

## ***Trichoderma harzianum*—A potential bioagent for seed and soil borne diseases management in Upper Krishna project command area of Karnataka, India**

V.B. NARGUND, Y. S. AMARESH\*, A.G. SREENIVAS<sup>1</sup> AND SUSHILA NADAGOUDA<sup>1</sup>

Dept. of Plant Pathology, College of Agriculture, UAS, Bheemarayanagudi, GULBARGA (KARNATAKA) INDIA

### **ABSTRACT**

*Trichoderma* spp, a potential bio agent is very commonly used in the management of seed and soil borne diseases. *Trichoderma harzianum* a local isolate was used in the present study. Polythene bags (20  $\mu$ ), Tarsons and Borosil conical flasks were tested to reduce the cost of production of *Trichoderma* on PDB. Polythene bags lost the strength and there was very poor growth of the *Trichoderma*. Two-carrier materials viz., fly ash and talc powder were tested for seed treatment formulation. Talc powder was found better. Presently, *Trichoderma* is multiplied on PDB. Product so produced is popularized with the help of Extension Education Unit, Bheemarayanagudi, State Department of Agriculture, and Krishi Vigyana Kendras, among farmers in managing the seed and soil borne diseases of many field and horticultural crops in UKP Command area .

**Key words :** *Trichoderma* spp, Soil borne diseases, Management, Mass multiplication.

### **INTRODUCTION**

In recent years, biological control of plant diseases has attracted more attention and created awareness. Antagonistic fungi were established as useful bio agents in the management of crop diseases. Of these, potential species of *Trichoderma* have been extensively exploited by the plant pathologists due to their high efficacy, broad spectrum, ease in cultivation and mass multiplication. The abundance of *Trichoderma* in various soils, coupled with their ability to degrade various organic substrates in soil, their metabolic versatility and their resistance to microbial inhibitors, suggests that they possess the ability to survive in many ecological niches depending on prevailing conditions and the species of strain involved (Sundarbabu, 1998).

Several species of *Trichoderma* have been successfully used in the biological control of important soil borne root pathogens viz. *Fusarium* spp. (Sivan and Chet. 1986), *Pythium aphanidermatum* (Sivan *et al.* 1984), *Rhizoctonia bataticola* (Vyas, 1994), *R. solani* (Elad *et al.*, 1981) and *Sclerotium rolfsii* (Elad *et al.*, 1980). These pathogens cause damping off, root rot, collar rot and wilt in several field, oilseeds and vegetable crops.

Seed treatment with spores of *Trichoderma* protects the seeds and seedling from these soil borne pathogens. Combined use of seed treatment followed by soil application of formulated product of *Trichoderma* effectively controlled many damping off and root rot

diseases of cotton and various crops ( Nargund *et al.*, 2004 & Mathivana *et al.*, 1998.) . The talc formulation can be used directly for seed treatment. But for soil application in large areas a suitable organic carrier material is required. The carrier material should be readily available and cost effective. Keeping in view of the increase in awareness on the use of biological control agent and the hazardous impact of pesticides. The present study was made to reduce cost on mass multiplication of different materials and carrier materials and popularization of these bioagents through various extension wings of UAS Dharwad and state development department.

### **MATERIALS AND METHODS.**

*Trichoderma harzianum* a local isolate was grown on Potato Dextrose Agar (PDA) media and was used in the present study. An experiment was carried to identify the low cost material or container for mass multiplication of *T. harzianum* . They were

- 1) Polythene bags (20 m thickness).
- 2) Tarsons conical flasks.
- 3) Borosil conical flasks.

Potato Dextrose Broth (PDB) media was used for the multiplication of the bioagent. To identify low cost and effective carrier material for multiplication, talc powder and fly ash (waste of thermal power station) were tested for seed treatment formulation of *Trichoderma*.

The bioagent is popularized among the farmers of Upper Krishna Project (UKP) Command Area in managing the seed borne diseases of many field, horticulture crops, through trainings, meeting with farmers

\* Author for correspondence.

<sup>1</sup>Dept. of Entomology, College of Agriculture, UAS, Bheemarayanagudi, GULBARGA (KARNATAKA) INDIA