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Antagonistic properties of crude culture filtrates of *Trichoderma* isolates (*Tichoderma harzianum* R1, R2 and *Trichoderma viride* V3) on postharvest anthracnose pathogen (*Colletotrichum gloeosporioides*) of rambutan (*Nephelium lappacium* L.)

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Post harvest anthracnose disease caused by *Colletotrichum gloeosporioides* is abundant in ripening and ripe rambutan (*Nephelium lappacium* L.) fruits in Sri Lanka. Control of the disease by applying systemic fungicides is expensive and pollutes the environment while causing health hazards to consumers. In this study, the biological potential of three selected Trichoderma isolates (*T. harzianum* R1, R2 and *T. viride* V3) was evaluated against the post harvest anthracnose pathogen (*Colletotrichum gloeosporioides*) of rambutan (*Nephelium lappacium* L.).

The culture filtrates of the antagonists showed strong antifungal activity against the pathogen. The crude culture filtrates of *Trichoderma* spp. Isolates showed an antifungal activity by reducing pathogen expansion and conidial germination *in vitro.* The significant ($P < 0.05$) inhibition of radial growth of the colony was observed in filter paper disc- agar diffusion method, when the pathogen was challenged with the crude culture filtrate of *T. viride* (V3). The highest percentage inhibition of conidia (62%) was observed when the pathogen was challenged with the concentrated crude culture filtrate (1/10 v/v) of *T. viride* (V3). Application of crude culture filtrates of all antagonists showed a significant effect ($P < 0.05$) on the development of lesions on artificially inoculated rambutan fruits. Among them *T. viride* (V3) showed the highest inhibition (61.29%) in artificially inoculated fruits. Between two *Trichoderma* species tested, the culture filtrate of T. viride showed a significant antagonistic activity against *Colletotrichum gloeosporiodes*. Further biochemical and molecular studies are needed to purify and identify the active compounds of the crude culture filtrates of *Trichoderma* spp. which regulate the biological mechanism of antagonism.

Keywords: Colletotrichum gloeosporiodes, Anthracnose, Tichoderma harzianum, Trichoderma viride, Culture filtrate.