

EVALUATION OF FUNGICIDES ON FUNGI ASSOCIATED WITH FRUIT ROTS AND LEAF SPOTS OF BRINJAL

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Key words: Fungicides, Fruit rot, Leaf spot, Brinjal

Different fruit rots and leaf spots have destructive impact on the production of brinjal which occur almost all brinjal growing countries in the world including Bangladesh^(1,2). The present work was aimed to find out suitable fungicide(s) following poison food technique⁽³⁾ *in vitro* against the fungi found associated with these diseases.

Infected brinjal fruits and leaves were collected from the selected fields of BADC in Gazipur, fields at Sibpur village in Natore and Botanical Garden in the Dhaka University. Fungi were isolated from these infected plant parts following Tissue planting method on PDA. Among the isolates, *Colletotrichum* sp., *Curvularia lunata* (Wakker) Boedijn, *Fusarium moniliforme* Sheld., *F. oxysporum* Wollenw., *F. semitectum* Berk. & Ravenel and *Phomopsis* sp. were selected as the test fungi owing to their higher per cent frequency and previous reports^(4,5).

Six fungicides with different active ingredients *viz.*, bavistin 50WP (50% carbendazim), dithane M-45 (80% mancozeb), Mc sulphur 80WP (80% sulphur), ridomil gold MZ 68 WP (64% mancozeb and 4% metalaxyl), salcox 50WP (50% copper oxichloride) and tall 25EC (25% propiconazole) were collected. By using PDA medium, their growth inhibition efficacy were evaluated against the above mentioned test fungi at 500 ppm concentration on the basis of its active ingredient. An efficiency gradient was prepared on the basis of their complete inhibition ability first and after that, their higher average inhibition ability. Considering efficiency gradient three best inhibiting fungicides were selected to evaluate their fungitoxicity at 50, 100, 200 and 400 ppm concentrations against the test fungi. Three replications were maintained in each case. The inoculated plates were incubated at 25 ± 2°C. The radial growth of the colonies was measured at the fifth day of incubation. The per cent growth inhibition of each test fungi was calculated by using the formula of Hossain and Bashar⁽³⁾. The results were statistically analyzed by 't' test following Steel and Torrie⁽⁶⁾.

Table 1 reveals that all the fungicides inhibited the growth of the test fungi partially or completely at 500 ppm concentration. Out of six fungicides, tall, bavistin and ridomil were able to check the growth of *Fusarium oxysporum* completely. Similar findings were also reported on other fungi^(7,8). Tall also inhibited the radial growth of *F. moniliforme*,

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Phomopsis sp. and *Curvularia lunata* completely. Bavistin also completely checked the mycelial growth of *F. moniliforme* and *Colletotrichum* sp.

Table 1. Fungitoxicity of fungicides against the growth of the test fungi at 500 ppm concentration.

Name of fungicides	% inhibition of radial growth of the test fungi						
	Fo	Fs	Fm	Ph	Co	Cu	Avg.
Bavistin DF	100.0 ^a	89.09 ^a	100.0 ^a	86.86 ^a	100.0 ^a	89.65 ^a	94.27
Diathane M-45	96.92 ^a	87.27 ^a	98.55 ^a	96.07 ^a	96.49 ^a	94.82 ^a	95.02
Mc Sulphur 80WP	68.38 ^a	69.09 ^b	76.37 ^a	68.62 ^b	38.59 ^a	76.37 ^b	66.24
Ridomil MZ Gold	100.0 ^a	100.0 ^a	94.20 ^b	97.25 ^a	100.0 ^a	91.37 ^a	97.14
Salcox 50 WP	84.00 ^b	85.45 ^b	89.85 ^c	92.15 ^a	82.96 ^b	83.27 ^a	86.28
Tall 25 EC	100.0 ^a	92.72 ^a	100.0 ^a	100.0 ^a	94.73 ^a	100.0 ^a	97.91

Efficiency gradient: Tall > Bavistin > Ridomil > Diathane > Salcox > Mc sulphur. a, b and c indicate significance at p= 0.001, 0.01 and 0.05, respectively. Fo= *Fusarium oxysporum*, Fs=*F. semitectum*, Fm= *F. moniliforme*, Ph= *Phomopsis* sp., Co= *Colletotrichum* sp., Cu= *Curvularia lunata* and Avg.= Average.

Table 2 shows that tall checked mycelial growth of *Fusarium oxysporum* and *Phomopsis* sp. completely at all the tested concentrations. In case of *F. moniliforme* and *Curvularia lunata* it did the same only at 400 ppm concentration. Bavistin checked *F. oxysporum* and *Colletotrichum* sp. completely at all the tested concentrations, but it did the same against *F. moniliforme* at 400 ppm concentration. Similar observations have also been reported for other fungicides⁽⁹⁾. Ridomil inhibited *Colletotrichum* sp. completely only at 400 ppm.

Table 2. Fungitoxicity of three fungicides against the growth of test fungi at different concentrations.

Test fungi	% inhibition of radial growth of test fungi at different concentrations (ppm)											
	Bavistin 50 WP				Tall 25 EC				Ridomil MZ gold			
	50	100	200	400	50	100	200	400	50	100	200	400
Fo	100 ^a	100 ^a	100 ^a	100 ^a	100 ^a	100 ^a	100 ^a	100 ^a	57.7 ^a	67.16 ^a	74.34 ^a	84.16 ^a
Fs	61.63 ^b	69.71 ^b	71.73 ^b	80.67 ^a	61.87 ^a	69.37 ^a	71.05 ^a	88.37 ^a	67.24 ^a	75.24 ^a	80.0 ^a	92.38 ^a
Fm	68.88 ^a	78.44 ^b	82.88 ^a	100 ^a	65.67 ^a	75.02 ^a	80.86 ^a	100 ^a	77.16 ^a	81.16 ^a	84.33 ^a	87.84 ^a
Ph	57.17 ^a	68.81 ^a	71.23 ^a	80.15 ^a	100 ^a	100 ^a	100 ^a	100 ^a	63.29 ^a	71.88 ^a	75.48 ^a	89.53 ^a
Co	100 ^a	100 ^a	100 ^a	100 ^a	61.82 ^a	72.50 ^a	76.23 ^a	87.74 ^a	69.23 ^a	79.48 ^a	82.05 ^a	100 ^a
Cu	28.94 ^c	42.10 ^b	60.52 ^b	76.31 ^b	70.50 ^a	79.41 ^a	82.35 ^a	100 ^a	57.85 ^a	61.85 ^a	69.69 ^a	88.23 ^a
Avg.	69.44	76.51	81.06	89.52	76.64	82.72	85.08	96.02	65.41	72.8	77.65	90.36

Efficiency gradient: Tall 25 EC > Bavistin 50WP > Ridomil MZ gold at 400 ppm. Letters and abbreviations are same as in table 1.

In an average, all the three fungicides inhibited all the test fungi best at 500 ppm concentration. The present study suggests that tall 25 EC may be exploited *in vivo* to control the test fungi associated with fruit rots and leaf spots of brinjal.

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(Manuscript received on 18 December, 2013; revised on 29 December, 2013)