

RESEARCH NOTE

Efficacy of fungicides against *Fusarium pallidorozeum* causing fruit rot of Kachari (*Cucumis callosus*)

■ REKHA KUMAWAT*, R.G. JAT AND KAVITA KUMAWAT

Department of Plant Pathology, S.K.N. College of Agriculture (S.K.R.A.U.) Jobner, JAIPUR (RAJASTHAN) INDIA

ARTICLE INFO

Received : 03.11.2012

Accepted : 15.03.2013

Key Words :

Fungicides,

Fusarium pallidorozeum,

Fruit rot, Kachari,

Cucumis callosus

ABSTRACT

Kachari (*Cucumis callosus*) is a warm season annual crop which is grown as wild or cultivated crop at large scale with bajra, moth, moong and guar crops in arid and semi-arid regions of Rajasthan. Kachari fruits were found infected with *Fusarium pallidorozeum* causing severe damage both in quantitatively and qualitatively at Jobner and near by areas during Kharif season 2009. The efficacy of five systemic and non-systemic fungicides was tested *in vitro* by Poison food technique. Companion (carbendazim 12% + mancozeb 63%) at 100, 300 and 500 ppm was found the most effective in inhibition (100%) of mycelial growth of *F. pallidorozeum* followed by mancozeb and carbendazim.

How to view point the article : Kumawat, Rekha, Jat, R.G. and Kumawat, Kavita (2013). Efficacy of fungicides against *Fusarium pallidorozeum* causing fruit rot of Kachari (*Cucumis callosus*). *Internat. J. Plant Protec.*, 6(1) : 213-214.

*Corresponding author:

Kachari plants or climber thrive well throughout the arid and semi-arid conditions which are grown as wild or cultivated in different parts of Rajasthan. During rainy days, the fruits of Kachari were found to be affected by a disease incited by *Fusarium pallidorozeum* which causes adverse effect both in quality and quantity. Use of fungicide is one of the most commonly means for plant disease management. Fungicides observed to be toxic to the pathogen either by inhibiting germination of spores, mycelial growth and multiplication of the pathogen. Therefore, an investigation was made to study the efficacy of different fungicides against *Fusarium pallidorozeum* causing fruit rot in Kachari.

Efficacy of five systemic and non-systemic fungicides (Blitox-50, Bavistin, Dithan M-45, Companion and Topsin-M) against mycelial growth of *Fusarium pallidorozeum* was tested *in vitro* by poisoned food technique (Nene and Thapliyal, 1979). Three different concentrations viz., 100, 300 and 500 ppm of each fungicide were tested. Required quantity of each fungicide was added separately to sterilized medium, mixed thoroughly and poured in sterilized Petriplates and allowed to solidify for 12 hours. Each plate was inoculated with 2 mm disc of 7 days old culture of *Fusarium*

pallidorozeum with the help of sterilized cork borer and incubated at $25 \pm 1^\circ\text{C}$ for 10 days. A control was also maintained where medium was not supplemented with any fungicide. The experiment was conducted in completely randomized design with four replications. The mycelial growth of the test fungus was recorded and per cent growth inhibition was calculated by Vincent's (1947) formula :

$$\text{Per cent growth inhibition} = \frac{C - T}{C} \times 100$$

where,

C = Diameter of colony in check (average of both diagonals)

T = Diameter of colony in treatment (average of both diagonals)

The data recorded on per cent inhibition of mycelial growth are presented in Table 1. A perusal of data revealed that all the fungicides were superior in inhibiting the growth of the fungus over check. Companion was proved to be most effective in inhibiting (100%) the mycelial growth of *Fusarium pallidorozeum* followed by Dithan M-45 (96.66%), Bavistin (84.70%) and Topsin-M (80.90%). Blitox -50 was least effective in inhibiting the mycelial growth of the fungus. In general, as

Table 1 : Efficacy of fungicides against mycelial growth of *Fusarium pallidoroeseum* at 10 days of incubation at 25±1°C in vitro

Sr. No.	Fungicides	Per cent Inhibition of mycelial growth* (concentration ppm)			Mean
		100	300	500	
1.	Blitox -50	64.50 (53.42)	70.00 (56.78)	73.00 (58.69)	69.16 (56.27)
2.	Bavistin	80.40 (63.72)	83.20 (65.80)	90.50 (72.04)	84.70 (66.97)
3.	Dithan M-45	90.00 (71.56)	100.00 (90.00)	100.00 (90.00)	96.66 (79.48)
4.	Companion	100.00 (90.00)	100.0 (90.00)	100.00 (90.00)	100.00 (90.00)
5.	Topsin -M	70.00 (56.78)	82.07 (64.94)	90.00 (71.56)	80.90 (63.93)
6.	Control	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
	Mean	67.48 (55.23)	72.65 (58.47)	75.58 (60.39)	
			S.E.±	C.D. at 5%	
	Fungicide (F)		1.07	3.13	
	Concentration (C)		0.76	2.21	
	F X C		1.86	5.42	

* Average of four replications, Figures given in parentheses are angular transformed value

the concentration of fungicides increased the inhibition of mycelial growth was also increased. Complete inhibition of mycelial growth of the fungus was recorded by Companion at all three concentrations followed by Dithan M-450. at 300 and 500 ppm. Minimum growth inhibition was observed on Blitox-50 at 100 ppm (64.50%) followed by Topsin-M at 100 ppm (70.00%). Various fungicides have been tested for their efficacy against *Fusarium* rot of different fruit crops. Rawal and Thakore (2003) suggested that systemic fungicides viz., carbendazim, triadimefon and kitazin were effective against *Fusarium* rot of sponge gourd fruits. Fungicides like Bavistin and Dithan M-45 were effective in checking the fruit rot of citrus caused by *Fusarium pallidoroeseum* (Gaur and Chenula, 1982).

REFERENCES

- Gaur, A. and Chenula, V.V. (1982).** Chemical control of post harvest diseases of *Citrus reticulata* and *Solanum tuberosum*. *Indian Phytopathol.*, **35**: 628-632.
- Nene, Y.L. and Thapliyal, P.N. (1979).** *Fungicides in plant disease control*. Oxford and IBH Publishing Co. NEW DELHI, INDIA 507pp.
- Rawal, Pokhar and Thakore, B.B.L. (2003).** Investigation on *Fusarium* rot of sponge gourd fruits. *J. Mycol. Pl. Pathol.*, **33**: 15-20.
- Vincent, J.M. (1947).** The esters of 4-hydroxyle benzoic acid and related compound. Method for the study of their fungistatic properties. *J. Indian Sci., (London)*, **16**: 749-755.
