

**Evaluation of *Trichoderma asperellum* as a potential biocontrol agent against
Rigidoporus microporus *Hevea brasiliensis***

ABSTRACT

White root disease caused by *Rigidoporus microporus* is the most devastating disease in majority of the rubber growing countries, including Malaysia. This study aimed to screen and decipher the mechanisms involved in the biocontrol agents responsible for the inhibition of *R. microporus*. Among 16 fungal isolates, *Trichoderma* spp. showed promising results with the highest percent of inhibition shown by *Trichoderma asperellum* (80.54%). Scanning electron microscopy study revealed coiling of hyphae by *Trichoderma* species against *R. microporus*. *T. asperellum* has demonstrated a maximum inhibition in both volatile and non-volatile metabolite tests with its 75% culture filtrate on PDA plate was observed to cause abnormal morphological character in *R. microporus*. All *Trichoderma* species were shown to produce hydrolytic enzymes (chitinase, cellulase and -1,3-glucanase) and they were active siderophore producers. Present study demonstrated the possible mechanisms involved and responsible for successful inhibition of *R. microporus* under in vitro condition especially by *T. asperellum*.

Keyword: White root rot; Mycoparasitism; Antibiosis; Enzymatic activity; Siderophores; *Trichoderma* spp.