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Comparative efficacy of fungicides against Septoria leaf spot of Chrysanthemum under terai agro-ecological region of West Bengal

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Septoria leaf spot of chrysanthemum is one of the most important diseases in chrysanthemum under terai region of West Bengal. For the control of Septoria leaf spot diseases, five fungicides namely Indofil M-45, Dithane Z-78, Captaf, Bavistin and Companion were evaluated under field conditions. The result revealed that Companion @ 0.1% gave highest disease control (77.3%) followed by Bavistin (69.8%) and Captaf (65.8%). Dithana Z-78 was the least effective fungicide.

Key words : Chemical control, chrysanthemum, fungicides, leaf spot, *Septoria* sp.

INTRODUCTION

Chrysanthemum (*Chrysanthemum* sp.) is a very popular commercial flower in India and ranks second to rose among the top ten cut flowers in the world trade of floricultural crops. Septoria leaf spot of chrysanthemum was found in serious proportion in Maharashtra (Patil and Rao, 1973), Delhi (Natarajan and Srivastava, 1975 ; Sahni, 1978) and some other parts of the country (Pavgi and Upadhyaya, 1966 ; Rangaswami *et al.*, 1970) The black leaf spot disease was described in 1892 by Cavara with *Septoria chrysanthemella* Saccardo as the causul organism. The brown leaf spot disease of chrysanthemum was described in 1914 by Sydow and Sydow with *Septoria obesa* Sydow as the causal organism. In India, Septoria leaf spot disease of chrysanthemum was first recorded from Bihar and U.P. subsequently. Septoria leaf spot of chrysanthemum is one of the most important diseases of chrysanthemum under terai agro-ecological region of West Bengal. Not much information was available with respect to the effect of fungicides in controlling Septoria leaf spot disease of chrysanthemum. Hence, the experiment was designed to test the relative efficacy of the most commonly available fungicides against the disease.

MATERIALS AND METHODS

A pot experiment was conducted with different fungicides at experimental farm, Uttar Banga Krishi Viswavidyalaya during rabi season of 2001-2002 in completely randomized design with three replications. The susceptible local chrysanthemum variety was used as test crop. The treatments consisted of Mancozeb 75 WP (Indofil M-45 @ 0.25%), Zineb 75 WP (Dithane Z-78 @ 0.25%), Captan 50 WP (Captaf @ 0.25%), Carbendazim 50 WP (Bavistin @ 0.10%) and Carbendazim 12 + Mancozeb 63 WP (Companion @ 0.10%). The plants sprayed with water served as control. Three sprays with respective fungicides were applied at a interval of 10 days starting from initiation of the disease. The observation were recorded one week after the last spray. Per cent disease index (PDI) was calculated on the basis of 0.4 scale (Verma and Kumar, 1992). The average of all three observations was taken and was subjected to angular transformation of statistical analysis.

RESULTS AND DISCUSSION

Under field condition, all the fungicides were effective in reducing the incidence of disease significantly in comparison to the control. Foliar spray of all the test fungicides gave more than 59% control of disease over check (Table 1). Foliar spray with Companion (Carbendazim + Mancozeb) @ 0.10% though most effective (77.3%) was statistically at per with Bavistin and Captaf in controlling the disease. Spraying with Dithane Z-78 was less effective

than other tested fungicides in controlling the disease.

Table 1 : Efficacy of different fungicides against leaf spot of chrysanthemum

Treatment	Concentration (%)	Per cent disease Index	Disease control over check (%)
Indofil M-45 (Mancozeb 75 WP)	0.25	22.50 (28.32)	62.74
Dithane Z-78 (Zineb 75 WP)	0.25	24.30 (29.53)	59.76
Captaf (Captan 50 WP)	0.25	20.60 (26.99)	65.89
Bavistin (Carbendazim 50 WP)	0.10	18.20 (25.25)	69.86
Companion (Carbendazim 12+ Mancozeb 63 WP)	0.10	13.70 (21.72)	77.31
Control	Water spray	60.40 (51.00)	0.00
SEm (+)		2.167	
C.D. at 5%		6.68	

Figures in parentheses are transformed angular values

The results obtained in the present study showed that Septoria leaf spot disease of chrysanthemum could be effectively managed by the foliar application of Companion followed by Carbendazim. Madhu Meeta *et al.,* (1992) conducted a field trial using six different fungicides and the best control of disease was given by Bavistin. Chacko and Raghavendra Rao (1986) reported that the disease could be effectively controlled with increased flower yield by fortnightly sprays of Bavistin (0.1%) or Benlate (0.1%). Captan sprays have been found to be highly effective in controlling mixed infection of the two *Septoria* sp. (Natarajan and Srivastava, 1975). All these findings are in conformity with the results under present investigation. The results also suggested that Companion (Carbendazim + Mancozeb) has synergistic fungitoxicity effect against *Septoria* sp. incitant of leaf spot disease of chrysanthemum. The findings of the present investigation suggested that Companion followed by Carbendazim and Captan were superior to other fungicides for the control of the Septoria leaf spot disease of chrysanthemum.

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