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## Bio-efficacy of azoxystrobin fungicide against anthracnose disease of mango (*Mangifera indica* L.)

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**ABSTRACT :** The present field investigation on “bio-efficacy of azoxystrobin 23 per cent SC against anthracnose in mango was conducted at Fruit Research Farm, Imaliya, Department of Horticulture, JNKVV, Jabalpur (Madhya Pradesh) during *Kharif* season 2014, to estimated the bio-efficiency of used fungicide against Anthracnose (*Colletotrichum gloeosporioides*) by different doses and time interval of application. The present field experiment resulted that all the treatments showed significant effect in increasing the yield of mango, among all the treatments azoxystrobin 23 per cent SC @ 188g a.i./ha produced maximum yield (121.66 kg/plot). While, minimum yield was estimated in treatment comparison (Mancozeb 75% WP) a.i./ha (70kg/plot) after each spray of chemical followed by market sample azoxystrobin 23 per cent SC @ 125 a.i./ha (76kg/plot) and azoxystrobin 23 per cent SC @376 a.i./ha (72kg/plot).

**KEY WORDS :** Mango, Anthracnose (*Colletotrichum gloeosporioides*), Azoxystrobin

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Mango (*Mangifera indica* L.) 2n=40 is an important fruit crop, belongs to the family Anacardiace and locally known as Aam. It has been considered as the national fruit of the country due to its several uses and rising importance and high potential both in the local and world market. India stands first in global mango production (53%). Mangoes are eaten as raw, cooked, frozen, preserved or dried. Ripe mangoes are used for confectioneries, ice cream, sherbet, and bakery products while unripe mangoes (usually the Indian variety) are a good source of juice. The demand for processed mango is increasing, as seen in the proliferation of mango products in supermarkets and groceries. However, the productivity of mango is affected by various diseases. Among these diseases, Anthracnose (*Colletotrichum gloeosporioides*) is one

of the most damaging disease (Ploetz, 1999) causing reduction of flower set and yield losses in mango. Much of attention and efforts on anthracnose control has concentrated mostly on the use of fungicides. However application of fungicide was one of the approaches to control the disease. In this study, the bio-efficacy of azoxystrobin 23 per cent SC was studied against anthracnose in mango under field condition @ 125, 188, 250 and 376 g a.i./ha and compared with market sample of azoxystrobin 23 per cent SC @ 125 and 188 g a.i./ha and market chemical Mencozeb 75 per cent WP.

### RESEARCH METHODS

As per scheduled programme under the object on bio efficacy of azoxystrobin 23 per cent SC against anthracnose in mango, a trial was conducted at Imaliya

Farm under the department of Horticulture, JNKVV, Jabalpur (M.P.). To conduct the trial 25m<sup>2</sup> plot size/treatment was taken, plants were planted at the distance of 5.0 (mt.) according to recommended distance, spray of chemical was done three times at the interval of ten days. Symptoms of anthracnose were observed after seven days of spray in the fruits of plant. The main objectives evaluate the bio- efficacy 23 per cent SC against anthracnose and the phytotoxicity of azoxystrobin 23 per cent SC on mango. Randomly twenty five fruits/treatment were selected. Disease severity was recorded by counting the infected fruits and then categorized into 0-5 grade scale during the development of disease. Per cent disease index was calculated by given following formula :

$$PDI = \frac{\text{Sum of all disease ratings}}{\text{Total no. of leaves/bunches/fruits assessed} \times \text{maximum disease grade}} \times 100$$

## RESEARCH FINDINGS AND DISCUSSION

The bio- efficacy of azoxystrobin 23 per cent SC formulated was studied against anthracnose in mango under field condition @ 125,188,250 and 376 g a.i./ha and compared with market sample of azoxystrobin 23 per cent SC @ 125 and 188 g a.i./ha and market chemical

Mencozeb 75 per cent WP. The data in (Table 1, 2 and 3) indicate that all the treatments showed significant effect against per cent disease index of anthracnose disease in mango. Minimum per cent disease index was calculated in treatment azoxystrobin 23 per cent SC @ 188g a.i./ha (14.10 %,11.49% and 09.97%) after each spray of chemical followed by azoxystrobin 23 per cent SC @125 a.i./ha (16.35%,10.87% and 14.61%) and azoxystrobin 23 per cent SC @250 a.i./h. (17.32 %,14.56% and 15.77 %) while maximum per cent disease index was calculated in treatment comparisons (Carbendazim 50% WP) a.i./ha (28.06%, 24.71% and 26.14%) after each spray. Similar finding was also reported by Archana *et al.* (2009), Ahiladevi and Prakasam (2013) and Ahiladevi and Prakasam (2014). Azoxystrobin 23 per cent SC@125 and 188 a.i./ha. was found at par over market sample of azoxystrobin 23 per cent SC @ 125 g a.i. and 188g a.i. and over carbendazim 50 per cent WP also. All the treatments showed significant effect in increasing the yield of mango. Among all the treatments azoxystrobin 23 per cent SC @ 188g a.i./ha. was found to producer maximum yield (121.66 kg/plot). Minimum yield was calculated in treatment comparison (Trade Name–Mancozeb 75% WP) a.i./ha

