

Title Study on the effect of basil (*Ocimum basilicum*) essential oil on gray mold control in vitro and on strawberry (cv. Selva) fruit

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Abstract

The antifungal effects of Basil (*Ocimum basilicum*) essential oil were studied in vitro and in vivo experiments. In vitro experiment showed that the mycelial growth of the *Botrytis cinerea* was inhibited completely by all of the applied concentrations (250, 500, 750 and 1000 $\mu\text{L.L}^{-1}$) of Basil essential oil by "Paper Disk Method" but no significant effect was observed in mixture of essential oil with fungal culture medium. In second stage Basil essential oil at 60, 250, 500 and 1000 $\mu\text{L.L}^{-1}$ concentrations with "Paper Disk Method" applied on strawberries fruits. The results of in vivo experiment showed that fruit decay by *Botrytis cinerea* was effectively decreased in treated fruit with basil essential oil at all applied concentrations compared to controls. The postharvest quality of strawberry fruit was also evaluated after treatment. Basil essential oil at 60 and 250 $\mu\text{L.L}^{-1}$ concentrations showed positive effects on some fruit quality characteristics (e.g. color, titratable acidity, total soluble solid, Vitamin C and firmness). However, treated fruits with basil essential oil at low concentration had higher TA, TSS, Vitamin C, firmness and color values compared to control fruits whilst higher concentrations (500 and 1000 $\mu\text{L.L}^{-1}$) induced burning sepal and led to toxic signs on fruit surface. All applied concentrations of basil essential oil affected fruit flavor especially 100 $\mu\text{L.L}^{-1}$ reduced fruit firmness and Vitamin C content. According to the results, it has been shown that basil essential oil can improve fruit quality related attributes.