



RESEARCH ARTICLE

# Integrated management of rice sheath rot incited by *Sarocladium oryzae*

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## ABSTRACT

In the field trial conducted during *Kharif* season, spraying at booting stage (85DAS) and 15 days later with carbendazim (500 g/ha) + phosphamidon (1 lit./ha) was the most effective in reducing sheath rot disease incidence, besides giving the maximum yield. Among the plant products and antagonists, neem oil (3%) spray had the maximum efficacy in reducing the disease incidence followed by neem seed kernel extract (5%), *Pseudomonas fluorescens* (1 kg/ha), *Bacillus subtilis* (1 kg/ha), leaf extracts (10%) of *Acalypha indica*, *Convolvulus arvensis* and in the *Rabi* season experiment also, the same trend was observed. The maximum cost benefit ratio was recorded in *P. fluorescens* sprayed plots.

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## INTRODUCTION

Sheath rot caused by *Sarocladium oryzae* (Sawada) W.Gams and D.Hawksw. has become endemic and one of the major constraints in production and off-setting the efforts to attain targetted levels of rice production in Tamil Nadu and also in other rice growing states. The disease affected severe yield loss and could be a potential threat to rice production as reported by Chen (1957). The average reduction in grain yield due to this disease was estimated to be 14.50 per cent in West Bengal (Chakravarthy and Biswas, 1978) and in Tamil Nadu it was as high as 57.40 per cent (Mohan, 1976). The maximum of 85 per cent yield loss was reported in Andhra Pradesh by Muralidharan and Venkata Rao (1980).

At present, sheath rot of rice could not be effectively controlled by chemical means alone. Moreover, use of chemicals for plant disease management has to be restricted to the minimum in view of their inherent ill effects like environmental pollution, residual toxicity, human health hazards and development of resistance by plant pathogens etc. However, till such effective non-chemical methods are developed, the use of chemicals is essential to the extent warranted for plant disease management. To develop effective

management strategies, wide knowledge on the disease and pathogen and also the effectiveness of fungicides, fungicide-insecticide combinations, plant products and biocontrol agents is necessary. To bridge this gap, the present study was carried out.

## MATERIALS AND METHODS

Two field experiments in a Randomized Block Design with 14 treatments and three replications were conducted in 'B' block of the farm at Agricultural College and Research Institute, Madurai, respectively during the first (*Kharif*) and second crop season (*Rabi*), to evaluate the efficacy of plant products, antagonists, fungicides and fungicide-insecticide combinations against sheath rot disease.

Based on the efficacy of plant products, phylloplane antagonists, fungicides and fungicide-insecticide combinations under pot culture conditions, five promising plant products *viz.*, leaf extracts of *Acalypha indica*, *Ocimum tenuiflorum*, *Convolvulus arvensis*, *Catharanthus roseus* and neem oil and neem seed kernel extract, two phylloplane bacterial antagonists *viz.*, *Pseudomonas fluorescens* and *Bacillus subtilis*, one fungicide carbendazim and four