Management of Root Rot Caused by *Curvularia* spp. on *Ludwigia repens* using Biocontrol Agents

Y. Tharmili[1]*, G. Mikunthan[1], V. Jegathambigai[2] and A. Sivinningen[2]

[1]Department of Agricultural biology, Faculty of Agriculture, University of Jaffna, Kilinochchi, Sri Lanka
[2]Green Farms (Pvt) Ltd., Marawila, Sri Lanka
*y_tharmili@yahoo.com

Ludwigia repens is the most popular ornamental aquarium plant cultivated in Green Farms (Pvt) Ltd., Marawila in Sri Lanka for export purpose. Recently, a root rot disease was detected to be a major problem in the cultivation of *L. repens.* This study was aimed to diagnose the problem and to identify the causal agent of the root. The findings of this study will assist the growers to mitigate the problem and to avoid losses due to returning of shipments from Europe. The fungus observed in roots of *L. repens* was isolated. After one day of incubation at 30 °C, immature mycelium was cottony white in color and irregular in shape. After 7 days of incubation at 30 °C, mature colonies were white to black in color. Microscopic observations revealed the presence of light brown to dark brown conidiophores present as single or as groups. The septate and single conidiophores were straight or slightly curved. Conidiophores were 2-4 celled. The median septum was observed as a black band and the cells at each end of the conidia were pale. The intermediate cells were brown or dark brown. Mature mycelium was observed as septate. Based on the morphological characteristics, the fungus was identified as *Curvularia* spp. The infection of *Curvularia* spp. on *L. repens* was confirmed through Koch's postulates. *Trichoderma viride* (75%) and *T. asperellum* (65%) and *T. harzianum* (84%) showed high percentage of inhibition against *Curvularia* in dual culture. Compared to other botanicals, sulphur and *Ocimum tenuiflorum* was the best to control the rot disease (100%). Compared to other treatments, this could be achieved by *O. tenuiflorum* due to its antifungal properties. The chemical compound present in *O. tenuilorum* completely inhibited the growth of the *Curvularia* spp*. O. tenuiflorum* was tested *in vitro* and *in vivo* conditions against *Curvularia* spp*.* Compared to other treatments, *O. tenuiflorum* had high percentage of disease inhibition under both *in vitro* and *in vivo* conditions. Therefore, *O. tenuiflorum* is found to be the best botanical agent against *Curvularia* root rot on *L. repens*. Potential of this biocontrol agent for other plants need to be investigated and the further research on *O. tenuiflorum* need to be carried out to find out the compound responsible for such suppression.

Keywords: Biocontrol agent, *Curvularia* spp., *Ludwigia repens, Ocimum tenuiflorum*, root rot, *Trichoderma*