

Title Essential oils inhibit stone fruit pathogens in Vietnam and Australia
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Abstract

Postharvest rot of stone fruit causes major losses during storage and transport. Brown rot caused by *Monilinia fructicola* is the main concern in Australia. In north west Vietnam brown, rot is also a problem and additional loss is caused by *Botrytis cinerea* and *Gloeosporium gloeosporioides*. In Australia, the use of registered synthetic fungicides to control postharvest disease is a standard practice but developing 'natural' alternatives is being encouraged. In Vietnam, consignments of fruit are either subject to no postharvest treatment or fungicides are used inappropriately. This study examined the effect of three essential oils from cinnamon, thyme and oregano on the growth of *Monilinia*, *Botrytis* and *Gloeosporium in-vitro*. Results showed that essential oils from cinnamon had a stronger inhibitory effect than the other two oils. It completely inhibited the mycelial growth of *Monilinia* and *Gloeosporium* for 8 days at a concentration of 250ppm while 500 ppm was needed for *Botrytis*. Thyme and oregano were able to inhibit *Monilinia* and *Botrytis* at a concentration of 1000 ppm but did not affect *Gloeosporium*. Little germination (1-2%) occurred when *Monilinia* spores were placed on medium amended with 1000 ppm of the three essential oils for 21 hours. No germination was observed for *Botrytis* placed on media amended with cinnamon oil at concentrations of 500 ppm and above. Thyme did not inhibit the spore germination of *Botrytis* while oregano inhibited 11% of spores at 1000 ppm. Further work is therefore required to develop a practical system using cinnamon oil to protect stone fruit from postharvest pathogens in both Australia and Vietnam.