



RESEARCH ARTICLE

Growth promotion of paddy influenced by biological seed treatment using fungal antagonist, *Trichoderma*

■ K. K. SHARMA

Department of Plant Pathology, College of Agriculture, G.B. Pant University of Agriculture and Technology, PANTNAGAR (UTTARAKHAND) INDIA

ARTICLE INFO

Received : 07.09.2012
Revised : 08.01.2013
Accepted : 25.01.2013

Key Words :

Paddy, *Trichoderma*,
Growth promotion

Corresponding author:
bharatinbhat@gmail.com

ABSTRACT

Trichoderma species have long been recognized as agents for the control of plant disease and for their ability to increase plant growth and development. Morphologically characterized thirty rhizospheric isolates of *Trichoderma* (*T. harzianum* and *T. virens*) from different locations of Uttarakhand were evaluated under glass house condition for their plant growth promoting potential on paddy crop. Maximum root and shoot growth promotion was achieved with isolate PB 15 (80.3%) and PB 8 (38.5%), respectively in paddy. Maximum length of flag leaf was recorded with isolates PB 23 (43.5 cm) and PB 16 (41.6 cm) while maximum width exhibited by isolates PB 23 (2.1 cm) and PB 8 (1.9cm). Maximum fresh and dry weight was recorded with isolates PB 18 (10.2g) and PB 23 (2.0393g), respectively.

How to view point the article : Sharma, K.K. (2013). Growth promotion of paddy influenced by biological seed treatment using fungal antagonist, *Trichoderma*. *Internat. J. Plant Protec.*, 6(1) : 51-55.

INTRODUCTION

Trichoderma species have long been recognized as agents for the control of plant diseases and for their ability to increase plant growth and development. The root colonization by *Trichoderma* increases the growth of roots and of the entire plant, thereby increasing plant productivity. The root colonization by *Trichoderma* increases the growth of roots and of the entire plant, thereby increasing plant productivity. As a result of rather intensive work carried out with *Trichoderma*, several independent research groups have noticed that the addition of antagonist, *Trichoderma* spp. induced the seed germination/emergence and growth of various crops (Chet, 1987; Kleifeld and Chet, 1992; Ousley *et al.*, 1993). In both academic research and commercial practice, strain T-₂₂ has been well established for its affectivity to increase root development in maize and numerous other crop plants (Harman, 2000; Harman *et al.*, 2004). Plant growth promotion activity of *Trichoderma* spp. has also been well documented by Harman *et al.* (2004), Hyakumachi (2004), Punja and Utkhede (2003), Whipps and Lumsden (2001) and Wu *et*

al. (2005). Use of the chemical fertilizers in intensive agriculture resulted in damage to soil and water resources and being depleted soil fertility and hence, keeping the above facts in view the present investigation was undertaken using thirty isolates of *Trichoderma* (*T. harzianum* and *T. virens*) from different rhizospheric soil of Uttarakhand which were evaluated to know their activity of enhance plant growth on paddy.

MATERIALS AND METHODS

Experimental materials, *Trichoderma* strains were isolated from rhizospheric soils of different crops and locations of Uttarakhand (Table A) and seeds of paddy (cv. Pant Dhan-4) were obtained from SPC, Pantnagar. The pot experiment was conducted under glass house conditions to study the growth promoting potential of *Trichoderma* on paddy. Paddy seeds (surface sterilized) were treated with powdered formations of biocontrol agents (@ 10g/kg seeds; cfu=10⁹/g powder) and ten seeds per pot were sown with triplicates for each treatment including control in plastic pots (5 kg capacity)