

**EFFICACY OF SELECTED ENDOPHYTIC FUNGUS ON
CONTROLLING GRAIN DISCOLORATION DISEASE IN RICE
CAUSED BY *Fusarium moniliforme***

**L.M.G. Bandara¹, D.M.J.B. Senanayake², K.R.D. Gunapala² and K.R.E.
Padmathilake¹**

¹*Department of Plant Sciences, Faculty of Agriculture, Rajarata University
of Sri Lanka, Anuradhapura, Sri Lanka*

²*Rice Research and Development Institute, Bathalagoda, Sri Lanka*

Grain discolouration disease is a destructive disease in rice that degrades the quality and quantity of the grain yield. A group of fungal species causes this disease, and *Fusarium moniliforme* has been identified as one of the major fungal species that causes grain discolouration disease. *F. moniliforme* affected grains show light brown spots on glumes. Fungicides are highly used to control this disease due to the unavailability of resistant rice varieties. Biological control methods are being experimented with as an alternative to reduce the risk of using chemical controls. Therefore, this study was carried out to discover a fungal endophyte to control grain discolouration disease in rice caused by *F. moniliforme*. Endophytes are microorganisms that dwell within plant tissues while having a symbiotic association. The pathogen was isolated from discoloured grains of varieties, Bg360 and Bg407. Healthy leaves of partially resistant varieties, Bw312 and Ld371, were used to isolate potential endophytes. The pathogen was morphologically characterized and identified as *F. moniliforme*. Three fungal endophytes were isolated, and those fungi were tested for their ability to inhibit the growth of the pathogen by dual culture assay. The inhibition percentages of the three endophytes were 54.44%, 53.33% and 44.44%. The endophyte that showed the highest inhibition (54.44%) against *F. moniliforme* under *in-vitro* conditions was morphologically characterized and labelled as e-1. The pathogen in control vs dual culture was analyzed using linear mixed-effect model and there was a significant reduction in pathogen growth in the dual culture. Results suggested the endophyte, e-1, can be used as a biological control agent for *F. moniliforme* management.

Keywords: Biological control, Endophyte, Grain discoloration disease