

# Efficacy of some fungicides against anthracnose on mungbean caused by *Colletotrichum lindemuthianum*

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## SUMMARY

A laboratory experiment was conducted to determine the efficiency of non-systemic (Chlorothalonil and Mancozeb) and systemic fungicides (Carbendazim, Benomyl and Thiophanate Methyl) at 5 to 3500 µg/ml against *Colletotrichum lindemuthianum* by assessing per cent inhibition of fungal mycelium. Linear growth of the pathogen was measured every day, MIC (minimum inhibition concentration) values and latent period of different isolates was evaluated.

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

Variation in the sensitivity of isolates of different pathogens in relation to many fungicides has been shown by many workers (Jones and Ehret, 1976; Dekkar and Gielink, 1979; Gangawane and Saler, 1981). All of them are of the opinions that build up of resistant mutants of the pathogen takes place under the different selection procedure of fungicide and are not pathogen specific. Hence, they also affect a wide range of non pathogenic fungi. Therefore, fungicides are extensively used in agricultural system to control fungal pathogen. The fungicide used in the present investigation has been recommended to control different mung diseases.

## MATERIALS AND METHODS

The sensitivity test was done by studying in radial growth of *C. lindemuthianum* isolates on the agar plates containing fungicide (Dekkar and Gielink, 1979). Potato dextrose agar plates containing fungicides at different concentrations were prepared. The concentration of fungicides used in the agar plates were 5 to 3500 µg/ml. Discs of 4mm in diameter were taken from actively growing margins of 7 days old colony and were placed on the agar surface. The plates were then incubated at  $28 \pm 2^{\circ}$  C in the incubator and linear growth was measured daily and MIC values and latent period of different isolates were recorded. The present study was therefore, undertaken to examine the possibility of development of resistance in *C. lindemuthianum* against both systemic

and non systemic fungicides. In this investigation sensitivity of 20 isolates of *C. lindemuthianum* against Chlorothalonil, Mancozeb, Benomyl, Carbendazim and Thiophanate methyl was evaluated.

## RESULTS AND DISCUSSION

Fungal blight of mung bean caused by *C. lindemuthianum* is commonly occurring diseases in Maharashtra. The disease is managed by various systemic and non-systemic fungicides (Datar and Mayee 1981). Result in Table 1 indicates that there was a variation in the MIC of fungicides against different isolates. MIC ranged from 5-3500 µg/ml for Chlorothalonil, 5-1600 µg/ml for Mancozeb, 5-50 µg/ml for Benomyl, 5-40 µg/ml for Carbendazim and 5-80 µg/ml for Thiophanate methyl. Variation in the sensitivity of isolates of different pathogens in relation to many fungicides has been shown by many workers. (Dekkar and Geilink, 1979; Gangawane and Saler, 1981; Gangawane, 1997). All of them are of the opinion that the build up of resistant takes place under the different mutants of the pathogens at the different selection pressure of fungicide in the field. The fungicides used in the present study are recommended to control different mung diseases.

Latent period is very important factor for successful infection and development of the symptoms. The latent period also varied according to the isolate and the fungicide. Latent period was less in the resistant CI-11 isolate than that of the sensitive CI-20 isolate. Under selection pressure of the fungicides used in this study resistant isolate may develop maximum resistance and will be fit to develop symptoms even on the plants.

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**Table 1 : MIC of fungicides against *Colletotrichum lindemuthianum* isolates on agar plates**

Isolate	Chlorothalonil	Mancozeb.	Benomyl	Carbendazim	Thiophanatemethyl.
Cl-1	*3500	1500	45	35	75
Cl-2	3500	1500	45	35	75
Cl-3	3500	1400	40	25	70
Cl-4	3500	1500	45	35	75
Cl-5	3500	1500	45	35	75
Cl-6	3500	1500	45	35	75
Cl-7	3500	1500	45	35	75
Cl-8	3500	1500	45	35	75
Cl-9	3500	1500	45	35	75
Cl-10	3500	1600	50	40	80
Cl-11	3500	1600	50	40	80
Cl-12	3500	1500	45	35	75
Cl-13	3500	1500	45	35	75
Cl-14	3500	1500	45	35	75
Cl-15	3500	1500	45	35	75
Cl-16	3500	1500	45	35	75
Cl-17	3500	1500	45	35	80
Cl-18	3500	1600	50	40	80
Cl-19	3500	1400	40	25	70
Cl-20	3500	1600	50	40	80

