

# Evaluation of fungicides against blight of cumin caused by *Alternaria burnsii*

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In India cumin is an important seed spice crop grown in the states of Rajasthan, Gujarat, Uttar Pradesh and Tamil Nadu. Rajasthan stands first in acreage (149 thousand ha) and production (27 thousand metric tonnes) (Anonymous, 2008). The crop suffers severely from blight disease which generally appears at the time of flowering or seed formation causing heavy losses in grain yield (Gemawat and Prasad, 1969; Bhatnagar *et al.*, 1995). The present investigation are undertaken to evaluate the efficacy of different fungicides and one neem pesticide against severity of blight and yield of cumin.

With a view to determine the efficacy of different fungicides and a neem pesticide on blight intensity and yield of cumin, an experiment in Randomized Block Design was laid out with three replications during rabi, 2003-04 with RZ-19 variety. There was 12 treatments including control with a plot size of 4m×3m for each treatment. The following fungicides were used-

The crop was first sprayed with different fungicides at the flowering stage followed by second spray one month after the first spray. The disease intensity was recorded by using a rating scale (Gemawat and Prasad, 1969).

**Table 1:** Per cent doses of test fungicides used against blight of cumin

S. Test fungicides No.	Doses
Current M-45 (mancozeb 75 WP)	0.2%
Dithane M-45 (mancozeb flowable 35 SC)	0.3%
Blue copper (copper oxychloride 50 WP)	0.2%
Kavach (chlorothalonil 75 WP)	0.2%
Companion (carbendazim 2% + mancozeb 63% WP)	0.2%
Dithane Z-78 (zineb 75 WP)	0.2%
Tilt (propiconazole 25 EC)	0.1%
Topas (penconazole 10 EC)	0.05%
Controll (hexaconazole 5 EC)	0.1%
Score (difenoconazole 25 EC)	0.1%
Nimbidine (azadirachtin 0.03 EC)	0.3%
Control (no fungicide was applied)	

The data presented in Table 1 revealed that severity of *Alternaria* blight was significantly affected by fungicidal sprays. The minimum disease severity was recorded with Score (16.66%) followed by Kavach (19.45%), Companion (20.66%), Topas (20.66%), Tilt (20.00%) and Controll (21.78%) against control (50.77%). However, Score was highly effective followed by Kavach which were statistically at par with each other. The maximum disease severity was recorded with Nimbidine

(38.44%) followed by Blue Copper (32.89%) and Current M-45 (28.44%). Similarly fungicidal sprays had significant effect on grain yield of cumin. Maximum grain yield (683.3 kg/ha) was recorded in Score (0.1%) which was significantly superior over other fungicidal treatments. The lowest grain yield (306.0 kg/ha) was recorded in Nimbidine (0.3%) treatment. Further, it can be concluded that minimum disease severity (16.66%) of *Alternaria* blight and maximum grain yield (683.3 kg/ha) of cumin was recorded in Score followed by Kavach treatment. Some what similar findings are reported by Akbari and Dhruj (1995) and Akbari *et al.*, (1996).

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The disease intensity was rated by preparing an arbitrary scale-

Grade	Disease description
Low : 1 = A	Symptoms on leaf tips and leaves only
Medium : 2 = B	Symptoms on leaf tips, leaves, stem
Severe : 3 = C	Symptoms on leaves, stem, inflorescence, seeds etc.
Healthy : 4 = D	No symptoms: plants being healthy

Disease intensity was observed on 100 plants at random in each plot and calculated as under.

$$DI = \frac{NA + NB + NC + ND}{\text{Total number of plants} \times 3} \times 100$$

(N = Number of plants)

**Table 2.** Efficacy of various fungicides on *Alternaria* blight and yield of cumin

Treatments	Disease intensity (%)	Yield (kg/ha)
Current M-45	28.44(32.22)*	478.0
Dithane M-45 (Flowable)	26.66(31.09)*	462.0
Blue Copper	32.89(34.98)*	389.0
Kavach	19.45(26.12)*	612.1
Companion	20.66(27.04)*	596.0
Dithane Z-78	27.33(31.48)*	470.0
Tilt	21.00(27.24)*	536.0
Topas	20.66(27.04)*	571.0
Controll	21.78(27.78)*	544.5
Score	16.66(24.07)*	683.3
Nimbecidine	38.44(38.29)*	306.0
Control	50.77(45.44)*	183.3
S.E.m±	1.119	19.189
CD (P=0.05)	3.282	56.280

\* ( ) percentage transformed to angles : values outside parenthesis are back transformation to percentage

## References

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