Total of 117 isolates of *Trichoderma* spp. were obtained from soil samples collected from various locations. Characterization using morphological traits for identification of *Trichoderma* spp. revealed 105 isolates of *T. harzianum*, eight isolates of *T. pseudokoningii*, three isolates of *T. longibrachiatum* and one isolate of *T. koningii*. Sixty-seven out of 117 isolates suppressed mycelial growth and overgrew colonies of *Pythium aphanidermatum*, a causal agent of damping-off, using dual culture test on potato dextrose agar. From 67 isolates, there were 15 isolates effectively produced both high cellulase and chitinase.

When chinese kale, tomato, cucumber and soybean seeds were treated with spore suspension of each of those 15 isolates before planting in *P. aphanidermatum* infested soil, the results indicated that isolates BK-O4, P8, DU-O7, M4, 71-42, 84-42 effectively controlled seedling damping-off. Isolates DU-O7, M4, 71-42, TL-O1, TP-O1 which produced high level of both β-1,3 glucanase and β-1,4 glucanase were used solely or as possible combining with isolates CP-O1 (a commercial strain) for controlling *Pythium* damping-off on cucumber and soybean under screenhouse condition. For cucumber, a single or combinations of two isolates was more effective than combination of three isolates. For soybean, a single isolate M4 or CP-O1, the combination of two isolates, DU-O7+M4, M4+CP-O1, 71-42+TP-01 and the combinations of three isolates, TL-O1+DU-O7+M4, TL-O1+M4+CP-O1 and DU-O7+CP-O1+71-42 effectively controlled seedling damping-off.

Assays of the combination of these 5 selected isolates and CP-O1 (a commercial strain) against *Pythium* damping-off on cucumber and soybean were conducted under field condition. The combinations of M4+CP-O1 and M4+CP-O1+TL-O1 effectively controlled both cucumber and soybean damping-off. High populations of *Trichoderma* spp. survived in soil, whereas population of *P. aphanidermatum* was significantly reduced, as compared to a control.