

ORIGINAL ARTICLE

Varietal Screening of Different Rose Cultivars against
Botryodiplodia theobromae PAT. *In vivo*

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ABSTRACT

Rose (*Rosa spp.*, Family: *Rosaceae*) is one of the nature's beautiful creations and is universally acclaimed as "Queen of flowers". Rose is affected by several fungal, bacterial, and viral diseases. Among all the fungal diseases, die-back is one of the serious disease throughout the country caused by *Botryodiplodia theobromae* Pat. Rose is one of the important flower crops and grown more or less in North Gujarat. Considering the seriousness of the problem, the present investigations were carried out to generate more information for developing suitable control measures. Varietal screening studies comprising of different variety of rose. The pathogen could infect and produced die-back like symptoms, which were proved as wide host range of the fungus.

Key words: *Botryodiplodia*, varieties, Pink miniature, Rose, Die-back

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INTRODUCTION

Rose is one of the important flower crops grown in India and also in Gujarat. Roses are best known and most popular of all cut flowers throughout the country. Rose affected by several fungal and bacterial diseases viz die – back *Diplodia rosarum* (Srivastava, 1961), powdery mildew *Spherotheca pannosa* var. *rosae* (Wallr.) Lev. [5], rust *Phragmidium buleri* Syd. [2], botrytis bud and twig blight *Botrytis cinerea* (Pers.) Fries [3], black leaf spot *Diplocarpon rosae* (Walf.) [1], leaf blight *Alternaria alternate* [9]. Among the different diseases of rose, die back disease caused by *Botryodiplodia theobromae* Pat, *Colletotrichum gloeosporioides* (Penz.), *Fusarium solani* (Mart.) Sacc. and *Diplodia rosarum* [5-8]. Considering the seriousness of the problem and economic importance of the crop, the present investigation were under taken to provide information for devising suitable economical control measures to minimize the losses and to generate scientific information's on following aspects under north Gujarat agro climatic zone.

MATERIAL AND METHODS

Fifteen rose varieties of four years old planted in college garden were used for inoculation. Four plant of each variety were artificially inoculated by cutting twig with sharp secateurs and then spraying with homogenized spore suspension prepared from 15 days old culture of *B. theobromae* with the help of baby sprayer. The inoculation was carried out at evening hours. After inoculation, humidity up to 24 hours. The observations on length of infected twig lesion development in each cultivar were recorded after 30 days of inoculation and categorized the varieties in 5 grades as given by Gupta and Prasad [10] as follow.

I	R	Resistant	Pruned end completely free from the disease.
II	MR	Moderately Resistant	Not more than half cm area affected from cut end
III	MS	Moderately Susceptible	Half to 2 cm area affected from cut ends
IV	S	Susceptible	More than 2 cm area affected from cut ends
V	HS	Highly Susceptible	Cut end completely affected and died, infection passes to main stem and may kill the plant

RESULTS AND DISCUSSION

Fifteen varieties were screened for resistance against die-back by artificial inoculation under field condition. The average length of the infected twigs of each variety was measured.

Out of fifteen varieties evaluated, only a single Pink miniature variety was found resistance. Ten varieties found viz., Red dwarf; Fock love, First red, Merjenta queen, Golden shower, Gutar, Orange glory, Golden giant, Eiffel tower and Viamala were found susceptible, while two varieties Pink perfect and Delhi white were found moderate susceptible and two varieties Colour magic and Tata centurial were found moderate susceptible.

Fifteen varieties were screened for resistance against die-back by artificial inoculation under field condition under North Gujarat condition. Among them none of the variety found complete resistant against die-back. Our results are contradictory with this. In north Gujarat conditions Colour magic, Tata centurial and Pink miniature were found moderately resistance. Gupta and Prasad [10] evaluated rose varieties against die-back on the basis of natural conditions and reported that 'Blue moon' was found resistant. Our results are not matching with the above worker; it might be due to other environmental conditions.

