



PHYSIOLOGICAL, CULTURAL AND BIO EFFICACY STUDIES ON FOLIAR PATHOGENS OF RATTAN

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ABSTRACT: The present investigation was carried out to study the effect of different temperature regimes, pH levels, different solid and liquid culture media and *in vitro* bio-efficacy of different biocontrol agents on *Pestalotiopsis calami*, *Colletotrichum gloeosporioides* and *Fusarium oxysporum* causing foliar disease in rattan. Data revealed that pathogens can grow at temperature ranging from 5°C to 35°C with optimum temperature of 25°C which favour the maximum mycelia growth of all the test fungal pathogens under study pH level of 6.5 is quite suitable for optimum growth which is statistically at par with the pH level of 6.0 and 7.0. Potato dextrose media provide the best growth of all the pathogens followed by, Richards media and Malt extract which are also statistically at par. *In vitro* bio-efficacy studies revealed that among the four strains of *Trichoderma harzianum*, Th Strain II exhibits maximum mycelia growth inhibition (44.10% and 27.38%) of *Pestalotiopsis calami* and *Colletotrichum gloeosporioides*, respectively. While Th Strain I exhibit maximum mycelia growth inhibition (43.95%) of *Fusarium oxysporum*.

Keywords: Cultural studies, *Colletotrichum*, *Pestalotiopsis*, physiology, rattan

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INTRODUCTION

Rattan is called bent in India, the name probably originating from the Sanskrit word "betas", meaning climber. Rattans are spiny, climbing plants. Although some of the species, in fact, do not climb, being shrubby palms of the forest undergrowth. Rattans are one of the least-protected groups of flowering plants (Dransfield, 1981). In India, and in all cane-growing countries, rattans are an exhaustible raw material of the evergreen forests. Due to the overexploitation of the species for the furniture, handicrafts, poor natural regeneration, biotic factors such as diseases and pests and utilization of apical stem and seeds for food by some North Eastern community this source is going to be dry up in the future. Hence there is an instant need for evolving a strategy for scientific management and conservation of this valuable depleting resource for future along with the cultivation of commercially important species. A little attention has been paid towards the important diseases of rattan which appear in nursery, plantation and natural stand and causes losses. Further physiological, nutritional and utilization

of bio-agents for the management of the foliar pathogens of rattan has not been studied thoroughly yet. The investigation was therefore undertaken to study on physiology, cultural and management of the foliar pathogens of rattan with aim to give more information for physiological and nutritional requirements of the foliar pathogens and utilization of bio-agents for the management of the disease.

MATERIALS AND METHODS

The experiment was laid out at Plant Pathology Laboratory, Forest Research Centre for Bamboo and Rattan, Aizawl Mizoram. The studies were carried on the pathogens viz., *Pestalotiopsis calami*, *Colletotrichum gloeosporioides* and *Fusarium* species causing leaf spot and blight of rattan. The studies were carried out on solid as well as liquid media under *in vitro* conditions, so as to determine the best medium, optimum temperature and pH for the vegetative growth of these fungi. *In vitro* bio-efficacy of the different *Trichoderma* species against the test pathogens were also carried out by dual culture technique.