Management of root rot caused by *Curvularia* spp on *Ludwigia repens* by using Bio-control agents

Tharmili, Y. Mikunthan, G. Sivinningen, A. and Jegathambigai, V

Green Farms Pvt Ltd, Marawila, Sri Lanka [1]
Dept. of Agricultural Biology, Faculty of Agriculture, University of Jaffna, Sri Lanka [2]

jegavelmurugu@gmail.com

ABSTRACT

Ludwegia repens is the most popular ornamental aquarium plant cultivated in Green Farms (Pvt) Ltd at 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 rot in order to assist the growers to mitigate the problem and to avoid losses due to returning of shipments from Europe. The fungus was isolated from rot observed in roots from *L. repens*. After one day of incubation at 30^0C, immature mycelium showed cottony white in color and irregular shape. After 7 days of incubation at 30^0C, Mature colonies showed gray white to black color. Microscopic observations revealed light brown to dark brown conidiophores present singly or in 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* on *L. repens* was confirmed through Koch's postulates. Compare to *Trichoderma viride* (75%) and *Trichoderma asperellum* (65%), *T. harzianum* (84%) had high percentage of inhibition against *Curvularia* in dual culture. Compared to other botanicals, sulphur and contral treatments, *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.. *Ocimum tenuiflorum* was tested *in vitro* and *in vivo* conditions against *Curvularia* spp.. Compared to other treatments, *O. tenuiflorum* had high percentage of disease inhibition in both *in vitro* and *in vivo* conditions. Therefore, *O. tenuiflorum* is the best botanical agent against *Curvularia* root rot on *L. repens*. Potential of other plants need to be investigated and the furthering of research on *Ocimum tenuiflorum* to be done to find out the chemical responsible for such suppression.

Key words: Aquatic plants, *Ludwigia repen, Curvularia* spp, Antagonistic fungi, Botanical extracts.