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Biocontrol efficacy of *Trichoderma* isolates (*T. harzianum* R1, R2 and *T. viride* V3) for post harvest anthracnose pathogen (*Colletotrichum gloeosporioides*) of rambutan (*Nephelium lappacium* L.)

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Anthracnose caused by *Colletotrichum gloeosporioides* is one of the most predominant and economically important post harvest diseases of ripening and ripe rambutan fruits of Sri Lanka. Controlling the disease by applying systemic fungicides is expensive while it pollutes the environment and causes health hazards to consumers. The possibility of biological control is added as a complementary strategy within the integrated management of the disease. *Trichoderma* spp. have been used as biological control agents to protect plants against phytopathogens in several fruit crops. The objective of the present study was to evaluate the potential of *Trichoderma* isolates (*T. harzianum* R1, R2 and *T. viride* V3) as biocontrol agents of *C. gloeosporioides* under in vitro conditions.

Dual cultures in Petri dishes containing potato dextrose agar (PDA) showed that the three isolates of *Trichoderma* significantly ($P < 0.005$) inhibited mycelial growth of *C. gloeosporioides*. Among them *T. viride* showed the highest percentage inhibition (92%). Microscopic examination of slide cultures demonstrated direct parasitism and coiling of *T. harzianum* and *T. viride* around the hyphae of *C. gloeosporioides*, causing swollen, deformed shortened and rounded cells of the pathogen. Granulation of cytoplasm and disintegration of hyphal cell walls of the pathogen were also observed in the dual culture. In well diffusion method carried out at different spore densities (10^3-10^8 conidia / ml) of antagonists, *T. viride* (V3) exhibited a significant ($P < 0.05$) effect on pathogen suppression. Results confirmed the ability of *Trichoderma* isolates to control *C. gloeosporioides* under *in vitro* conditions. Additional *in vitro* and *in vivo* studies using other *Trichoderma* spp. under a wide range of experimental conditions are needed to fully assess the potentialities of *Trichoderma* spp. as biological control agents.

Keywords: Anthracnose, Biological control, Colletotrichum gloeosporioides, Trichoderma harzianum ,Trichoderma viride