Table 1- Infection of *B. theobromae* in different cultivars of rose

S. No.	Variety	Average length of infection (cm)	Disease reaction grade*	S. No.	Variety	Average length of infection (cm)	Disease reaction grade*
1.	Red dwarf	14.6	S	9.	Eiffel tower	3.2	S
2.	Fock love	12.5	S	10.	Viamala	3.0	S
3.	First red	11.0	S	11.	Pink perfect	2.1	MS
4.	Merjenta queen	9.2	S	12.	Delhi white	1.2	MS
5.	Golden shower	8.5	S	13.	Colour magic	0.3	MR
6.	Gutar	8.3	S	14.	Tata centurial	0.2	MR
7.	Orange glory	4.3	S	15.	Pink miniature	0.0	R
8.	Golden giant	4.1	S				

*Grade: R= Resistance MR= Moderate Resistance S= Susceptible
MS= Moderate Susceptible HS= Highly Susceptible



S. No.	Variety	S. No.	Variety	S. No.	Variety
1.	Red dwarf	6.	Gutar	11.	Pink perfect
2.	Fock love	7.	Orange glory	12.	Delhi white
3.	First red	8.	Golden giant	13.	Colour magic
4.	Merjenta queen	9.	Eiffel tower	14.	Tata centurial
5.	Golden shower	10.	Viamala	15.	Pink miniature

Fig 1- Infection of *B. theobromae* in different cultivars of rose

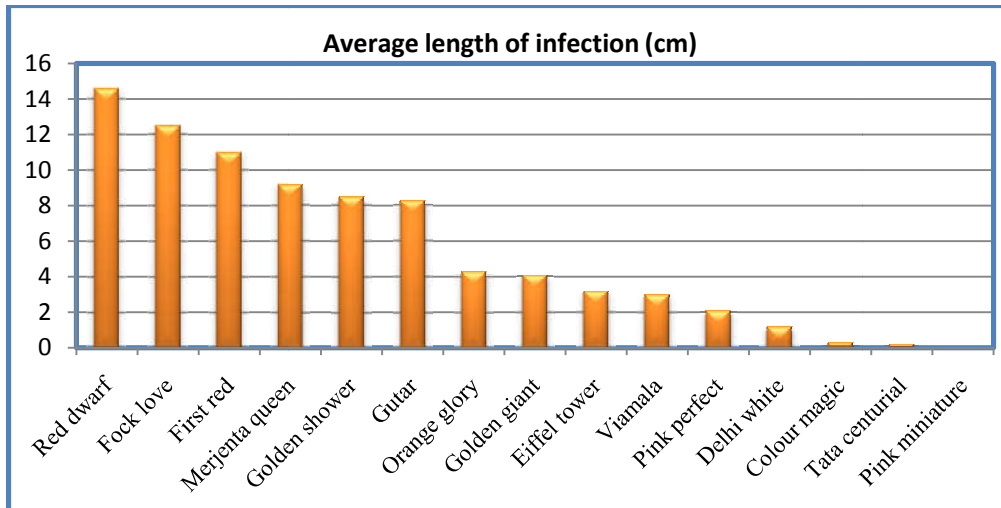


Fig 2- Average length of Infection in *B. theobromae* in different cultivars of rose

CONCLUSION

Among the Fifteen rose varieties tested, none of the variety found resistant against die-back. The varieties Colour magic and Tata centurial and Pink miniature found moderate resistance, while Delhi white was found moderate susceptible. The remaining five and six varieties were found susceptible and highly susceptible reaction, respectively.

REFERENCES

- Bordoloi, D. N. and Ganguli, D. (1963) Black spot of rose caused by *Diplocarpon rosae* Wolf. *Indian Phytopath.*, **16**: 255- 259.
- Chakravati, B. P., Kumar, S. and Kumar, T. B. (1969). F.A.O. *Plant Prot. Bull.* **18**:46.
- Chohan, J. S. and Kaur, S. (1976). Grey mold and pestalotiopsis rot of rot buds and flowers. *Indian Phytopath.*, **29**: 98.
- Dhua, R.S. (1999). Floriculture and landscaping, Naya Prakash, Calcutta. pp.
- Pal, B.P. (1972). The rose growing in India. ICAR. Publication, New Delhi. pp. 161-16
- Vir, D. and Shara, R.K. (1985). Disease of rose and their fungicidal control. *Indian Horticulture.* **30**: 13-15.
- Shukla, P. and Chaudhary, P.N. (1991). Fungi associated with dieback of roses. *Indian J. Mycol. Pl. Pathol.*, **21** (2): 213-214.
- Malik, R.S. and Dadlani, N.K. (1984). Rose cultivation in India. *Indian Horticulture.* (7-9): 27-28.
- Rao, V. G. (1964). A new leaf spot of rose from India. *Pl. Dis. Repr.*, **48**: 397-399.
- Gupta, J.H. and Prasad, B. (1984). Reaction of rose varieties to dieback disease control caused by *Diplodia rosarum*. *Indian J. Mycol. Pl. Pathol.*, **14** (2): 194.