

**ISOLATION OF ANTAGONISTIC ORGANISMS  
AGAINST *Rigidoporus microporus* FROM SOILS OF  
MAIN RUBBER GROWING AREAS IN SRI LANKA**

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## ABSTRACT

Soil microbial community plays a critical role in rubber plantations. Especially, microorganisms that involve in biological control of root rot disease are considerable. White root disease is the most destructive root disease in Sri Lankan rubber plantations. It is caused by the fungal pathogen *Rigidoporus microporus* which spreads through infected roots and mycelial aggregates (rhizomorphs) through the soil. The purpose of the study was to isolate the potential antagonistic microorganisms from different rubber growing against white root disease in Sri Lanka. The micro-organisms were isolated from twelve sites in four main rubber growing districts viz. Kaluthara, Rathnapura, Kegalle and Monaragala. Nested design was conducted for the experiment as statistical design. The antagonistic ability of the isolated organisms was tested against the fungal pathogen *R. microporus*. Growth inhibition of the pathogen's colony was measured using dual culture plate technique investigate the most promising antagonistic microorganisms that would be useful in controlling the growth of *R. microporus*. The variation of soil properties, microbial populations among sites and districts were and the growth inhibition of pathogen was analyzed using analysis of variance (ANOVA) procedure of SAS software programme. Significance of the data was determined at 95% confidence interval ( $\alpha=0.05$ ). The abundance of the microbial population varied with their environment. A total number of thirty one colonies were found effective. Antagonism of selected antagonistic microorganisms was varied significantly. Both fungal and bacterial isolates selected were effective in antagonistic effect and therefore are suitable to be developed as biological control agents against white root disease of rubber tree.

Key words: microbial community, antagonism, *Rigidoporus microporus*, biological control, white root disease