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# FUNGICIDAL CONTROL OF THE POWDERY MILDEW DISEASE OF BLACKGRAM

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To assess the efficacy of different fungicides against powdery mildew of blackgram, both *Invitro* and field evaluation were taken up. Karathane (0.07 per cent), bavistin (0.1 per cent) and topsin M. (0.1 per cent) were highly inhibitory to the conidial germination of *Erysiphe polygoni*. Karathane was highly effective in reducing the per cent disease index to the maximum level. Bavistin and topsin M. Were next best in restricting disease development. The grain yield was significantly increased by the application of karathane, when compared to all the other treatments.

Powdery mildew disease is one of the most serious diseases on mung and urd. The disease appears in epidemic form almost every year during December-February when the plants are in pod stage causing appreciable yield loss. Protection with chemicals against powdery mildew is necessary to avoid heavy losses. With this aim in view the fungicides were evaluated under both *in vitro* and field condition for their efficacy and the results are reported in this communication

## MATERIALS AND METHODS

The efficacy of the following eleven fungicides was tested against the powdery mildew of blackgram maintaining suitable controls.

Dithane M.45 0.2%, karathane 07%, Plantvax 0.05%, Sulfex 0.1%, Baycor 0.1%, Calixin 0.1%, Captafol 1%, Rovral 0.1%, Daconil 0.1%, Bavistin 0.1%, and Topsin M. 0.1%.

Germination tests were carried out by placing the conidia in the cavity slides containing different fungicides and the control was maintained by placing the conidia in the cavity slides containing sterile distilled water. The per cent inhibition of conidial germination by different fungicides was worked out.

In the field trial, the experiment was conducted in plots of 4 × 2.5M size during December, 1982 to February, 1983 The test variety was CO 4 blackgram sown with a spacing of 20 × 10 cm. The experiment was conducted in a randomized block design.

The first spraying was given on the 45th day after sowing. Second spray was given 15 days thereafter. Twenty five plants per plot were chosen at random and the intensity of the disease was scored and the percentage of disease index for various treatments was calculated.

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TABLE: 1 EVALUATION OF EEFICACY OF FUNGICIDES ON POWDERY MILDEW *IN IN VITRO* CONDITION.

| Treatments | % Spore germination | Percentage of inhibition of germination |
|---|---|---|
| | + | |
| Rovral | * 2 6 | 60.9 |
| Daconil | 2 0 | 69.8 |
| Sulfex | 2·8 | 57.3 |
| Captafol | 2.7 | 59 4 |
| Topsin M | 1.3 | 79.9 |
| Bavistin | 0.7 | 89.4 |
| Dithane M. 45 | 3.9 | 41.2 |
| Plantvax | 2.6 | 60.9 |
| Baycor | 1.6 | 75.4 |
| Karathane | 0.7 | 89 4 |
| Calixin | 1.9 | 71.6 |
| Control | 6.6 | — |

\+ Square root transformation
* Mean of three replications
CD (P = 0.05) = 0 02

TABLE: 2 FIELD EVALUATION OF FUNGICIDES AGAINST POWDERY MILDEW OF BLACK-GRAM

| Treatments | Percentage discare index on | | | Yield (kg/ha) |
|---|---|---|---|---|
| | Before first spray | 15 days after first spray | 15 days after second spray | |
| Sulfex | 10.4 | 9.4 | 1.6 | 52.3 |
| Baycor | 8.9 | 5.9 | 1.0 | 95.7 |
| Calixin | 10.8 | 5.0 | 1.3 | 84.0 |
| Dithane M. 45 | 9.8 | 4.9 | 1 9 | 47.3 |
| Captafol | 8.2 | 7.2 | 1.6 | 67.3 |
| Rovral | 16.1 | 4.3 | 1.2 | 92.3 |
| Deconil | 8.7 | 4.1 | .3 | 79.0 |
| Bavistin | 14.9 | 4.8 | 0.7 | 115.7 |
| Karathane | 13.9 | 4.8 | 0.6 | 135.7 |
| Plantvax | 6.0 | 4 2 | 1.5 | 75.7 |
| Topsin M. | 10.6 | 3.8 | 0.9 | 100.7 |
| Control | 11 9 | 26.6 | 36.7 | 44.0 |
| CD (P = 0.05) | | 7.5 | 2.7 | 18.6 |

## RESULTS AND DISCUSSION

The assessment of efficacy of fungicides under *in Vitro* conditions showed that the percentage of inhibition of spore germination by bavistin, karathane, topsin M were higher when compared to other chemicals tested (Table 1)

In field trial, the results of the data presented in Table 2, showed that the plots assigned to different treatments had uniform distribution of powdery mildew disease and the differences in per cent disease index before spraying was not significant.

karathane 0.07 per cent was highly effective in reducing the per cent disease index to the maximum level followed by bavistin 0.1 per cent and topsin M 0.1 per cent. However, the treatment differences due to application of different chemicals were not significant. The grain yield of plots sprayed with karathane was significantly higher than all the other treatments.

Gupta and Singh (1975) obtained significant control of powdery mildew by spraying karathane (0.1 per cent) in blackgram, Singh and singh (1982) obtained the best control and yield with sprays of calixin 80 EC (0.1 per cent) or karathane (0.1 per cent) at 15 days intervals and observed increased yield in pea.

The present study also showed that the karathane (0.07 per cent) and bavistin (0.1 per cent) controlled the disease effectively and increased the yield significantly.

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