In vitro evaluation of antifungal activity from some essential oils against Papayas anthracnose causative agent *Colletotrichum gloeosporioides*

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Keywords: *Carica papaya* L., anthracnose, essential oils, antifungal activity.

Papaya (*Carica papaya* L.) is a native fruit from tropical climates, and different varieties of have been marketed worldwide. Brazil is a major producer and consumer of it, but annually, tons of fruits are lost due to poor logistics, bad quality control, and especially post-harvest diseases like anthracnose, caused by *Colletotrichum gloeosporioides* fungus (1). Antifungals has been used to control this post-harvest disease, and the essential oils (EOs) have been studied as a natural alternative. However, as EOs show different compositions and different species of fungus can show variable degree of susceptibility for a specific EOs, they should be tested for a specific use. The objective of this study was to evaluate *in vitro* the essential oils of *Eucalyptus staigeriana, Lippia sidoides* and *Pimenta pseudocaryophyllus* individually and blended to control *Colletotrichum gloeosporioides* fungus. The *in vitro* evaluation was performed using the EOs individually and in binary and ternary blends as follows: M1 (*L. sidoides* + *E. staigeriana*), M2 (*L. sidoides* + *P. pseudocaryophyllus*), M3 (*E. staigeriana* + *P. pseudocaryophyllus*) and M4 (*L. sidoides* + *E. staigeriana* + *P. pseudocaryophyllus*). The bioanalytical method was carried out checking the mycelial growth of *C. gloeosporioides* on basal medium, where different concentrations (0; 31 ppm; 62 ppm; 125 ppm; 250 ppm and 500 ppm) of EOs or blend were dissolved (2). The Minimum Inhibitory Concentration (MIC) was considered as the lowest dose in which no growth of *C. gloeosporioides* was visible by naked eyes (3).The results showed that essential oils of *L. sidoides, E. staigeriana* and *P. pseudocaryophyllus* had inhibitory activity against *C. gloeosporioides* with a MIC of 125 ppm, 500 ppm and 500 ppm, respectively. Among blends, M1 and M2 show a MIC of 250 ppm, while for M3 and M4 the MIC was of 500 ppm. In view of the data obtained, the study suggests that all the essential oils and the blends had antifungal activity against *C. gloeosporioides,* but *L. sidoides* essential oil individually had the highest inhibitory activity therefore it should be considered for future *in vivo* studies on Papaya fruits.

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Acknowledgements: CAPES.