

International Journal of Agricultural Sciences Volume **10** | Issue 1| January, 2014 | 108-114

## Management of *Rhizoctonia* root rot of pea (*Pisum sativum* L.) by integrated biological and chemical approach

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**Abstract :** An experiment was conducted to assess the efficacy of *Trichoderma* isolates (Th-14 and Th-21) alone and/or in combination with the fungicide Topsin-M against pea root rot caused by *Rhizoctonia solani* Kuhn (R-15) under both *in vitro* and *in vivo* conditions. Both the *Trichoderma* isolates inhibited mycelial growth of R-15 in paired culture method. The compatibility of both the systems (*Trichoderma* and Topsin-M) was also evaluated for successful integration of biological and chemical methods for controlling *Rhizoctonia* root rot of pea. The growth of *Trichoderma* isolates were not effected by Topsin-M even at concentration of 600 mg/l. Whereas, the growth of R-15 was significantly reduced even at concentration of 100 mg/l. Per cent germination, seedling survival (%), shoot and root dry weights were reduced in untreated plants in infested soil (check1). However, Plants obtained from *Trichoderma* and/or Topsin-M treated seeds showed comparatively higher per cent germination, shoot and root dry weights. Reduction in root rot severity was more when seeds were treated with *Trichoderma* isolates alone or in combination with Topsin-M compared to Topsin-M and/or Topsin-M. Minimum CFU/g of R-15 was obtained from soil sample collected from the pot given  $T_4$  (Th-14+ Topsin-M+ R-15) treatment. Thus, the two systems (Th-14 and Topsin-M) showed a synergistic effect for controlling *Rhizoctonia* root rot of pea.

Key Words: Pea, Root rot, Trichoderma, Rhizoctonia solani, Biological control, Chemical control

View Point Article: Rawat, Laxmi, Singh, Yogendra, Kumar, Bijendra and Shulkla, Arvind (2014). Management of *Rhizoctonia* root rot of pea (*Pisum sativum* L.) by integrated biological and chemical approach. *Internat. J. agric. Sci.*, **10** (1): 108-114.

Article History : Received : 04.01.2013; Revised : 26.09.2013; Accepted : 21.10.2013

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