

Evaluation of *Trichoderma* spp. against *Phytophthora* spp.

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(Accepted :September, 2006)

SUMMARY

A dual culture technique was used to evaluate the efficacy of *Trichoderma* spp. in inhibiting the growth of *Phytophthora* spp. At 72 hrs. of incubation the maximum per cent inhibition of mycelial growth of *Phytophthora nicotianae* was noted in treatment of *T. harzianum* (48.71 %). The maximum per cent inhibition of *Phytophthora citrophthora* was noted in treatment of *T. viride* (45.30 %) at 72 hrs. of incubation followed by *T. lignorum* (40.88 %) and *T. harzianum*(38.12 %).

Key words :*Trichoderma*, *Phytophthora*, Inhibition.

In the light of present day constraints on plant disease control practices, biological control is increasingly capturing the imagination of many plant pathologists and is gaining stature as a possible practical agricultural method for soil borne pathogen control. Biological control of soil borne plant pathogens by the addition of antagonistic micro-organisms to soil is a potential non-chemical means for plant disease control. The species *Trichoderma*, capable of hyperparasitizing pathogenic fungi are highly efficient antagonists.

MATERIALS AND METHODS

The antagonistic potential of *T. viride*, *T. harzianum*, *T. lignorum*, *T. koningii* and *T. hamatum* was assessed against *Phytophthora* spp. by dual culture technique on PDA medium. For this 20 ml of sterilized and cooled medium (PDA) was poured in each Petriplate (90 mm diameter) and was allowed to solidify. A 5 mm disc of *Phytophthora* sp. was placed at one end of the medium with the help of sterilized cork borer. Just opposite to it 5 mm disc of the *Trichoderma* sp. was placed. For this a week old culture of *Phytophthora* sp. and *Trichoderma* spp. in Petridishes on sterilized PDA medium were used. Four replications for *Phytophthora* sp. and control i.e. without inoculation of the *Trichoderma* spp. were maintained. Petriplates were incubated at 28 + 2°C temperature in inverted position. After 24, 48 and 72 hours the mycelial growth of *Phytophthora* sp. was measured in treated and controlled plate and per cent inhibition was calculated by the formula suggested by Vincent (1947)

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

Where,

I = Per cent inhibition in mycelial growth
C = Growth of mycelium in control (mm)
T = Growth of mycelium in treatment (mm)

RESULTS AND DISCUSSION

To evaluate the efficacy of *Trichoderma* spp. in inhibiting the growth of *Phytophthora* sp. a laboratory testing was done by using dual culture technique and the relevant data so obtained are presented in Table 1 and 2.

The data from Table 1 revealed that there was a significant reduction in the mycelial growth of *Phytophthora nicotianae* after 24 hrs. of incubation by *T. viride* (24.25 mm) as compared to other treatments. It was followed by the reduction brought about by *T. harzianum* (26.00 mm), *T. koningii* (28.00 mm), *T. lignorum* (31.75 mm) and *T. hamatum* (32.00 mm). After 48 hrs of incubation, the significant reduction in the mycelial growth of *Phytophthora nicotianae* was observed in treatment of *T. viride* (33.00 mm) followed by *T. harzianum* (33.25), *T. koningii* (35.25 mm), *T. hamatum* (37.25 mm) and *T. lignorum* (38.75 mm). Maximum mycelial growth of *Phytophthora* was observed in control plates (75.75 mm). After 72 hrs of incubation, the significant reduction in the mycelial growth of *Phytophthora nicotianae*. was observed in the treatment of *T. harzianum* (44.75 mm) followed by *T. viride* (45.75 mm), *T. koningii* (51.75 mm), *T. hamatum* (53.25 mm) and *T. lignorum* (54.75 mm). The maximum mycelial growth of *Phytophthora nicotianae* was observed in control plates (87.25 mm). At 72 hrs. of incubation the maximum per cent inhibition of mycelial growth of *Phytophthora nicotianae* was noted in treatment of *T. harzianum* (48.71 %) followed by *T. viride* (47.56 %), *T. koningii* (40.68 %) and *T. hamatum* (38.96 %). The minimum per cent inhibition of mycelial growth

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