**Table 1 : Treatment details of chemicals tested**

Sr. No.	Treatments	Concentration (g a.i./ha.)	Formulation (ml/ha)	Water volume (lit./ha <sup>-1</sup> )
X <sub>1</sub>	Azoxystrobin 23% SC	125	500	500-750 lit./ha <sup>-1</sup>
X <sub>2</sub>	Azoxystrobin 23% SC	188	750	
X <sub>3</sub>	Azoxystrobin 23% SC	250	1000	
X <sub>4</sub>	Azoxystrobin 23% SC	376	1500	
X <sub>5</sub>	Azoxystrobin 23%SC	125	500	
X <sub>6</sub>	Azoxystrobin 23% SC	188	750	
X <sub>7</sub>	Control	-	-	

**Table 2 : Reaction of azoxystrobin 23 per cent SC against anthracnose disease**

Sr. No.	Treatments	Dosages (g a.i./ha)	Per cent disease index			Disease reduction over
			After I spray	After II spray	After III spray	
1.	Azoxystrobin 23% SC	125	16.35(23.83)	10.87(19.23)	14.61(22.46)	61.30
2.	Azoxystrobin 23% SC	188	14.10(22.03)	11.49(19.78)	09.97(18.39)	67.14
3.	Azoxystrobin 23% SC	250	17.32(24.58)	14.56(22.41)	15.77(23.37)	55.79
4.	Azoxystrobin 23% SC	376	24.31(29.52)	21.32(27.48)	22.07(27.95)	37.36
5.	Azoxystrobin 23% SC (Mirador)	125	21.03(27.26)	17.46(24.69)	18.86(25.73)	46.79
6.	Azoxystrobin 23% SC (Mirador)	188	19.46(26.16)	16.64(24.06)	17.16(24.46)	50.58
7.	Comparison (Carbendazim 50% WP)	-	28.06(31.97)	24.71(2.79)	26.14(30.73)	26.78
8.	Untreated control	-	34.00(35.92)	37.98(38.02)	35.36(36.47)	-
	S.E.±	-	0.373	0.394	0.374	-
	C.D. (P=0.05)	-	1.143	1.206	1.147	-
	F-value	-	152.21	242.48	219.32	-

**Table 3 : Reaction of azoxystrobin 23 per cent SC against yield of mango treatment details of chemical tested**

Treatments	Dosage (g a.i./ha.)	Yield (kg/Plot)	% increase in yield over control
Azoxystrobin 23% SC	125	121.66.	87.16
Azoxystrobin 23% SC	188	110.00	69.23
Azoxystrobin 23% SC	250	93.00	43.07
Azoxystrobin 23% SC	376	72.00	10.76
Azoxystrobin 23% SC	125	76.00	16.9
Azoxystrobin 23% SC	188	85.00	30.76
Comparison	-	70.00	07.69
Untreated control	-	65.00	-
S.E.±	-	1237.88	-
C.D. (P=0.05)	-	10.87	-

(70kg/plot) after each spray of chemical followed by market sample azoxystrobin 23 per cent SC @125 a.i./ha (76) and azoxystrobin 23 per cent SC @376 a.i./ha (72 kg/plot). These findings corroborate the earlier findings of Splanding (1982); Ploetz (1999); Sundravadana *et al.* (2007); Archana (2009); Ahiladevi and Prakasam (2013) and Ahiladevi and Prakasam (2014).

### Conclusion :

The present study concluded that the application of azoxystrobin @188g a.i. was found the best treatment in managing the per cent disease index and its severity in mango tree. Azoxystrobin @125g a.i. and @188g a.i. was found over market sample of azoxystrobin 23 per cent SC @ 125 g a.i. and 188g a.i. and carbendazim 50 per cent WP also in anthracnose.

### REFERENCES

**Ahiladevi, M.P. and Prakasam, V. (2013).** Bioefficacy of azoxystrobin 25 per cent SC along with bioagents against chilli anthracnose diseases under field conditions. *Pest Mgmt. Hort.*

*Ecosystems*, **19** : 57-62.

**Ahiladevi, M.P. and Prakasam, V. (2014).** Efficacy of azoxystrobin 25% SC along with bioagents on chilli powdery mildew diseases under field condition. *World J.Agric. Sci.*, **2** (1):008-012.

**Archana, S. (2009).** Studies on the evaluation of azoxystrobin 23 SC against downy mildew an powdery mildew of grapevine. M.Sc. (Ag.) Thesis, Tamil Nadu Agriculture University, Coimbatore, T.N. (INDIA). 55 pp.

**Ploetz, R. (1999).** Anthracnose: The most important disease in much of the mango producing world. *News Letter Plant Pathol.*, **3** : 1-6.

**Splanding, D.H. (1982).** Resistance of mango pathogens to fungicides used to control postharvest diseases. *Plant Dis.*, **66** : 1185-1186.

**Sundravadana, S., Alice, D., Kuttalam, S. and Samiyappan, R. (2007).** Efficacy of azoxystrobin on *Colletotrichum gloeosporioides* Penz. growth and on controlling mango anthracnose. *J. Agric. & Biol. Sci.*, **2**: 10-15.

**Uddin, M.S., Feng, J.X., He, X.H., Sun, W.L. and Cheng, Q. (2012).** Gummosis disease of mango and its control. *Chinese Forestry & Sci. & Technol.*, **11** (4) : 25-32.

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