

# Essential oils as an alternative postharvest treatment to control fusariosis, caused by *Fusarium verticillioides*, in fresh pineapples (*Ananas comosus*)

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## Abstract

Fusariosis of the pineapple is an aggressive disease which needs to be controlled during postharvest. Essential oils have been studied with the intention of incorporating them into integrated pest management, to avoid or reduce the use of synthetic fungicides. In-vitro assays showed that thyme oil was the best essential oil for controlling mycelial growth of *Fusarium verticillioides*. Because of its fungicidal effect, four concentrations of thyme oil (100, 250, 500 and 1000  $\mu\text{L L}^{-1}$ ) were tested in-vivo. The results showed that after 21 d at 8 °C plus 7 d of shelf-life at 20 °C, the reduction of the severity of *F. verticillioides* on pineapples treated with 1000  $\mu\text{L L}^{-1}$  of thyme oil (50.1%) was higher ( $p < 0.05$ ) than with other treatments. Moreover, application of 1000  $\mu\text{L L}^{-1}$  thyme oil treatment reduced mass loss, and retained color and firmness of fruit. Treated fruit also showed a low translucency index and delayed changes in total soluble solids, titratable acidity, potential of hydrogen and maturity index. Sensory parameters also scored better in 1000  $\mu\text{L L}^{-1}$  thyme- oil treated fruit than in untreated controls during cold storage. These results suggest that thyme oil may potentially be used for controlling fusariosis in pineapples during postharvest, without negative effects on its physicochemical and sensory qualities.