\*µg/ml

**Table 2 : Latent period of *Colletotrichum lindemuthianum* when treated with fungicides**

Isolate	Chlorothalonil	Mancozeb	Benomyl	Carbendazim	Thiophanate-methyl.
Cl-1	*3	3	3	2	3
Cl-2	3	3	3	2	3
Cl-3	3	2	2	2	2
Cl-4	3	3	3	2	3
Cl-5	3	3	3	2	3
Cl-6	3	3	3	2	3
Cl-7	3	3	3	2	3
Cl-8	3	3	3	2	3
Cl-9	3	3	3	2	3
Cl-10	3	4	3	2	4
Cl-11	3	4	3	2	4
Cl-12	3	3	3	2	3
Cl-13	3	3	3	2	3
Cl-14	3	3	3	2	3
Cl-15	3	3	3	2	3
Cl-16	3	3	3	2	3
Cl-17	3	3	3	2	3
Cl-18	3	4	3	2	4
Cl-19	3	2	2	2	2
Cl-20	3	4	3	2	4

\*Latent period in days.

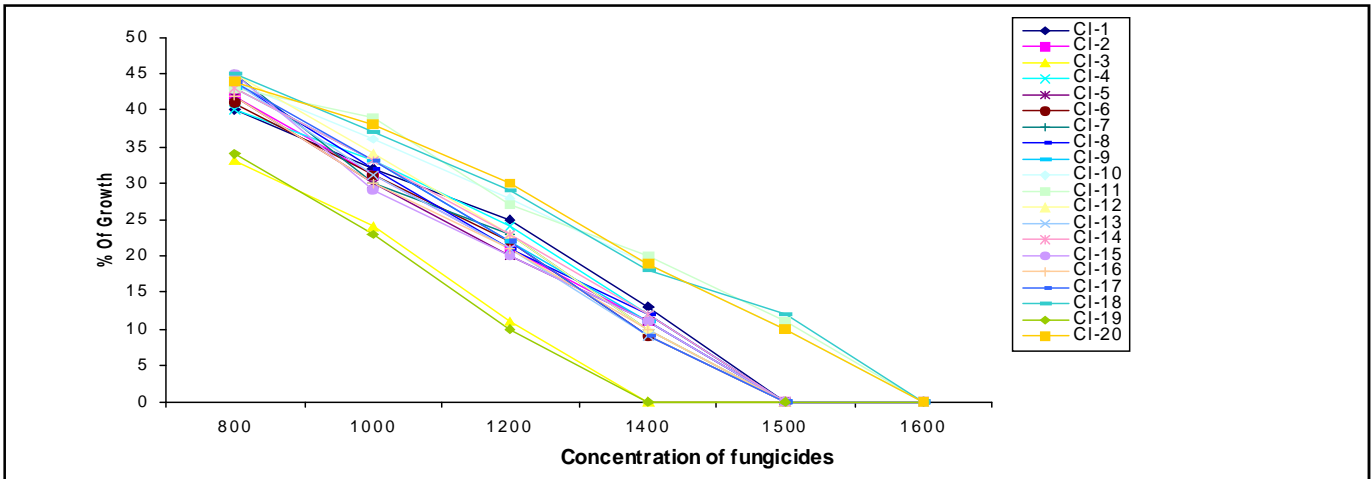


Fig. 1 : Dose response of twenty isolates of *Colletotrichum lindemuthianum* against Mancozeb

