

***In vitro* Efficacy of Fungicides and Bioagents Against *Colletotrichum* Blight of Betalvine**

C.U. PATIL, A.S. ZAPE AND B.S. CHACHARKAR

International Journal of Plant Protection, Vol. 2 No. 1 : 108-110 (April to September, 2009)

See end of the article for authors' affiliations

Correspondence to :

A.S. ZAPE

Department of Plant Pathology, Shri Shivaji College of Horticulture, AMRAVATI (M.S.) INDIA

SUMMARY

A severe incidence of blight (*Colletotrichum gloeosporioides*) was noticed at Akot and Anjangaon area during August to December, 2007. Efficacy of fungicides *in vitro* revealed that mancozeb + carbendazim (0.2%) and propiconazole (0.1%) were most effective as they completely inhibited the growth of *C.gloeosporioides*. Mancozeb + triacyclozole (0.2%) was the next best treatment which inhibited 85.40 per cent growth of the fungus followed by tridemorph (0.1%), zineb + hexaconazole (0.2%) and carbendazim (0.1%) giving 76.66, 76.61 and 71.46 per cent inhibition, respectively. Chlorothalonil (0.1%), copper oxychloride (0.3%) and mancozeb (0.25%) alone were found less effective in inhibiting the pathogen. Among the bioagents tested, *Trichoderma viride* was observed most effective antagonist against *C.gloeosporioides*. The least inhibition (15.01%) was found due to *Pseudomonas fluorescens*.

A number of diseases have been reported from betelvine growing areas of India but blight is one of the most serious diseases and under favourable weather conditions the disease may cause 25-90 per cent loss in consumable leaves. Lacking appropriate management strategies, these diseases continue to pose a serious threat to betel vine cultivation. Several workers have tested on the efficacy of different fungicides and bioagents against blight (*Colletotrichum gloeosporioides* Penz.). At present, chemical fungicides such as mancozeb + carbendazim (0.2%) and propiconazole (0.1%) and bioagents like *Trichoderma viride* are used to combat the disease (Haralpatil, 2006; Prashanth, 2007 and Venkataravanappa *et al.*, 2006).

MATERIALS AND METHODS

The study was undertaken in the Department of Plant Pathology Dr. P.D.K.V., Akola and Betelvine Research Station, Diwthana during August to December, 2007.

Nine fungicides and three bioagents were tested. The fungicides were mancozeb, chlorothalonil, copper oxychloride, carbendazim, propiconazole, tridemorph, mancozeb + carbendazim, mancozeb + triacyclozole and zineb + hexaconazole, while bioagents were *Trichoderma harzianum*, *T. viride* and *Pseudomonas fluorescens*. *C.gloeosporioides* was isolated from the affected leaf and stem samples of *P. betle* on Potato dextrose agar (PDA) medium at 20 ±

1°C. Efficacy of these fungicides and bioagents against pathogens were tested in the laboratory (*in vitro*). Methods adopted for these experiments related to the efficacy were as follows:

Efficacy of chemicals by poisoned food technique:

Poisoned food technique was used to evaluate the above mentioned fungicides *in vitro* against *Colletotrichum gloeosporioides*. Potato dextrose agar medium was prepared and distributed at the rate of 100 ml in 250 ml conical flask, autoclaved at 1.05 kg/cm² for 15 min. Then before solidification of media, different fungicides with desired concentration were incorporated aseptically in different flasks. These flasks shaken thoroughly and poured in Petri plates 20 ml/plate like wise, three plates for each treatment were poured. One set of three plates was poured without any fungicide to serve as control. After solidification of medium, the plates inoculated with eight days old pathogen separately. The 6 mm diameter mycelial disc selected from peripheral growth of the plate by sterilized cork borer were used for inoculating the plates by keeping one disc per plate in the centre in inverted position, so as to make the mycelial growth touch the surface medium. The inoculated plates were incubated at room temperature for seven days.

The colony diameter of the fungal pathogen on medium was recorded and per cent

Key words :

Fungicides,
Bioagents, *C. gloeosporioides*,
Piper betle

Accepted :
March, 2009