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THE DISTRIBUTION AND CONTROL OF
WHITE ROOT DISEASE CAUSED BY
RIGIDOPORUS LIGNOSUS, ON HEVEA IN SRI LANKA

Thesis submitted
for the degree of Master of Science of the
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by

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ABSTRACT

A brief account of the symptoms of White Root disease is given, together with a review of the literature on the detection, spread and control of the disease.

An attempt was made to study the role of the basidiospores in causing new foci of infections. Sporophores of R. lignosus are produced in abundance during the rainy weather and they release viable spores from a very early stage of their development. Maximum number of basidiospores are released when the temperature is low and the relative humidity is high. Germination of spores occurred in the presence of free water and was first noticed 8 h after their release. Maximum germination was observed at RT, the viability being adversely affected by low and high temperature, low humidity and exposure to UV and direct sunlight. Successful spore inoculations of Hevea timber were possible only under laboratory conditions and basidiospores failed to colonize stumps of Hevea in the field, under natural conditions.

Economically important crops like Cinnamon, Cocoa, Tamarind and Manihot were found to be affected with Rigidoporus spp and the isolates obtained from these required the same conditions as that of Hevea isolates, for their optimum growth.

Single spore isolates from a sporophore varied significantly from those obtained from roots.

The rate of spread of the fungus in the field varied from 1.9 to 8.7 meters a year, with an average of 4 meters per year and the infections were seen to spread commonly within row. The new infections were generally noted in the vicinity of previous attacks.

The contact of healthy roots with very small fragments of infected roots was sufficient to cause infection of trees. Large pieces of inoculum and stumps remain viable for periods longer than $2\frac{1}{2}$ years. Some basidiomycetes are capable of causing rapid decay of Hevea timber.

Covers reduce the spread of the disease and enhance decay of timber. The practice of adding sulphur at planting is useful in reducing the incidence of the disease and the beneficial effects of sulphur remain for nearly $1\frac{1}{2}$ years. Trees showing foliar symptoms could not be saved by the application of a collar protectant. Several fungicides were effective in inhibiting the growth of the fungus totally, under laboratory conditions.

CONTENTS

ABSTRACT	1
ACKNOWLEDGEMENTS	111
INTRODUCTION	1
REVIEW OF LITERATURE	11
MATERIALS AND METHODS	
Biology	
Collection of spores	21
Spore germination	21
Spore release	22
Sporophore development	23
Spore inoculation	23
Comparison of <u>Rigidoporus</u> isolates from different hosts with <u>R. lignosus</u> on <u>Hevea</u>	25
Pathogenicity of <u>Rigidoporus</u> isolates from different hosts on <u>Hevea</u> seedlings	27
Variation among single spore isolates of a sporophore and comparison with those of root isolates	27
Detection	28

Spread	
Natural	29
Artificial	30
Root development in budded stumps	34
Control	
Addition of sulphur	34
Determination of MHC, pH and fungal population of soil	35
Decay of wood	36
Decay of inoculum under different covers	38
Testing of fungicides	39
Histology	40
RESULTS	
Biology	
Sporephore production	42
Spore release	43
Spore germination	49
Spore inoculation	54
Variation among single spore isolates of a sporephore and comparison with those of root isolates	59

Comparison of <u>Rigidoporus</u> isolates from different hosts with <u>R. lignosus</u> on <u>Hevea</u> isolates	61
Pathogenicity of <u>Rigidoporus</u> isolates from different hosts on <u>Hevea</u> seedlings	66
Detection	68
Spread	
Natural	69
Artificial	86
Root development in budded stumps	95
Control	
Addition of sulphur	99
Decay of wood	104
Decay of inoculum under different covers	110
Testing of fungicides	114
Histology	118
DISCUSSION	120
SUMMARY	143
REFERENCES	147