

Isolation of *Rigidoporus microporus*, the Cause of WRD of Rubber, from Some Forest Associated Plants

Madushani H.K.I.¹, Fernando T.H.P.S.^{1*}, Wijesundara R.L.C.² and Siriwardane D.¹

¹Department of Plant Pathology, Rubber Research Institute of Sri Lanka, Agalawatta, Sri Lanka

²Department of Plant Science, Faculty of Science, University of Colombo, Colombo 03, Sri Lanka

*thpsfernando@yahoo.com

Abstract

Natural rubber while promoting export earnings and livelihood of people supplement thousands of hectares to the forest cover. Over the past decades, the rubber yield has significantly increased due to the cultivation of high yielding clones. However, latex production still faces serious economic losses due to many biotic constraints which include significant losses caused by pathogenic fungi. Among them, White root disease (WRD) is very destructive in rubber plantations of Sri Lanka and in many other rubber growing countries. This disease has been identified as one of the major causes for the loss of plants during the first five years after planting resulting in low productivity levels. In spite of the fact that disease management strategies have been clearly outlined by the Rubber Research Institute, the disease incidence is showing an increasing trend. One of the main reasons for this has been identified as the increment of the host range. In this situation expansion of the host range of *R. microporus* was undertaken. *R. microporus* was isolated from the symptomatic host plants such as *Mucuna bractiata*, *Camellia sinensis*, *Cinnamomum zeylanicum*, *Artocarpus nobilis*, *Alstonia macrophyll* growing in and around rubber plantations. Some of the above crops such as *C. sinensis*, *C. zeylanicum* are intercrops recommended by the RRI while *A. nobilis* and *A. macrophylla* are important forest crop species grown in the vicinity of rubber cultivations. *M. bractiata* is also one of the most commonly grown cover crops recommended for rubber plantations. The pathogen was isolated, on to Malt Extract Agar after surface sterilizing in 70% ethanol for 3 minutes. Pure cultures were obtained and the cultural characteristics were recorded for the five isolates separately. For comparative purpose isolate from *H. brasiliensis* was employed. Colonies showed white flattened cultures. Isolates from *M. bractiata*, *C. sinensis*, *C. zeylanicum*, *H. brasiliensis* and *A. nobilis* showed puffy aerial growth while *A. macrophylla* showed clear concentric zones which are prominent from the lower side of the colonies. Among the isolates investigated, the fastest growth rate was observed in the isolate from *C. sinensis* showing 1.262cm/day while the lowest growth rate 1.205 cm/day was shown by the rubber isolate. The pathogenicity of the isolates obtained from the above hosts were proven against the respective hosts by following the Koch's postulates under green house conditions. The cross infection abilities of the isolates were also assessed and all isolates infected *Hevea brasiliensis* showing cross infection abilities. Pathogenic and genetic variability among the different isolates are being investigated. The information will be valuable in the development of improved management strategies against white root disease of rubber.

Keywords: White root disease, *Rigidoporus microporus*, *Mucuna bractiata*, *Camellia sinensis*, *Cinnamomum zeylanicum*, *Artocarpus nobilis*, *Alstonia macrophyll*, Pathogenicity