

INTEGRATED MANAGEMENT OF CORYNESPORA LEAF DISEASE OF RUBBER IN NURSERIES USING BACTERIAL ENDOPHYTES

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Possibility of using of endosymbionts in the management of Corynespora leaf disease of young rubber (*Hevea brasiliensis*) was studied through *in vitro* assay and field evaluation. Endophytic bacteria isolated from different parts of the rubber tree were screened for the *in vitro* antagonistic activity against *Corynespora*. A *Bacillus* isolate (8LK) showed 3.3 cm inhibition zone on the growth of the *Corynespora* in dual culture and this was selected for bioassay and nursery evaluation. Bioassay using the detached leaves of endophyte treated plants showed reduction in lesion size upon inoculation with pathogen. Compatibility study of the endophytic bacteria with recommended fungicide (Carbendazim) was conducted under *in vitro* condition and found compatible and was evaluated in susceptible clone in the nursery stage. The results showed that the integrated treatments were on par with the general fungicide recommendation in controlling the *Corynespora* leaf disease in nursery.

Key words: *Corynespora cassiicola*, Endophytic bacteria, *Hevea brasiliensis*, Integrated management

INTRODUCTION

Rubber (*Hevea brasiliensis*) a perennial tree crop, native to Amazon forests is widely cultivated in the humid tropics and accounts for 99 per cent of the global natural rubber production. One of the major constraints in rubber cultivation is occurrence of fungal diseases, causing considerable damage to the tree in terms of growth and yield. Among the different pathogens, *Phytophthora*, *Corynespora*, *Corticium*, *Colletotrichum* and *Oidium* cause mild to severe disease in rubber and have attained economic significance in India (Edathil *et al.*, 2000). Control of plant diseases using chemicals is the most effective short-term disease

management strategy and is popular among the farmers mainly due to the immediate results. Biocontrol measures are not yet practiced for the management of diseases in rubber plantations as they were not proved effective.

Leaf disease of rubber caused by *Corynespora cassiicola* (Berk & Curt) has been reported from various rubber growing countries. Chemical control measures have been adopted for the control of this disease in rubber plantations (Edathil *et al.*, 2000; Jacob and Idicula, 2004; Manju *et al.*, 2001). Repeated use of agrochemicals is not desirable because of their adverse effect on environment. Hence, it is appropriate to