

Fungicidal activity of essential oils of *Cinnamomum zeylanicum* (L.) and *Syzygium aromaticum* (L.) Merr et L.M.Perry against crown rot and anthracnose pathogens isolated from banana

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Aims: To develop a post-harvest treatment system against post-harvest fungal pathogens of banana using natural products.

Methods and Results: *Colletotrichum musae* was isolated and identified as the causative agent responsible for anthracnose peel blemishes while three fungi, namely *Lasiodiplodia theobromae*, *C. musae* and *Fusarium proliferatum*, were identified as causative agents responsible for crown rot. During the liquid bioassay, cinnamon [*Cinnamomum zeylanicum* (L.)] leaf, bark and clove [*Syzygium aromaticum* (L.)] oils were tested against the anthracnose and crown rot pathogens. The test oils were fungistatic and fungicidal against the test pathogens within a range of 0.03–0.11% (v/v).

Conclusions: Cinnamon and clove essential oils could be used as antifungal agents to manage post harvest fungal diseases of banana.

Significance and Impact of the Study: Cinnamon and clove essential oil could be used as alternative post-harvest treatments on banana. Banana treated with essential oil is chemically safe and acceptable to consumers. Benomyl (Benlate), which is currently used to manage fungal pathogens, can cause adverse health effects and could be replaced with volatile essential oils.