Colletotrichum gloeosporioides*, Anthracnose.

I. INTRODUCTION

Mango (*Mangifera indica* L.), an important fruit crop belongs to family Anacardiaceae and is believed to be originated within a large area including north-western Myanmar, Bangladesh and north-eastern India. Mango is also the national fruit of India, which is largest producer of mango in the world accounting for 52-63 per cent of total production. Mango is affected by number of diseases at all the stages of its development right from plant in nursery to the fruit in storage or transit. Mango is prone to many fungal diseases like Anthracnose, Rhizopus rot, Stem end rot, Penicillium rot, Black mould rot, Mucor rot, Phyllosticta rot, Pestalotia rot, Macrophoma rot and powdery mildew, leading to heavy loss in yield (Ploetz,2001).. Among these diseases, anthracnose is the major disease of mango as it occurs at all the growing parts including leaves, twigs, flowers, fruits except root and trunk throughout the year. Anthracnose caused by *Glomerella cingulata* (Stoneman) Spauld and H Schrenk (anamorph: *Colletotrichum gloeosporioides* (Penz.)) appear to be more severe causing devastation of mango fruits during grading, packing, transportation, storage and marketing (Pathak, 1980).

II. MATERIAL AND METHODS

Plots were kept unsprayed with fungicide/insecticide. Plants were selected having similar age. Five uniform twigs of different varieties having 8-10 leaves were mark for screening the varieties were screen under natural condition. With a view to determine the comparative resistance, 30 mango varieties were screened in the field under natural conditions against anthracnose disease during 2011-12 and 2012-13. All the recommended agronomical practices were adopted for the crop. Observations with regards to infection and symptoms development were recorded on the basis of graded scale 0-5.

Disease Reaction	Rating	Per cent Area infected
Immune	0	No infection
Resistant	1	1 – 10
Medium Resistant	2	11 – 20
Medium susceptible	3	21 – 30
Susceptible	4	31 – 50
Highly susceptible	5	Above 50

The observations of infected leaves in each cultivar were recorded at 15 days interval in year 2011-12 and 2012-13. i.e. November to January. Per cent disease index (PDI) in different cultivars were scored using 0-5 scale by Narasimhudu (2007). Disease intensity was calculated as :

Per cent disease intensity (PDI) = [(\sum Ratings of infected leaves observed) / (No. of leaves observed x Maximum disease score)] x 100

III. RESULTS AND DISCUSSION

Thirty genotypes were evaluated against anthracnose (*Colletotrichum gloeosporioides*) of mango under natural field condition during 2011-12 and 2012-13. The genotypes/ varieties were grouped under different degrees of resistance on the basis of Per cent disease index using 0-5 scale.

TABLE- 1
SCREENING OF MANGO CULTIVARS/VARIETIES AGAINST MANGO ANTHRACNOSE POOLED OF 2011-12 AND 2012-13.

Sr. No.	Cultivar	Per cent disease intensity	
		PDI	Reaction*
1	Gajiria	25.40	MS
2	Ostin	19.42	MR
3	Palmer	58.73	HS
4	Lily	25.58	MS
5	Maya	29.75	MS
6	Malviabhog	29.50	MS
7	Muvandan	60.10	HS
8	Ajod Sindurio	60.15	HS
9	Kensington	62.58	HS
10	Keitt	9.50	R
11	Madhukrupa	41.04	S
12	Kent	29.50	MS
13	ArkaNeelkiran	58.09	HS
14	ArkaAnmol	38.42	S
15	TotapuriXVanaraj	60.73	HS
16	Sensation	64.33	HS
17	Himsagar	18.17	MR
18	Bombai	63.42	HS
19	Karel(Reva)	61.94	HS
20	Ambica	42.10	S
21	MahmoodVikarabad	30.12	S
22	Kishanbhog	27.85	MS
23	VellaiKolumban	53.92	HS
24	Mankurad	40.72	S
25	GoaMankur	53.92	HS
26	Kesar	42.45	S
27	Alphonso	41.60	S
28	KonkanRuchi	35.00	S
29	Ratna	53.75	HS
30	Mallika	50.27	HS

