D-82 Management of die-back disease of chilli (*Capsicum annuum* L.) with rhizosphere bacteria

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A devastating new chilli pathogen causing die-back of mature plants was observed in farmers' fields from various parts of the country and was particularly problematic at Kiriibbanwewa. This pathogen has been identified as *Rhizoctonia solani* and the strain is designated by us as *R. solani* SF_5. When the soil is artificially inoculated *R. solani* SF_5 causes post-emergence damping-off and die-back of both cultivars tested (*Capsicum annuum* var *acuminatum* cv. MI-1 and MI-2). LD_{50} values for MI-1 and MI-2 were determined by mixing soil with different concentration of sclerotia and scoring seedlings damping-off. MI-1 was slightly more tolerant. Pots filled with inoculated soil at LD_{50} concentration were sown with seeds treated with different rhizosphere bacteria by soaking seeds for 30 min in suspensions containing 10^6 CFU/ml. Soil and seeds treated with distilled water served as controls.

Damping-off and the die-back of escaped seedlings were scored. None of the isolates showing *in vitro* antagonism in dual culture were able to protect the plants. A *Pseudomonas fluorescens* strain (*P. fluorescens* electro type II) was able to bring down the damping-off of MI-1 and MI-2 by 23.6% and 20%, respectively. The suppression of die-back was 25% and 41%, respectively. The total protection by *P. fluorescens* electro type II (Pf ET II) of chilli from *R. solani* SF_5 was 22.4% and 19%, respectively. Since Pf ET II could not antagonize *R. solani* SF_5 *in vitro* under the experimental conditions, the possibility of induced resistance of the host exists. The protection particularly of MI-2 from die-back by the rhizosphere isolates is encouraging.