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Press Mud Based Mass Multiplication Method of *Trichoderma viride*

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In the recent years, the excessive use of inorganic pesticides not only deteriorates the environmental and soil condition but also the quality of the crop produce. Consequently, the interests increased in integrated pest management in the present era, where chemical pesticides are substituted by bio-pesticides to control many plant pests and diseases. Press mud is an inexpensive and domestic substrates utilized in the mass multiplication of biopesticides. Many scientists gave methodology for mass multiplication of *Trichoderma viride viz*., heap method, pit method and bed method at farmer's doorstep. The present article deals with the press mud based mass multiplication method of *T. viride*, an effective production tactic which can be easily adopted.

Introduction

The *Trichoderma viride* is a potential bio-control fungal agent used for seed and soil treatment for suppression of various diseases caused by a number of plant pathogens. It belongs to family hypocreaceae of kingdom fungi. The major issue involved in mass production and utilization of biocontrol agent are development of cost effective methods for mass multiplication of *T. viride*. Despite of using plant protection strategies, 20-25% of crop yield destroyed by pests and diseases annually. Chemical use greatly increased the food production but raised a number of ecological problems and increase resistance in pathogens. Recently, scientists diverted towards exploring the potential of beneficial microbes for plant protection. Out of 12 biopesticides registered in 2009 under Insecticide Act, 1968, only *Trichodermaviride*, *T. harzianum*and *P. fluorescens* registered for plant diseases in all 221 pesticides. Annual availability of *Trichoderma*sp. is only 500 tonns/yr in India as against 357500 tonns/yr requirement for net cropped area of 143 Mha at general dose of 2.5kg/ha as soil application. In spite of their high efficacy under lab condition, their performance at farmer's field is not consistent and need support even after their application to get established in targeted niche. To overcome problems of availability and proper establishment, an appropriate technology not only for quick multiplication but also for a proper delivery system is necessary at farmer's field. Thus by taking the idea from ITK (Indigenous Technological Knowledge) especially of composting phenomenon, recently the scientists in the field of Plant Pathology gave

very good innovative technologies for the mass multiplication of already commercialized biopesticides by utilizing very inexpensive and easily available sources such as agricultural waste and organic manures with a commercially available biopesticides culture in the market on farmers own fields. Press mud is an inexpensive and domestic substrates utilized in the mass multiplication of biopesticides. For the farmers village level mass multiplication many of the scientists gave methodology *viz*., heap method, pit method and bed method. Here, this article focuses on the press mud based mass multiplication method of *T. viride* which is given below:

- Take 2 liters of 9 days old Potato Dextrose broth culture of *T. viride*.
- Add it to 120 kg press mud and mix it uniformly.
- Sprinkle little amount of water to make it moisten.
- Keep it at shady place and cover it with gunny bags
- Give light watering and turn it regularly at 10 days interval so that it mixes well up to incubation period of 25 days.
- Thus the culture obtained will act as nucleus culture for further multiplication.
- Add this nucleus culture to 8 tons of press mud and mix it thoroughly.
- Keep it for 8 days incubation for further mass multiplication under shady condition and used to give light watering to keep it moistens.
- Apply the mass multiplied press mud culture @ 8tons/ha in sugarcane as furrow application.

Conclusion

The excess use of chemical/inorganic pesticides not only deteriorates the environmental and soil condition but also increases pest resistance. *Trichoderma viride* is an eco-friendly natural bio-agent which can eradicate the pests without adversely affecting the other beneficial microorganisms. By adopting press mud method, farmers can easily increase the commercially available biopesticides culture (*Trichoderma viride)* through the mass multiplication by utilizing the house waste, agricultural waste and organic manures at their own fields. Hence, they can achieve the good quality produce.