*Research Paper :*

# *In Vitro* evaluation of fungicides and biocontrol agents against *Colletotrichum lindemuthianum* causing anthracnose of dolichos bean

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## SUMMARY

**The experiment was conducted to know the efficacy of different fungicides and bioagents against inhibition of *Colletotrichum lindemuthianum* growth, causing anthracnose of Dolichos bean. Among different contact fungicides tested *in vitro,* mancozeb was found to be more effective and inhibited centper cent (100%) followed by propineb (48.32%) and chlorothalonil (37.39%) inhibited the mycelial growth of *C. lindemuthianum* at a concentration of 800 ppm. Among different systemic fungicides tested, carbendazim inhibited cent per cent (100%) mycelial growth followed by propiconazole (100%) and difenoconazole (84.87%) at a concentration of 400 ppm. Among the biocontrol agents, *Trichoderma harzianum* was found to be the best in inhibiting the mycelial growth of *C. lindemuthianum* to an extent of 73.54 per cent followed by *T. viride* (50.90%). Least mycelial growth inhibition was observed in *Bacillus megaterium* (39.46%).**

**Key words :** Fungicides, Bioagents, *Colletotrichum lindemuthianum,* Anthracnose

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Dolichos bean (*Dolichos lablab* L.) is an important pulse-cum-vegetable crop. Dolichos bean is good source of the amino acid, lysine, and it contains 20-28% crude protein. The green pods are a good protein source as well as a valuable source of fibre. The dolichos bean is affected by many diseases and among which, anthracnose caused by *Colletotrichum lindemuthianum* (Sacc. and Magn.) Scriber. is the most devasting disease in India (Sharma and Sugha, 1995) and disease occurs in tropical and subtropical regions but it causes greater losses in the temperature zones than it does in tropics. Anthracnose is caused by *C. lindemuthianum* (Sacc and Magn.) Scriber. affecting all plant parts *viz.*, stem, pods and seeds (Zaumeyer and Thomas, 1957). Keeping in view the importance of anthracnose disease, the present investigation was carried out to test the efficacy of different fungicides and biocontrol agents against *Colletotrichum lindemuthianum.*

## MATERIALS AND METHODS

The experiment was conducted at Department of Plant Pathology, College of Agriculture, University of Agricultural Sciences, G.K.V.K., Bangalore, during 2008. Under *in vitro* condition, eight treatments of fungicides *viz.,* carbendazim, chlorothalonil, copper-oxy-chloride, difenconazole, hexaconazole, mancozeb, propiconazole and propineb were tested against *Colletotrichum lindemuthianum* by employing poisoned food technique. The desired concentrations were obtained by adding appropriate amount of stock solution of fungicides to Potato dextrose agar (PDA) in Petriplates and repeated thrice for each treatment. PDA without fungicides served as control. Each plate was inoculated with a 5 mm mycelial disc of the pathogen taken from 7 day old culture grown on PDA. The inoculated plates were incubated at 28±1$^0$C. after 7 days of incubation, colony diameter was recorded and per cent inhibition in each treatment over control was calculated by using the formula given by Vincent (1947):

$$I = \frac{C - T}{C} x100$$

where, I =Per cent inhibition
C = Radial growth in control
T = Radial growth in treatment

The different bioagents *viz., Trichoderma viride, T. harzinaum, Bacillus megaterium* and *Pseudomonas fluorescens* were evaluated against anthracnose pathogen, *C. lindemuthianum* by dual plate technique. Twenty ml of PDA medium was poured into sterile Petriplates and allowed for solidification. Seven day old, 5 mm culture disc of *C. lindemuthianum* was taken with the help of sterilized cork borer and placed in the one side