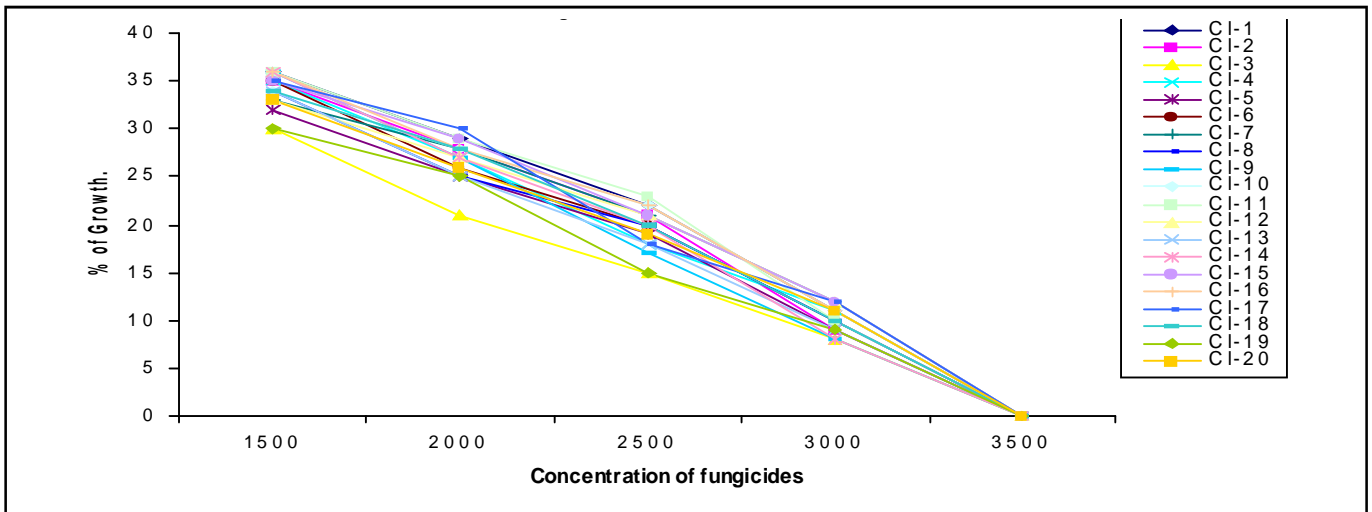


Fig. 2 : Dose response of twenty isolates of *Colletotrichum lindemuthianum* isolates against Chlorothalonil

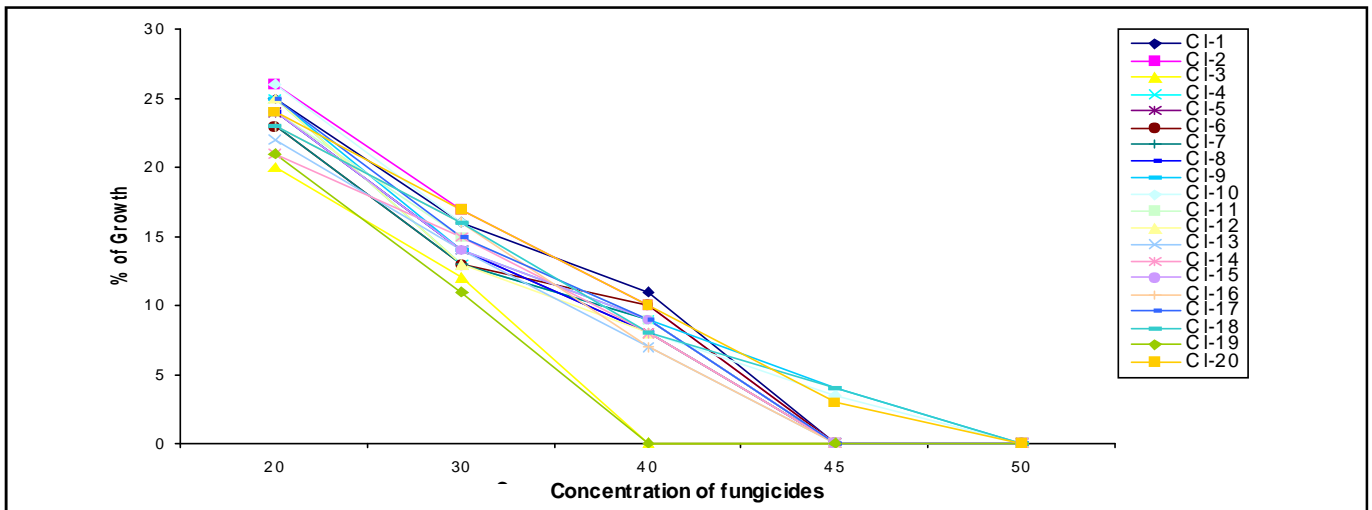


Fig. 3 : Dose response of twenty isolates of *Colletotrichum lindemuthianum* against Benomyl

