Screening of Phyto-Pathogenicity of Potential Wood Degrading Fungal Isolates from Rubber Plantations

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Natural rubber plays a significant role in Sri Lankan economy. Continuous cultivation for a long period in same fields have depleted soil nutrient conditions. A large amount of wood masses and litter materials accumulate in the fields annually. The wood degrading fungi naturally living in the rubber growing soils play a major role in nutrient cycling and lead to a better soil fertility. Further introduction of wood degrading fungi is critical to increase their population in the soil. Screening of pathogenicity of the wood decaying fungi is important as some fungi may cause severe problems in the plants with the introduction in large scale. Seven morphologically different fungal cultures were isolated from decaying rubber logs and leaf litter samples collected from five rubber plantations in the Kalutara district. Pure cultures were prepared on Potato Dextrose Agar medium. Wood degradability of the isolates were tested using a standard protocol. Two wood decaying fungi namely: Isolate 1 and 2 were selected as best decomposers and subjected to the pathogenicity test. Pure cultures of each isolate were inoculated to the autoclaved pencil size fresh rubber root pieces in Polythene bags. Twenty replicates were maintained for each isolate and 10 root pieces with 8cm length were added for each bag. After growing the mycelium on the entire root surface, they were inoculated to three months aged rubber seedlings. Another 20 seedlings were maintained as controls without adding the inoculum. They were observed after 06 months for the symptoms or other abnormalities. According to the results of the pathogenicity test, the selected isolates did not develop symptoms. Hence, they can be identified as good decomposers without showing pathogenicity on rubber trees. Mass production of the fungi can be recommended with further studies for the acceleration of the natural decomposition process in the soil.

Keywords: Natural rubber, Pathogenicity, Soil nutrients, Wood degradability