Research Note :

Inhibitory effect of certain fungicides and antibiotics on radial growth of *Rhizoctonia bataticola* causing root rot wilt of betel vine

S.B. BRAHMANKAR, N.R. DANGE AND DEEPALI G. TATHOD

International Journal of Plant Protection, **Vol. 4 No. 1 (April, 2011) : 231-233**

See end of the article for authors' affiliations

Correspondence to :
S.B. BRAHMANKAR
Department of Plant Pathology, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, AKOLA (M.S.) INDIA
Email : bramhash@gmail.com

Brahmankar, S.B., Dange, N.R. and Tathod, Deepali G. (2011). Inhibitory effect of certain fungicides and antibiotics on radial growth of *Rhizoctonia bataticola* causing root rot wilt of betel vine. *Internat. J. Pl. Protec.*, **4**(1): 231-233.

Key words : Inhibitory effect, Betel vine, *Rhizoctonia solani*, Root rot, Wilt

Received : ***October, 2010***
Accepted : ***December, 2010***

Piper betle L.(betel vine) is victim of several diseases of fungal origin. But the most important is rot root/wilt caused by *Rhizoctonia bataticola* in Vidarbha (Maharashtra). Now-a-days, this disease has become so threat that its cultivation has been abandoned in certain parts of Vidarbha. In the present study fifteen fungicides and two concentrations of three antibiotics were tested against *R. bataticola.*

The fungus, *R. bataticola* was isolated from diseased samples of betel vine wilt and its pathogenicity was proved. *In vitro* the assay of fifteen fungicides and three antibiotics was carried out by poisoned food technique. The stock solutions of fungicides and antibiotics were prepared and mixed in molten and cooked autoclaved Potato dextrose agar (PDA) medium to get the required concentration. Five mm disc of fungus was placed in centre of Petriplate containing various amended media and incubated at 27 $\pm$ 2^{0}C. The radial growth of colony was measured nine days after the incubation. The per cent inhibition of colony diameter of test fungus was calculated by the following formula as suggested by Vincent (1947) :

$$I = \frac{C - T}{C} \times 100$$

where,

I = per cent inhibition

C= Growth of test fungus in control (mm)

T = Growth of test fungus in treatment (mm)

The data presented in Table 1 showed that 100 per cent inhibition of test fungus was recorded in dithane M-45, dithomyl, dithane Z-78, thiram, ridomil, benlate, carbendazim and metalaxyl. In rest of the treatments, inhibition was ranged from 54.72 to 82.78 per cent except in copper oxychloride where the inhibition only 8.61 per cent. This confirms the finding of earlier research works on different fungicides like ridomil (Ramraj, 1980); dithame M-45 (Maiti *et al.*, 1978); thiram (Siddappa and Anilkumar, 1985) and Carbendazim (Verma and Vyas,1976).

Out of three antibiotics screened, Validamycin and Kasugamycin inhibited the radial growth of test fungus totally at 200 ppm, though 100pm concentration was not effective (Table 2). These results corroborate with the findings of Shrivastava and Vyas (1983) and Balasubramanium *et al.* (1988).

Table 1 : Efficacy of different fungicides against *Rhizoctonia bataticola in vitro*

Tr. No.	Fungicides	Conc. of fungicide (%)	Test fungus *		
			Average colony diameter (mm)	Per cent inhibition of colony growth over control	Mycelial growth
T_1	Dithane M-45	0.25	0.00	100.00	No growth
T_2	Kavach	0.1	27.75	69.17	Brown coloured mycelial growth with sharp margin
T_3	Dithomyl	0.1	0.00	100.00	No growth
T_4	Thiram	0.2	0.00	100.00	No growth
T_5	Ridomil	0.1	21.75	75.83	Sparse, white aerial
T_6	Roko	0.1	21.75	75.83	Light brown, sharp margin
T_7	Benlate	0.1	0.00	100.00	No growth
T_8	Dithane Z-78	0.25	0.00	100.00	No growth
T_9	Copper oxychloride	0.25	82.25	8.61	Sparse, arial, irregular, running form centre to outward
T_{10}	Carbendazim	0.1	0.00	100.00	No growth
T_{11}	Topaz	0.05	40.75	54.72	Compact, balck colour mycelium
T_{12}	Calixin	0.1	38.25	57.50	Sparse sharp margin, blackish brown
T_{13}	Aliette	0.2	15.50	82.78	Sparse, arial, loose, brown black
T_{14}	Metalaxyl (Apron)	0.1	0.00	100.00	No growth
T_{15}	Bordeaux mixture	1.0	31.00	65.55	Sparse, thin, white, ariel
T_{16}	Control		90.00		Vigorous, thick, aerial, black brown growth of mycelium running from centre to outward
S.E.(m) $\pm$					0.98
C.D. (P=0.01)					3.75

* After 9 days .

Table 2 : Efficacy of antibiotics against *Rhizoctonia bataticola in vitro*

Tr. No.	Antibiotics	Conc. in PPM	Test fungus*		
			Average colony diameter (mm)	Per cent inhibition of colony growth over control	Mycelial growth
T_1	Validamycin	100	13.00	85.56	Sparse blakish brown with aerial
T_2	Validamycin	200	0.00	100.00	No growth
T_3	Kasugamycin	100	22.50	75.00	Blackish brown with sharp margin and pigmentation
T_4	Kasugamycin	200	0.00	100.00	No growth
T_5	Streptomycin	100	67.00	25.56	Sparse, dark blackish with aerial
T_6	Streptomycin	200	33.25	63.05	Sparse blackish brown with aerial
T_7	Control		90.00		Vigorous, thick, aerial, black brown, growth of mycelium running from centre to outward
S.E.(m)$\pm$			0.67		
C.D. (P= 0.01)			2.75		

* After 9 days

Authors' affiliations:
N.R. DANGE AND DEEPALI G. TATHOD, Department of Plant Pathology, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, AKOLA (M.S.) INDIA

REFERENCES

Balsubramanian, V.R., Chaurasia, R., Tripathi, R.D. and Joshi, J.K. (1988). *Trop. Pest Manag*., **34** : 315-317.

Maiti, S., Khatua, D.C. and Sen, C. (1978). *Pesticides,* **12**:45-47.

Ramraj, B. (1980). Chemical control of betel vine wilt. M.Sc. Thesis. Tamil Nadu Agricultural University, Coimbtore, T.N. (India).

Shrivastava, Anjali and Vyas, K.M. (1983). *Hindustan Antibiotics Bull.*, **25**:15-17.

Siddappa, M.K. and Anilkumar, T.B. (1985). *J. Soil. Biol. Ecol.,* **5** (2):192-197.

Verma, R.K. and Vyas, S.C. (1976). *Pesticids,* **10**:21-24.

Vincent, J.M. (1947). *Nature,* **159**:850.

****