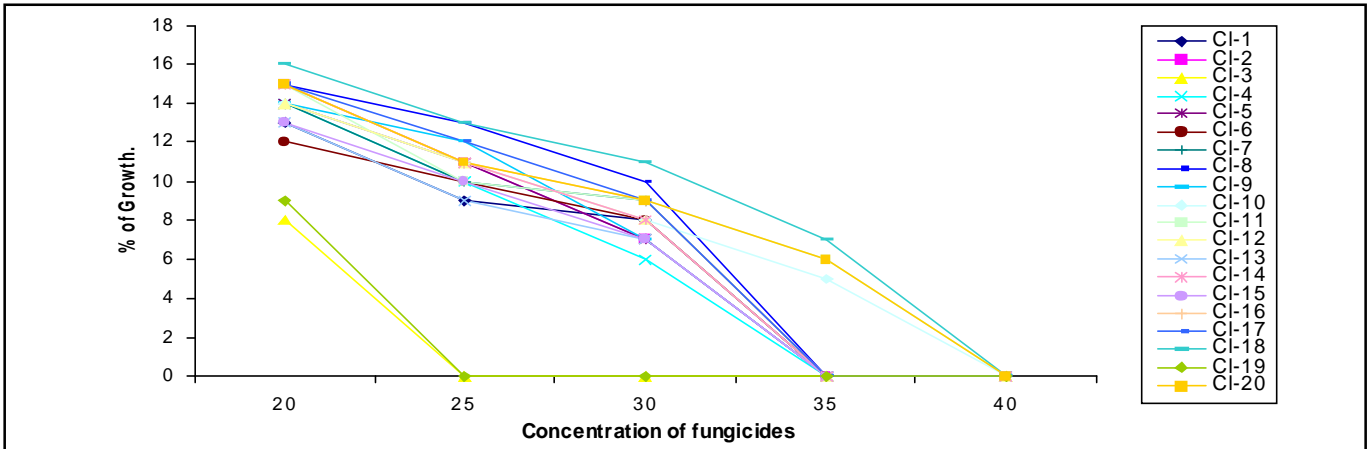


Fig. 4 : Dose response of twenty isolates of *Colletotrichum lindemuthianum* against Carbendazim

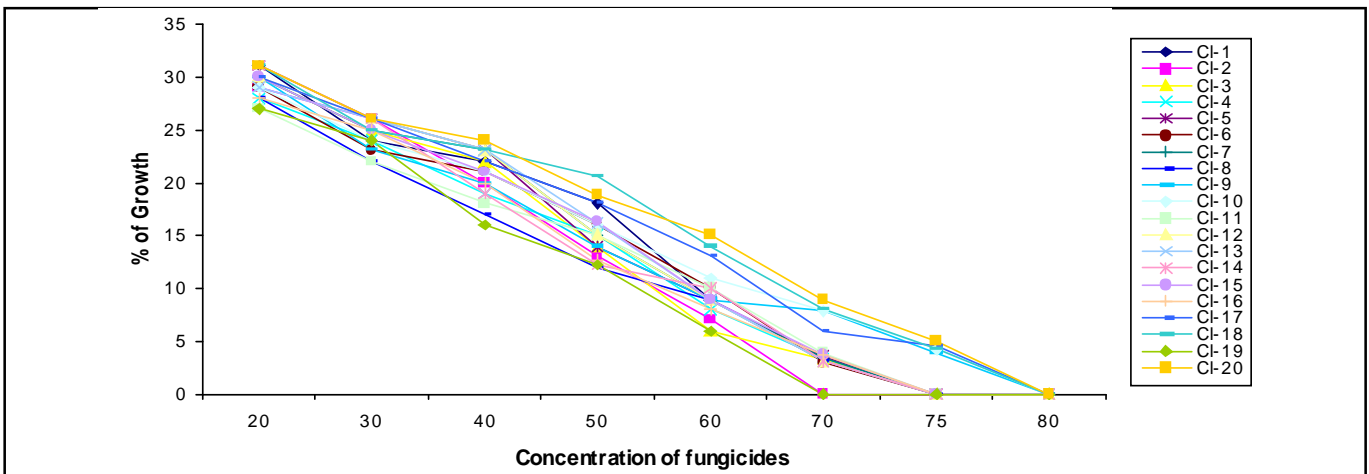


Fig. 5 : Dose response of twenty isolates of *Colletotrichum lindemuthianum* against Thiophanate-methyl

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