

**The effect of pH on the biocontrol activities of *Trichoderma* spp.  
under *in vitro* conditions**

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*Trichoderma* spp. have effective antagonistic activities against many phytopathogenic fungi and these are facilitated by multiple mechanisms including mycoparasitism, antibiosis and competition for nutrients. Various chemical and physical factors are known to have an influence on such mechanisms as well as on the growth and sporulation of *Trichoderma* spp. As pH is reported to be a factor with such effects, this study was aimed at testing whether pH has an effect on the rate of sporulation, volatile antimicrobial metabolite production and growth inhibition of a pathogenic *Fusarium* sp. by a *Trichoderma* sp. that has been isolated from the soils in onion fields of Sri Lanka. The rate of sporulation of the *Trichoderma* sp. at different pH levels (i.e. pH 4, 5, 6, 7) was tested by placing a mycelial disc of *Trichoderma* sp. on PDA plates with amended pH values and the sporulation levels were estimated at 7, 14, 21 and 49 day intervals. The results of three replicates were analyzed using two-way ANOVA. A significantly high ( $P \leq 0.05$ ) rate of sporulation of  $5 \times 10^7$  spores/ml was observed at pH 6 after 49 days. However, a significant difference ( $P \leq 0.05$ ) was not observed in the rate of sporulation between the pH levels upto 21 days. The dual culture assay was used to test the inhibitory effect of *Trichoderma* on the growth of a *Fusarium* sp. isolated from onion seedlings with damping off disease at different pH levels. The two cultures were inoculated to the two ends of each PDA plate and incubated for three days at room temperature and the diameters of *Fusarium* colonies were measured and percentage growth inhibition was calculated. There were 3 replicates for each pH value tested. The highest percentage inhibition of the growth of *Fusarium* was shown at the pH 6. This was significantly different ( $P \leq 0.05$ ) from the growth inhibition at pH 4, 5 and 7. The levels of volatile metabolites production of *Trichoderma* at different pH levels was tested by evaluating the inhibition of mycelial growth of the pathogenic *Fusarium* sp. using a plate assay. In three replicates, the diameters of *Fusarium* colonies were measured and percentage inhibition was calculated. The highest percentage inhibition of the growth of *Fusarium* was shown at the pH values 5 and 6. This was significantly different ( $P \leq 0.05$ ) from the growth inhibition at pH 4 and 7. The results showed that pH 6 was optimal for selected antagonistic activities of the *Trichoderma* sp.