***R=Resistant;MR=ModeratelyResistant;MS=ModeratelySusceptible;**

S=Susceptible;HS=HighlySusceptible

The lowest disease intensity were recorded in Keitt (9.50), followed by Himsagar (18.17) and Ostin (19.42), The genotypes Gajiria (25.40), Lily (26.96), Kishan bhog (27.85), Malvia bhog (29.50), Kent (29.50), Maya (29.75), Konkan Ruchi (38.42), Arka Anmol (38.42), Madhukrupa (41.04), Mahmood Vikarabad (38.64), Mankurad (40.72), Alphonso (45.68) Ambica (42.10) and Kesar (42.45) showed moderate disease intensity in natural condition. Thirteen genotypes Mallika (55.45), Ratna (53.75%), Vellai Kolumban (56.45), Goa Mankur (53.92), Arka Neelkiran (58.09), Palmer (58.73), Muvandan (61.24), Ajod Sindurio (60.15), Totapuri X Vanaraj (60.73), Kensington (62.58), Karel (Reva) (61.94), Bombai (63.42) and Sensation (64.33) exhibited high anthracnose intensity (Table- 1).

Out of thirty genotypes screened during 2011-12 and 2012-13 only one genotype Keitt showed Resistant reaction where as, Himsagar and Ostin showed Moderate Resistant. While Gajiria, Lily, Kishan bhog, Malvia bhog, Kent and Maya showed Moderate susceptible reaction. The genotypes viz., Konkan Ruchi, Arka Anmol, Madhukrupa, Mahmood Vikarabad, Mankurad, Alphonso, Ambica and Kesar showed susceptible reaction where as, Palmer, Muvandan, Ajod Sindurio,

Kensington, ArkaNeelkiran, TotapuriXVAnaraj, Sensation, Bombai, Karel(Reva), Vellai Kolumban, Goa Mankur, Ratna and Mallika exhibited highly susceptible reaction.

Thus, results of our study are line with the results reported by various workers viz; Paez Redondo (1995) observed that Tommy Atkins and Keitt were highly resistant. Sharma and Badiyala (1998) observed that none of the cultivars of mango was resistant to anthracnose disease. The cultivars viz., Amrapali, Totapuri, Safeda and Mallika were highly susceptible, whereas Alphonso, Baramasi, Samer Bahisht, Rampur, Samer Bahisht Chausa and Sindhuri were moderately susceptible. The present findings are more or less in agreement with the findings of the above workers.

IV. CONCLUSION

Amongst the 30 genotypes of mango screened against anthracnose (*Colletotrichum gloeosporioides*) under natural field condition during 2011-12 and 2012-13, only one genotype Keitt showed resistant reaction where as, Himsagar and Ostin showed moderate Resistant. Gajiria, Kishan bhog, Malvia bhog, Kent Lily and Maya showed moderate susceptible reaction.

REFERENCES

- [1] Narasimhudu, Y. (2007) Bioefficacy of score 25 EC (Difencnazole) against powdery mildew and anthracnose in mango (*Mangifera indica* L.) *Pestology*, 31(2) : 35 – 37.
- [2] Paez-Redondo, A. R. (1995). Behavior of mango (*Mangifera indica* L.) varieties to anthracnose (*Colletotrichum gloeosporioides* Penz). *Fitopathologia-Colombiana*, 19 (1): 25-30.
- [3] Pathak, V. N. (1980). Diseases of fruit crops. Oxford and IBH publication Co. Ltd. New Delhi PP.5-37.
- [4] Ploetz, R. C. (2001). The major diseases of mango : Strategies and potencial for sustainable management. *Acta Hort.*, No. 645: 137-150.
- [5] Sharma, I. M. and Badiyala, S. I. (1998). Screening of mango cultivars for susceptibility to *Colletotrichum gloeosporioides* during different seasons. *Indian Phytopath.*, 51 : 199-200.