Effect of the Selected Plant Leaf Essential Oil Vapors on the Growth of *Colletotrichum gloeosporioides* Isolated from Papaya Fruits (*Carica papaya* L.)

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The essential oils were found to be a good alternative to synthetic fungicides due to their vast spectrum of antifungal compounds present. Since most of them are volatiles, *in vitro* study of its effect on selected plant pathogens is beneficial to future *in situ* applications. The aim of this study was to evaluate *in vitro* vapor phase effect of selected 3 plant leaf essential oils (PLEO) against *Colletotrichum gloeosporioides* which is the known causal fungal species for papaya anthracnose. The *C. gloeosporioides* was isolated from infected papaya fruits and after identification of fungal colonies, their spore morphologies were further identified using an optical light microscope. The pathogenicity was tested using koch's postulates method. The 3 PLEO (*Cinnamomum verum, Syzygium aromaticum,* and *Citrus aurantifolia*) were extracted using hydrodistillation method. Mycelium growth inhibition of *C. gloeosporioides* by 3 PLEO was evaluated using the modified disc volatilization method with 3 concentrations (20, 40 and 60 µL per petri plate similar to 0.5, 1 and 1.5 mL per liter). The PLEO extracted from *C. verum* and *S. aromaticum* did not show significant difference ($P>0.05$) in relation to mycelium growth inhibition percentage at all 3 concentrations. However, *C. aurantifolia* PLEO showed significantly lower ($P<0.05$) percentage of mycelium growth inhibition than other 2 PLEO at 0.5 mL/L and 1 mL/L concentrations. However, under highest concentration of 1.5 mL/L, all 3 PLEO treatments did not show significant difference ($P>0.05$) of mycelium growth inhibition percentage. Since there were more than 50% inhibitions in both *C. verum* and *S. aromaticum* PLEO at their lowest concentration, these 2 PLEO with 0.5 mL/L can be equally recommended for *in situ* applications to reduce papaya anthracnose disease severity.

Keywords: Anthracnose, *Colletotrichum gloeosporioides*, Mycelium growth inhibition Papaya, Plant leaf essential oils

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