3.9 Essential Oil Vapor Treatment to Control Post Harvest Diseases in Embul Banana (*Musa Acuminate*)

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ABSTRACT

Anthracnose and crown rot are very common post harvest diseases of banana. Anthracnose caused by *Colletotrichum musae* result in the development of black circular to lenticular lesions during ripening. Crown rot is caused by *Fusarium moniliforme*, *Lasiodiplodia theobromae*, and *colletotrichum musae*. Antifungal properties of essential oils of Cinnamon are well documented. However, only a limited number of studies have been conducted in the use of these oils in controlling post harvest diseases of banana. In earlier studies banana were sprayed with an emulsion of the oil and stored at room temperature and 15°C up to 15 and 21 days respectively. Objective of the present study was to evaluate the effectiveness of essential oil vapor treatment on post harvest diseases in embul banana. In the present study the banana was exposed to essential oil vapor at 15°C and allowed to stand at room temp up to 21 days.

The matured embul bananas were placed inside 3L polystyrene containers with snap on lids. Essential oil (Cinnamon leaf oil (*Cinnamon zeylanicum)* concentrations of 1170 ppm or 2340 ppm was applied to filter paper (5.5cm) and placed in each container for expose banana to vapor. Filter paper moistened with water was placed in each container, to maintain high relative humidity. The containers were then transferred to storage at 15°C in a cold room. Control samples were handled similarly with the exception of the volatile treatment. Banana samples were exposed to essential oil vapor for either 1 day (A) or 2 days (B) or 3 days(C). The exposed banana samples were placed at 15°C,and stored for an additional 21 days. After 21 days the banana samples were exposed to ethylene and were allowed to ripen. After the ripening severity of crown rot and anthracnose were recorded using a Standard Index. Data were analyzed statistically using one-way ANOVA.

Oil vapor treated banana present low severity of both diseases compared to the control. The banana exposed for 2 days to a concentration of 2340 ppm (sample B) had the lowest incidence of the both diseases (Crown rot and Anthracnose). But it was not significantly different from the 3 days exposure (sample C). The banana exposed for 3 days (sample C) showed higher number of incidence of both diseases. During the 3 days exposure it was observed an increases in number of banana finger ripen. Therefore the fingers become more vulnerable to the both diseases.