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Control of Post-harvest Disease (*Botryodiplodia* sp.) of Rambutan (*Nephelium lappaceum*) and Annona (*Annona* sp.) by Using a Bio-control Agent (*Trichoderma* spp.) in Sri Lanka

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Abstract

Recent studies have shown the importance of products of underutilised fruits, such as jams, juices and candied fruits to nutrition, income generation and poverty reduction of small-scale entrepreneurs in developing countries. Underutilised tropical fruits such as rambutan (*Nephelium lappaceum*) and annona (*Annona* sp.) provide important contributions to small-holder livelihoods. However, post-harvest losses are significantly reducing the potential for income generation. While rambutan is consumed as fresh fruit in Sri Lanka and exported in small volumes to Europe, annona is available in smaller quantities in the domestic market where it is consumed fresh or in the processed form as a cordial or ready to serve (RTS) juice. The Industrial Technology Institute (ITI) of Colombo, Sri Lanka, is involved in developing biological control mechanisms for post-harvest diseases of tropical fruits, such as papaya, banana and mango as well as working together with the International Centre of Underutilised Crops on promising underutilised species, such as rambutan, annona and woodapple. The project presented here formed a contribution toward this larger national effort. The stem end rot caused by *Botryodiplodia* is one of the most important post-harvest diseases of tropical fruits. This project used *Trichoderma* spp. to reduce the disease and to isolate specific strains from several sites within Sri Lanka. In order to confirm previous observations and expand on available data, the study included the isolation of *Botryodiplodia* sp. from infected rambutan and annona fruits and *Trichoderma* spp. from soil at the sites. After successful isolation using Koch's postulates, a series of vitro experiments were conducted to test the antagonistic effect of the biological control agent against the pathogenic organisms. In vivo tests with infected fruit followed. Data will be presented to the effectiveness of *Trichoderma* strains isolated from Sri Lankan soils to control stem end rot on rambutan and annona.

Keywords: *Annona* sp., bio-control agent, *Botryodiplodia* sp, *Nephelium lappaceum*, post-harvest disease, Sri Lanka, *Trichoderma* sp., underutilised fruits