

FUNGICIDAL CONTROL OF FRUIT ROT OF CHILLI CAUSED BY *COLLETOTRICHUM CAPSICI*(SYD.) BUTL. & BISBY

Chilli is one of the important crops grown for the value of its fruits in making spices and condiments. The non-pungent chilli varieties are used mainly as vegetable. Chilli is seen affected by fruit rot disease in most of the homestead gardens of Kerala and has recently become a serious problem. The disease manifests on fruits as circular or sunken spots with black margin. As the disease progresses, the spots enlarge, forming concentric markings with dark coloured fructifications of the pathogen. The fruits with many spots drop off prematurely, resulting in heavy loss in yield.

Isolation were made from diseased fruits collected from the Instructional Farm, Vellayni, on potato dextrose agar medium using usual techniques. Pathogenicity tests were carried out by artificially inoculating healthy chilli fruits with spore suspension as well as culture bits. Both injured and uninjured fruits were inoculated by culture bits as well as with spore suspensions of the organism. It was observed that in the case of injured ones, the disease spread was more rapid than the uninjured. Culture bits inoculated fruits developed symptoms earlier than spore suspension sprayed fruits. Inoculation studies conducted revealed that chilli fruits of all stages of maturity can be attacked by *C. capsici*.

The comparative efficacy of five different fungicides at three concentrations each was tested under laboratory conditions and the results are furnished in Table 1.

From the studies, it was found that Bordeaux mixture (0.5%) was effective in suppressing the growth of *C. capsici*. Ziride was next in the order. Dithane M-45 was found to be the least effective fungicide against the organism.

The efficacy of the fungicides was also tested by conducting a pot culture experiment. When the plants started setting fruits, they were spray-inoculated with the spore suspension of the organism using an atomizer and were covered with polythene bags to maintain high humidity. The bags were removed after 48 h. First fungicidal spray was given five days after inoculation, and the second at half maturity stage of the fruits.

Observations on the number of infected fruits were recorded when the fruits were ready for harvest. The disease index (DI) was calculated by applying the formula,

$$DI = \frac{\text{Sum of individual rating} \times 100}{[(\text{Total no. of plants assessed}) \times (\text{Maximum disease category})]}$$

The results showed that application of 1.0% Bordeaux mixture and 0.3% Ziride, were equally effective in controlling the fruit rot disease in chilli. These two treatments were significantly superior to all other treatments. The difference between Bordeaux mixture and Ziride was not significant.

Chowdhury (1957) found that spraying Bordeaux mixture was effective for the control of severe fruit rot of chilli caused by *Colletotrichum capsici*. Applica-

Table 1. *In-vitro* evaluation of fungicides against *C. capsici* causing fruit rot of chilli

Treatment	Chemical name	Concentration %	Radial growth (mm)
T ₁ Bordeaux mixture	--	0.25	22
		0.50	00
		1.00	00
T ₂ Blitox	Copper oxychloride	0.10	16
		0.20	12
		0.30	11
T ₃ Difolatan	Cis-n-(1,1,2,2-tetrachloro ethylthio)-4-cyclohexene 1,2-dicarboximide	0.10	21
		0.20	15
		0.30	15
T ₄ Dithane M-45	Zinc iron and manganese ethylene bisdithio-carbamate	0.10	82
		0.20	73
		0.30	75
T ₅ Ziride	Zinc dimethyl dithiocarbamate	0.10	18
		0.20	17
		0.30	00
T ₆ Control	--	--	90

Table 2. *In-vivo* evaluation of fungicides against *C. capsici* causing fruit rot in chilli

Treatments	Concentration %	Disease index
T1 Bordeaux mixture	0.5	54.20
T2 Bordeaux mixture	1.0	42.04
T3 Blitox	0.2	49.14
T4 Blitox	0.3	56.28
T5 Difolatan	0.2	60.39
T6 Difolatan	0.3	54.86
T7 Dithane M-45	0.3	73.06
T8 Dithane M-45	0.4	76.77
T9 Ziride	0.2	45.06
T10 Ziride	0.3	42.96
T11 Control	-	72.29

CD (0.05) for comparison of mean values = 2.30

tion of 1% Bordeaux mixture against *Colletotrichum capsici* causing leaf spot of turmeric has been reported by Kandaswamy (1958). The fungicidal activity of Ziride towards *C. capsici* as demonstrated in the present investiga-

tion agrees with the report of Kothari and Bhatnagar (1966) and Narain and Panigrahi (1971). Singh (1977) reported that 1% Bordeaux mixture inhibited the growth of *C. capsici* causing fruit rot of chilli.

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