

# Fumigation with plant volatile oils to control stem end rot of banana

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Acta Horticulturae 973: 207-213: 2013.

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## Abstract

Efficacy of plant volatile oils extracted from fingerroot (*Bosenbergia rotunda*), lemongrass (*Cymbopogon nardus*), and the synthesized volatile oils eugenol, linalool, and geraniol were investigated for the control of the postharvest fungus, *Lasiodiplodia theobromae*, the causal agent of stem end rot of banana. The volatile oils were fumigated in closed petri dishes with paper strips loaded with 5 and 15  $\mu\text{l}$  of the volatile oils, and incubated at 28°C under fluorescent light for 10 h. Growth of fungal mycelium was completely inhibited by linalool, eugenol, and lemongrass oil at both volumes after three days incubation. However, 15  $\mu\text{l}$  of linalool and eugenol showed the greatest mycelial growth suppression when fumigated for 9 days. A study on control of stem end rot of banana was carried out. Semi-fumigation conditions were prepared in a carton with six holes. Volatile oils (200  $\mu\text{l}$ ) were absorbed on to a paper strip fixed to the side of the carton. Banana fruits were artificially inoculated with 3-day old mycelium of *L. theobromae*, laid over a polypropylene sheet in the carton, and incubated at 18°C for 8 days. Linalool and eugenol were found to be very effective in decreasing lesion size of stem end rot disease by 55.1 and 27.4%, respectively, when compared with controls.