

Efficacy of fungicides for the management of *Alternaria* blight of cumin

Y. K. Sharma*, P. C. Choudappa and M. M. Anwer

National Research Centre on Seed Spices, Tabiji, Ajmer-305206, Rajasthan, India

ABSTRACT

A field study has been conducted at National Research Centre on Seed Spices, Ajmer on the management of *Alternaria* blight of cumin using 10 fungicides in three replications following randomized block design. Propiconazole was on par with carbendazim + iprodione and chlorothalonil and recorded significantly least PDI than all other treatments. Yield was significantly superior in propiconazole followed by chlorothalonil.

Key words : cumin, blight, *Alternaria*, management, fungicide

INTRODUCTION

Cumin (*Cuminum cyminum* L.) is an important seed spices crop of India. Gujarat and Rajasthan are the major cumin producing states in the country. Among the major diseases of cumin, *Alternaria* blight caused by *Alternaria burnsii* is most devastating disease in major cumin growing areas in Rajasthan and Gujarat Lodha and Mawar (2). As there is no resistant variety available against this disease, it has become inevitable to go for the use of fungicides for the management of diseases. Few fungicides were reported earlier for the management of disease Akbari *et al.* (1) and Solanki *et al.* (3), but the disease is still causing severe yield losses under favourable environmental conditions. In the present study some of the new chemicals were tested under field conditions to find out their efficacy against *A. burnsii*.

MATERIALS AND METHODS

A field experiment was conducted at National Research Centre on Seed Spices, Ajmer during *rabi* 2010-11 to know the efficacy of the ten fungicides against *Alternaria* blight of cumin. The fungicides used were mancozeb (0.2%), chlorothalonil (0.2%), copper oxychloride (0.2%), carbendazim+iprodione (0.2%), carbendazim+mancozeb (0.2%), zineb (0.25%), propineb (0.2%), hexaconazole (0.1%), tricyclazole (0.1%) and propiconazole (0.1%). The experiment was laid out in randomized block design with three replications using the variety GC 4. The plot size was 3.0 m × 4.2 m with spacing of 30 × 10 cm. Four sprays were given at 40 DAS, 50 DAS, 60 DAS and 70 DAS as per the treatments. At seed formation stage, twenty plants in each sub plot were scored for disease and converted into Percent Disease Index (PDI). The observation on seed yield was also recorded.

RESULT AND DISCUSSION

The results presented in Table 1, revealed that foliar sprays with propiconazole recorded least PDI (19.0) which was at par with carbendazim+iprodione (21.7), hexaconazole (25.3) and chlorothalonil (26.0). Untreated check recorded highest PDI (53.3) followed by tricyclazole (34.7). However, all spray treatments significantly reduced PDI of *Alternaria* blight. Propiconazole recorded highest seed yield (7.5 q ha⁻¹), but on par with other treatments except tricyclazole (4.2 q ha⁻¹). Chlorothalonil (7.3 q ha⁻¹),

Table 1. Field efficacy of fungicides on the incidence of *Alternaria* blight and yield of cumin during *rabi* 2010-11

Treatment	Blight PDI	Percent Disease Reduction over Control	Seed Yield (q/ha)
Mancozeb	28.3 (5.4)*	46.9	6.6
Chlorothalonil	26.0 (5.2)	51.3	7.3
Copper oxychloride	33.0 (5.8)	38.1	6.4
Carbendazim+Iprodione	21.7 (4.8)	59.4	7.2
Carbendazim+Mancozeb	33.7 (5.9)	36.9	7.2
Zineb	32.0 (5.7)	40.0	6.1
Propineb	31.0 (5.6)	41.9	6.7
Hexaconazole	25.3 (5.1)	52.5	6.4
Tricyclazole	34.7 (6.0)	35.0	4.2
Propiconazole	19.0 (4.5)	64.4	7.5
Untreated check	53.3 (7.4)	-	4.1
CD at 5%	7.99 (0.69)		1.46

*Figures in parenthesis are transformed value

carbendazim + irodione (7.2 q ha⁻¹) and carbendazim + mancozeb (7.2 q ha⁻¹) were next best fungicides. Untreated check (4.1 q ha⁻¹) recorded lest seed yield. The results indicated that spray applications of propiconazole, carbendazim+iprodisone, hexaconazole and chlorothalonil could be alternative effective fungicides for *Alternaria* blight management in cumin.

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