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## Selection of a suitable carrier medium for higher population and longer storability of *Trichoderma harzianum* inoculum

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D. K. NAYAK, I. NASKAR, M. K. SARKAR AND S. SAHA

Mycology section, State Agricultural Research Institute, 230A, N. S. C. Bose Road, Kolkata 700 040, West Bengal

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*Trichoderma harzianum* being an excellent mycoparasite against soil borne pathogens, has to be incorporated in soil with a selected carrier medium which favours the antagonist in the paradigm of increase in population and survival. Various chemical selective media were used but they proved to be either expensive or were subjected to the problem of chemical residue. To device a cheap, easily available, eco-friendly carrier medium of the mycoparasite, and sand in combination with oat meal and maize meal, "Neemkhol" (neem oil cake), cowdung compost, hardwood bark, rice bran, coarse wheat bran and French chalk were used. Fine wheat bran medium was taken as control. The colony forming units (c.f.u.) of *Trichoderma harzianum* in each medium was counted on 30<sup>th</sup> day following inoculation. The inoculated media were stored under room condition for one year. Hardwood bark medium yielded maximum colony forming units (c.f.u.) of *T. harzianum* after 30-days of inoculation which was followed by neem oil cake medium. Both medium had given higher population of *Trichoderma harzianum* up to one year of storage under room condition.

**Key words :** *Trichoderma harzianum*, storability, population, carrier medium

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### INTRODUCTION

The activity of an antagonist in controlling soil borne pathogens is solely dependent on their establishment and regeneration to build up an effective population under soil environment. Failure in disease control after soil incorporation of *Trichoderma* spp. in some cases may be due to inadequate establishment and growth of the organism in the starter medium i.e. FYM or dried cowdung compost and subsequently in field soil as well.

Various chemical selective media are used which proved to be either expensive (Huang, 1980) or are subjected to the problem of chemical residue (Papavizas, 1973). Wheat Bran (Hader *et al.*, 1979) and Ryegrass together with molasses (Backman and Rodriguez-Kabana, 1976) are used as food base of carrier media for incorporation of *Trichoderma harzianum* in the field soil. To find out an effective carrier medium for the mycoparasite, various organic matters are tested in the present study.

### MATERIALS AND METHODS

Nine different media such as sand in combination with oat meal and maize meal, neem kernel cake, dried cowdung compost, flakes of hard wood bark powdered French chalk, rice bran, rough and fine wheat bran were taken separately in double polypropylene bags (50 g dry wt. per bag). Fine wheat bran medium was taken as control. All the media were moistened with tap water and sterilized for 1 h under 15 lb p.s.i. pressure for two consecutive days. After cooling each packet was inoculated with a disc (5 mm diam) of 72 h old culture of *Trichoderma harzianum* (Hooghly isolate) grown on Potato-dextrose-agar medium. The inoculated media were incubated under controlled condition at 28±2°C for 30 days. After 30 days of incubation, colony forming units (c.f.u.) of *T. harzianum* was counted by soil dilution plate technique (Harris and Sommers, 1968) using *Trichoderma* selective medium prescribed by Elad *et al.* (1981) with some modifications.

## RESULTS AND DISCUSSION

Hardwood bark medium yielded maximum c.f.u. followed by neemkernel cake, sand in combination with maize meal, rice bran and cowdung — all of them exhibited better result than control (Table 1).

**Table 1 :** Production of colony forming units of *Trichoderma harzianum* on different carrier media

Different carrier media	Ratio	c.f.u. × 10 of <i>T. harzianum</i> per g. of carrier medium	
		After 30 days	After 365 days
Hardwood bark : Tapwater	2:1	50.0	12.0
Neem kernel cake : Tapwater	2:1	20.8	0.2
Sand : Oatmeal : Tapwater	1:2:2	0.7	—
Sand : Maize meal : Tapwater	1:2:2	13.66	—
Cowdung compost : Tapwater	2:1	4.96	—
French chalk : Tapwater	2:1	—	—
Rice bran : Tapwater	2:1	9.26	—
Rough wheat bran : Tapwater	2:1	3.2	—
Fine wheat bran : Tapwater	2:1	3.85	—

\* After 36 days of incubation under room conditions, deteriorations of all media except hardwood bark and neem kernel cake media was observed.

However, it was observed that after 365 days of incubation under room condition, c.f.u. of *T.*

*harzianum* were recovered only from hardwood bark medium and neem kernel cake medium. Hardwood bark which is cheap, easily available and eco – friendly, can be used as a carrier medium for soil incorporation of the mycoparasitic *T. harzianum*.

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