

Potential of *Trichoderma* species on *Helminthosporium* causing leaf spot on cane palm, *Chrysalidocarpus lutescens*.

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Abstract

The cane palm, *Chrysalidocarpus lutescens* is one among the plant material of the export industries in Sri Lanka. The export quality of *C. lutescens* was declined due to the repeated occurrence of a leaf spot caused by *Helminthosporium*. Widespread occurrence of the leaf spot affected the cane palm production and succumb it to a huge setback in the floriculture industry in Sri Lanka. Being an export industry eco-friendly means of disease control was the prime focus for a better management of such vulnerable disease. *Trichoderma* is a potential bio agent, which has definite role in suppressing the inoculum of *Helminthosporium* sp. This study aims to evaluate the efficacy of *Trichoderma* species to control naturally established leaf spot in cane palm under field conditions. Three isolates of *T. viride* and two isolates of *T. harzianum* were evaluated. All the *Trichoderma* species performed significantly in reducing the disease incidence. *T. viride* + *T. harzianum* combination (1×10^{10} cfu/ml) was the best compared to chemical in decreasing the mean disease severity index and improving the frequency of healthy plants. The colour of the leaves regained due to the application of *Trichoderma* sp. The results revealed that leaf spot incidence was lowered significantly in cane palms treated with *Trichoderma* species followed by treatment with combination of *Trichoderma* sp. and fungicides. The fungicide mixture (hexaconazole 50 g/l + Isoprothiolane 400 g/l) failed to lower the disease incidence and had no effect in suppressing the inocula of *Helminthosporium*, although recommended. Mixing of *Trichoderma* species with fungicide did not exhibit any additive effect. The combination of different species of *Trichoderma* would target species of *Helminthosporium* that exist as a complex group under field conditions. The results also proved that the existence of heterogeneity in *Helminthosporium* that could be tackled and effectively controlled by a combination of different species of the bio-agent, if available, to broaden the selectivity of the pathogens. The use of *Trichoderma* species had claimed not only to reduce the incidence of *Helminthosporium* but also to sustain the growth and vigor of the *C. lutescens* to most fit for exporting.

Indexed keywords

EMTREE medical terms: antibiosis; article; biological pest control; classification; growth, development and aging; Hyphomycetes; methodology; microbiology; pathogenicity; physiology; plant disease; plant leaf; species difference; Sri Lanka; *Trichoderma*

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