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Evaluation of Bio-Efficacy and Phytotoxicity of Chlorothalonil 75 % WP against Fruit Rot of Chilli

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A field study has been conducted at Horticulture Research and Extension Station, Devihosur on the management of fruit rot of chilli caused by *Colletotrichum capsici* using 7 treatments in 3 replications following Randomized Block Design. Chlorothalonil @ 0.32% recorded significantly least PDI (12.67%) than all other treatments and it was found on par with Chlorothalonil @ 0.21% and Chlorothalonil @ 0.13% (13.23% and 13.28% PDI respectively). Yield was found maximum in Chlorothalonil @ 0.32% (10.97 q/ha) than all the treatments and it was found on par with Chlorothalonil @ 0.21% (10.03 q/ha) and Chlorothalonil @ 0.13% (9.40 q/ha). No phytotoxicity symptoms were observed at all stages of crop growth by the application of Chlorothalonil.

Keywords: Chilli, fruit rot, chlorothalonil, field evaluation.

Chilli (*Capsicum annuum*) is an important crop grown worldwide for its use as spices and vegetables. It is an indispensable spice used as basic ingredient in a great variety of cuisines all over the world. Chilli belongs to *Capsicum* (2n=24) a new world genus belonging to *Solanaceae* family. It is an excellent source of vitamin C, A, B-complex and E. It contains seven times more vitamin C than orange.

India is the largest producer of chilli crop, grown over an area of 0.794 million hectares with an annual production of 0.13 million tonnes with the productivity of 1.5 tonnes/ha (Anonymous, 2014). The important states growing chilli are Andhra Pradesh, Karnataka, Orissa, Maharashtra, West Bengal, Rajasthan and Tamil Nadu. Karnataka ranks second in area with 100.73 ('000 ha) and production 107.00 ('000 MT) of dry chilli after Andhra Pradesh (Anonymous, 2014). In Karnataka, northern Karnataka is an important chilli growing area and it is highly concentrated in the districts like Dharwad, Haveri, Koppal, Ballari, Raichur, Kalaburagi and Belagavi.

MATERIALS AND METHODS

An experiment was conducted at Horticulture Research and Extension Station, Devihosur, Haveri to study the efficacy and phytotoxicity of chlorothalonil 75% WP against fruit rot of chilli caused by *Colletotrichum capsici*. It was conducted in randomized block design with three replications under field conditions during kharif 2014-15. Seedlings of Chilli cv. Byadgi Dabbi were planted in the plot (4.8 m x 3.6 m) with a spacing of 0.6 m x 0.6 m. First spray was given immediately after a first symptom of disease was observed. Remaining two sprays were given at 15 days

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interval. Control was maintained with no fungicidal spray. The severity of the disease was measured using 0-9 disease rating scale given by Mayee and Datar (1986).

RESULTS AND DISCUSSION

The effect of Chlorothalonil 75 % WP on Fruit rot and yield of chilli for the year 2014-15 are presented in Table 1 and 2 respectively.

Grade	Per cent Infection
0	0%
1	1-10%
3	11-25%
5	26-50%
7	51-75%
9	>75%

Bioefficacy of Chlorothalonil 75 % WP against Fruit rot of chilli

The treatments differed significantly with respect to the severity of fruit rot in chilli. The severity of fruit rot was significantly least in Chlorothalonil 75 % WP @ 0.32 % (12.67 PDI) and it was on par with Chlorothalonil 75 % WP @ 0.21 % and Chlorothalonil 75 % WP @ 0.13 % (13.23 and 13.28 PDI respectively). The next best treatment was Chlorothalonil 75 % WP @ 0.10 % (14.83 PDI) and it was on par with Kavach 75 % WP @ 0.10 % (15.33 PDI). The untreated control (26.42 PDI) recorded significantly highest percent disease index of the fruit rot (Table 1).

Yield

The treatments differed significantly with respect to yield of dry chilli. Chlorothalonil 75 % WP @ 0.32 % (10.97 q/ha) recorded significantly highest yield than all the treatments and was on par with Chlorothalonil 75 % WP @ 0.21 % and

Table 1. Effect of chlorothalonil 75 % WP on fruit rot of chilli

Sl. No.	Treatments	Dosage (per ha) a. i. (g)	Formulation (g)	Fruit rot (PDI)
1.	Chlorothalonil 75 % WP	450	600	18.00
2.	Chlorothalonil 75 % WP	600	800	14.83
3.	Chlorothalonil 75 % WP	750	1000	13.28
4.	Chlorothalonil 75 % WP	1200	1600	13.23
5.	Chlorothalonil 75 % WP	1800	2400	12.67
6.	Check, *Kavach 75 WP*	600	800	15.33
7.	Control	-	-	26.42
SE.m ±				0.81
CD at 5 %				2.51

Table 2. Effect of chlorothalonil 75 % WP on yield of dry chilli.

Sl. No.	Treatments	Dosage (per ha) a. i. (g)	Formulation (g)	Dry chilli yield (Q/ha)	Percent increase in yield over Control(%)	Percent increase in yield over Check(%)
1.	Chlorothalonil 75 % WP	450	600	8.26	33.87	-
2.	Chlorothalonil 75 % WP	600	800	9.33	51.21	3.32
3.	Chlorothalonil 75 % WP	750	1000	9.40	52.34	4.09
4.	Chlorothalonil 75 % WP	1200	1600	10.03	62.56	11.07
5.	Chlorothalonil 75 % WP	1800	2400	10.97	77.79	21.48
6.	Check, *Kavach 75 WP*	600	800	9.03	46.35	-
7.	Control	-	-	6.17	-	-
SE.m ±				0.61		
CD at 5 %				1.88		

Chlorothalonil 75 % WP @ 0.13 % (10.03 and 9.40 q/ha respectively). Chlorothalonil 75 % WP @ 0.10 % (9.33 q/ha) and Kavach 75 % WP @ 0.10 % (9.03 q/ha) were next in order. The untreated control (6.17 q/ha) recorded significantly least yield (Table 2).

Chlorothalonil 75 % WP @ 0.32 % recorded an increased yield of 77.79 % over control as well as 21.48 % over standard check (Kavach 75 % WP) and was on par with Chlorothalonil 75 % WP @ 0.21 % (62.56 % & 11.07 %) and Chlorothalonil 75 % WP @ 0.13 % (52.34 % & 4.09 %). Bal *et al.*, 2013 reported that chlorothalonil 75% WP @ 0.15 per cent concentration was found effective in reducing both die-back and fruit rot of chilli which was at par with mancozeb 75% WP. The highest yield of 110.79 q/ha was harvested from mancozeb 75% WP sprayed plots which was closely followed by chlorothalonil 75% WP (109.79 q/ha) as against 95.94 q/ha production from control plots.

Phytotoxicity

No phytotoxicity symptoms were observed at all stages of the crop growth by application of the test chemical Chlorothalonil 75 % WP of any concentration at 0, 3, 7 and 10 days after each application.

REFERENCES

1. Anonymous., Directorate of economics and statistics, 2014, New Delhi.
2. Mayee, C. D. and Datar V. V., 1986, Phytopathometry Technical Bulletin-l (Special Bulletin-3). Marathwada Agricultural University, Parbhani.
3. Bal, S. S, Mishra, M. K. and Behera, B., Field efficacy of fungicides against dieback and fruit rot of chilli. *Journal of Plant Protection and Environment*, 2013; **10**(2): 46-48.