

Title Effect of *Cymbopogon nardus* on incidence of anthracnose disease and postharvest quality of dragon fruit during storage

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Abstract

The industry is under pressure to minimize the use of synthetic fungicides employed in postharvest to control disease on fruits. The essential oils are reported to have some fungicidal properties against certain postharvest diseases of tropical fruits and vegetables and also safe for the environment than synthetic. There are many studies concerning screening and efficacy of essential oils but most of them are confined to in vitro studies only. Therefore the objectives of the present study were to determine the efficacy of *Cymbopogon nardus* oil in vitro as well as in vivo to control postharvest anthracnose of dragon fruit and also to study the effects on postharvest quality characteristics. A study using 3 concentrations of *Cymbopogon nardus* oil (5, 10, 15 %) along with untreated control was designed to investigate the antifungal effects of this plant product against anthracnose of dragon fruit. The effects of *Cymbopogon nardus* oil on quality of dragon fruit during storage at cool room (10°C) for 21 days were also determined using 6 concentrations of *Cymbopogon nardus* oil (0.5, 1, 2, 3, 4, 5%). A significant ($P < 0.05$) inhibition of mycelial growth and conidial germination of *Collectotrichum* sp. was observed in all treatments of *Cymbopogon nardus* oil as compared to the control after 7 days incubation at room temperature. A complete fungal inhibition (100%) was observed when *Cymbopogon nardus* oil concentration exceeded 10%, while there was no effective conidial germination inhibition found in the control. The *Cymbopogon nardus* oil treatment also delayed the disease incidence and maintained quality during storage, however, some phytotoxic effects were observed on fruits treated with higher concentration (4-5 %). It can thus be concluded that the concentration below 3% can be used for extending the storage life of dragon fruit for up to 14 days without affecting the physico chemical properties.