



Research Article

Evaluation of *Trichoderma* species against *Pythium ultimum* pathogenic to tomato

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ABSTRACT

Seedlings died of post emergence damping off were collected, isolations were made and pathogenicity was proved on Arka Vikas and Pusa Ruby cultivars. Re-isolations were made from seedlings died after inoculation and original isolates were compared microscopically and found to be identical and therefore they were identified as *P. ultimum* Trow due to non-septate mycelium, inflated sporangia and thick walled oospores. Testing of biocontrol agents by dual culture method revealed that *Trichoderma harzianum*, *Trichoderma hamatum* and *Trichoderma konigii* significantly suppressed growth of *P. ultimum*.

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INTRODUCTION

Tomato (*Lycopersicon esculentum*) is one of the most economically important vegetable crop of India. India had 0.46 million ha under tomato with production of 8.4 million tonnes in 2000-01 (Anonymous, 2004). Economy of Rs.840 crore is involved in the tomato production of India. Out of this almost 9.7 to 10 per cent translocations of tomato economy occur in Maharashtra alone.

Commercially available tomato varieties face to the problem of poor germination due to pre-emergence damping off or seed rot caused by various *Pythium* species, in addition to succumb to post emergence damping off causing seedling mortality from 25 to 100 per cent.

Different species of *Pythium* viz., *P. aphanidermatum*, *P. debaryanum*, *P. butleri* and *P. ultimum* have been recorded on tomato. Repeated isolations of affected tomato seedlings and rotten seeds yielded *P. ultimum* Trow. As pre and post-emergence damping off is noticed throughout Maharashtra and it is a major obstacle in the supply of quality seedlings in required quantity in the peak demand period of transplanting.

With the growing demand of tomatoes, it has become necessary to optimize the production and productivity of

tomato by minimizing losses in by minimizing losses in diseases for reduction of losses in terms of seed rot and post emergence mortality, the present investigation on pre and post-emergence damping off in tomato were undertaken.

In soil there are many pathogens which cause seed rot. To identify the causal organism of the damping off, it is necessary to prove the pathogenicity of the isolated fungus.

Damping of disease is controlled with the use of bioagents viz., *Trichoderma* spp. To test the biocontrol agents, dual culture technique was used.

MATERIALS AND METHODS

The toppled seedlings of both the varieties were discoloured and rotted at the collar region. The toppled seedlings of both the varieties were washed in sterile water and then surface sterilized in 0.1 per cent HgCl₂ solution. After passing through three changes of sterile water, the collar bits were transferred to sterile PDA in Petri plates. After 48 hr, the mycelial growth appeared on collar region bits of both the varieties. The re-isolated cultures from both the varieties were transferred to PDA slants. The re-isolated cultures were compared with originally isolated culture from both the