

## **Inhibitory Effect of Plant Oils on Spore Germination of Plant Pathogenic Fungi<sup>1</sup>**

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### **summary**

Ten kinds of plant essential oils including cinnamon, clove, lemongrass, cumin, garlic, ginger, mentha, castor, pine and mustard oil were evaluated for their inhibitory effects on spore germination of 17 genera, 28 species of plant pathogenic fungi. Results indicated the cinnamon oil had high inhibitory effect on all tested fungi, The clove oil only failed to inhibit the spore germination of Cercospora apii, C. beticola, and C. longissima. Lemongrass oil showed high inhibitory effect on Botrytis cinerea, Oidiopsis taurica, Phakopsora pachyrhizi, Phoma lingam, Peronospora effusa and Uromyces phaeoli. Garlic exhibited high inhibitory effect on Colletotrichum spinaciae and Cercospora sp. from yam leaves. Ginger oil was highly inhibitory to Alternaria solani, P. pachyrhizi, P. effusa and U. phaseoli. Mentha oil strongly inhibited the spore germination of Alternaria spinaciae, Cercospora personata, P. pachyrhizi and U. phaseoli. Castor oil only inhibited the A. solani. Pine oil showed high inhibitory effect on A. spinaciae, A. solani, B. cinerea, C. longissima, Erysiphe cichorocearum, P. pachyrhizi and U. phaseoli. Mustard oil was inhibitory to C. personata, Colletotrichum lagenarium and P. pachyrhizi. The concentration which gave high inhibitory effect found to be 2,500 ppm for clove oil, and 1,000ppm for cinnamon oil. The combination of clove and cinnamon oil showed synergistic effect on Alternaria porri, but not on colletotrichum capsici and Puccinia sorghi. Eugenol 1,000 ppm and geraniol inhibited spore germination of the 3 species fungi mentioned above. Dryness after wetting had no effect on the spore germination of A. porri, but had strong inhibitory effect on C. capsici and P. sorghi. The pretreatment of dryness can promoted the inhibitory effect of cinnamon oil greatly.

Key words: Fungus, Spore, Germination, Plant essential oil cinnamon oil, clove oil, Lemongrass oil, Cumin oil, Garlic oil, Ginger oil, Mentha oil, Castor oil, Pine oil, Mustard oil, Eugenol, Geraniol, Oil combination, Dryness.

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