



IMPACT OF CLIMATE CHANGE ON MANGO BLOSSOM BLIGHT DISEASE

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Abstract

The experiment was conducted by using eight different treatments with three replications at RFRS, Vengurle on Alphonso mango cultivar by using different fungicides. It is revealed from the data that all the seven fungicides at their concentration when sprayed twice at 10 days interval effectively controlled natural incidence of blossom blight as compared to control. Among the different treatments, the treatments viz. Carbendazim + Mancozeb (0.2%), Thiophanate methyl (0.1%), Propineb (0.2%), Carbendazim (0.1%) and Tricyclazole (0.1%) were found significantly superior over rest of the treatments and were at par with each other. These were followed by Chlorothalonil (0.2%) and Mancozeb (0.2%) which were also at par with each other.

Key words : Alphonso, fungicides, blossom blight, climate change.

Introduction

India has a rich wealth of mango germplasm with more than 1000 mango varieties grown throughout the length and breadth of the country. However, out of these only twenty one varieties are commercially cultivated in different mango growing regions. Among these varieties, Alphonso ranks first and is grown along the West Coast of India in Gujarat, Maharashtra, Goa and Karnataka. It is claimed as one of the best Indian mango variety. It enjoys virtual dominance both in domestic as well as in International markets due to its typical sugar-acid blend, attractive colour and shape, pleasant aroma, highly appreciable flavors, taste and long keeping quality. Moreover it is predominant perennial fruit crop of Konkan region. The crop is cultivated in the region where the total average rain fall per annum is about 3000 mm. Although, most of the quality merits are confirmed on this variety but plant grows by producing three to four flowering flushes in the season. Due to cloudy weather with considerable day and night temperature variation, increased humidity and variation in wind direction the first flush occurred in the month of October- November was heavily damaged by Blossom blight disease which do limit the successful cultivation, production marketing and storage of the fruits.

The disease is a fungal disease caused by *Colletotrichum gloeosporioides*. It is the most common disease of mango in this region devastating young leaves and often causing defoliation of flush growth (Ploetz, 1999). If wet weather occurs during flowering, anthracnose causes severe blossom blight, which can destroy inflorescences (flower panicles) and prevent fruit set. To protect this flush from blossom blight the present experiment was conducted at Regional Fruit Research Station, Vengurle by using different systemic fungicides.

Materials and Methods

The experiment was conducted at Regional Fruit Research Station, Vengurle on Alphonso mango cultivar. The early flowered plants were selected and sprayed twice at 10 days interval with respective fungicide as per the treatments. Observations on blossom blight were recorded 10 days after second spray using 0-5 scale as follows.

0	No incidence	3	41-60% incidence
1	1-20% incidence	4	61-80% incidence
2	21-40% incidence	5	81-100% incidence

Per cent Disease Index (PDI) was calculated by using the formula:

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Fig. 1a : Blossom blight of mango.



Fig. 1b : Blossom Blight of Mango.

Table 2 : Efficacy of different fungicides against blossom blight of mango (2011-12 & 2012-13).

S. no.	Treatment / fungicide	Conc. (%)	Per cent disease index (PDI)		Pooled data
			2011-12	2012-13	
T ₁	Thiophanate Methyl (Roko)	0.1	09.33 (17.72)	17.60 (24.78)	13.46 (21.25) *
T ₂	Carbendazim + Mancozeb (Saaf)	0.2	12.53 (20.68)	22.13 (28.06)	17.33 (24.37)
T ₃	Tricyclazole (Beam)	0.1	08.27 (16.59)	12.00 (20.17)	10.13 (18.38)
T ₄	Mancozeb (Bilzeb)	0.2	12.53 (20.61)	21.06 (27.27)	16.79 (23.94)
T ₅	Carbendazim (Bavistin)	0.1	06.67 (14.86)	10.40 (18.69)	08.53 (16.78)
T ₆	Propineb (Antracol)	0.2	10.40 (18.78)	14.40 (22.25)	12.40 (20.52)
T ₇	Chlorothalonil (Kavach)	0.2	13.33 (21.40)	21.33 (27.46)	17.33 (24.43)
T ₈	Control	-	18.67 (25.54)	30.67 (33.61)	24.67(29.58)
	SE ±		1.075	1.194	0.931
	CD at 5%		3.188	3.622	3.113

* Fig in parenthesis indicated Arcsin Transformation.

$$\text{PDI} = \frac{\text{Sum of all numerical ratings}}{\text{No. of panicles observed} \times \text{Maximum rating}} \times 100$$

The commercially available fungicides *viz.* Thiophanate methyl (0.1%), Carbendazim + Mancozeb (0.2%), tricyclazole (0.1%), Mancozeb (0.2) Carbendazim (0.1%), Propineb (0.2%) and Chlorothalonil (0.2%), at various concentration were used.

Results and Discussion

The pooled data of two cropping seasons are presented in Table-1 which revealed that all the treatments were effective in controlling blossom blight of mango. The fungicides *viz.* Carbendazim (0.1%) and Tricyclazole (0.1%) were found significantly superior over rest of the treatments and were equally effective. Next in the rank were Propineb (0.2%) and Thiophanate methyl (0.1%) which were at par with treatment T3 (Tricyclazole (0.1%)). These were followed by Mancozeb (0.2%), Carbendazim+Mancozeb (0.2%) and Chlorothalonil (0.2%) (table 1).

According to the Akthar *et al.* (1998) systemic fungicides were highly effective for the management of mango panicle anthracnose or blossom blight disease. Similar findings were also reported by Poetz (1999) according to his report anthracnose disease on blossom is the most devastating, causing severe losses to the crop during fruit development. He reported that fungicides *viz.* Mancozeb and Carbendazim were effective for management of the disease.

Suharban *et al.* (1985) reported that fungicidal treatments were the most suitable and ecofriendly for management of mango anthracnose on foliage as well as on blossom. According to the Sundravadana and his co-workers studied the efficacy of Azoxystrobin of *Colletotrichum gloeosporioides* Penz. on growth and sporulation of anthracnose on blossom and had reported that panicles were completely free from anthracnose or blossom blight of mango.

It is thus concluded that the fungicides *viz.* Carbendazim (0.1%), Tricyclazole (0.1%), Thiophanate methyl (0.1%) and Propineb (0.2%) were found most effective in controlling blossom blight of Alphonso mango.

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