D-78 Suppression of major nursery killers of chilli *(Capsicum annuum* L.) with rhizosphere bacteria

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Bio-control of soil-borne diseases is gaining much attention. However, research on tropical crops is meagre. Chilli, being an important crop in Sri Lanka, was selected in this investigation, as the crop plant to evaluate the potential of rhizosphere microflora to control its nursery diseases. *Rhizoztoaia solani* and *Fusarium solani* were the commonly isolated pathogens from farmers' nursery beds.

Capsicum annuun var. *acuminatum* cv. MI-2 was chosen as the host plant. Soil was inoculated with various concentrations of propagules of *R. solani and F. solani.* The LD_{50} values were calculated and used in subsequent experiments. A total of 9 out of 34 isolates showed inhibition zones in dual culture plates with *R. solani* and *F. solani* and were used to assess their potential in *in vivo* protection of plants. These isolates and several others which did not show *in vitro* antagonism were used for seed treatment at a concentration of 10^4 CFU/ml. Seeds treated with distilled water served as controls.

Seeds were sown in soils inoculated with the pathogens at their LD_{50} concentrations and pre-and post-emergence damping-off were scored. *R. solani* caused both pre- and post-emergence damping-off, whereas *F. solani* caused only post-emergence damping-off. *Bacillus subtilis* electro type II (Bs ET II) was able to bring down the *R. solani* pre-emergence damping-off from 23.1% to 6.9% and post-emergence damping-off from 35.1% to 14.1%. *Pseudomonas fluorescens* electro type IV (Pf ET IV) could only reduce pre-emergence damping-off significantly (23.1% to 13.8%). None of these were effective against *F. solani, B. subtilis* ET IX brought post-emergence damping-off by *F. solani* from 49.9% down to 32.5% (30% protection).

We conclude that the different isolates acted differently in control of damping-off caused by *R. solani* and *F. solani* and suggest that a mixture of Bs ET II and Bs ET IX could be used to control damping-off of chilli at least for cultivar MI-2.