

# ENDOPHYTIC FUNGI ASSOCIATED WITH *HEVEA* SPP. AND THEIR BIOCONTROL POTENTIAL AGAINST *COLLETOTRICHUM* SPP. CAUSING LEAF DISEASE

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Received: 14 November 2023

Accepted: 12 December 2023

Soumyamol, V.B., Ruma, S., Able P.S. and Roy, C.B. (2023). Endophytic fungi associated with *Hevea* spp. and their biocontrol potential against *Colletotrichum* spp. causing leaf disease. *Rubber Science*, 36(2): 222-229.

Colletotrichum Leaf Disease (CLD) caused by *Colletotrichum acutatum* and *C. gloeosporioides* adversely affect commercial production of natural rubber. Repeated spraying with chemical fungicides to manage the disease pollutes the environment. Bioprospecting of fungal endophytes and their use as biocontrol agents is an effective alternative. *Trichoderma* spp. is a most promising biocontrol agent that produce antagonistic compounds effective in managing plant diseases. In this study, four sporulating *Trichoderma* spp. [*T. koningii* (R12), *T. harzianum* (L8), *T. inhamatum* (FX-T) and *T. piluliferum* (T1)] and a non-sporulating basidiomycete *Rigidoporous vinctus* (R17) were isolated from leaves and roots of two rubber clones viz. FX 516 and RRII 105 for evaluation of their potential as biocontrol agents against *Colletotrichum* spp. In the dual culture study, isolate L8 showed 90 and 84 per cent inhibition of radial growth (PIRG) against *C. acutatum* and *C. gloeosporioides* respectively followed by T1 which showed 88 PIRG with both *C. acutatum* and *C. gloeosporioides*. The isolate R12 showed 89 and 82 PIRG against *C. acutatum* and *C. gloeosporioides* respectively. As microbial consortia are more effective than the use of single organism, compatibility tests were conducted for isolate L8 with the other fungal isolates. L8 was compatible with T1, R12 and R17 and incompatible with FX-T. All five fungal isolates were fast growers and were identified based on morphological features.

**Keywords:** Biocontrol, Colletotrichum leaf disease, Endophytic fungi, *Hevea*, *Trichoderma*

*Hevea brasiliensis*, the Para rubber tree, is a perennial tree crop commercially cultivated for the production of natural rubber. Colletotrichum leaf disease (CLD) is a major disease of rubber tree caused by *Colletotrichum acutatum* and *C. gloeosporioides*. CLD affect leaves of young rubber plants, which emerge during the end of the refoliation season. This disease affects growth and yield in several clones including

RRII 105, which is highly susceptible. Therefore, it is important to devise effective measures to control *Colletotrichum* disease (Liu *et al.*, 2018).

Plant disease control is heavily reliant on chemical fungicides but their indiscriminate use have adverse effects on beneficial microbes. Long term use of fungicides leads to emergence of fungicide-resistant strains of pathogens causing difficulty in disease