Kelley, E. and Hao, J. 2010. Effect essential oils on inhibition of *Phytophthora capsici*. Phytopathology 100:S60.

Phytophthora capsici is an economically important pathogen that infects many plants, including cucurbit and solanaceous species. Laboratory studies were conducted to determine the effect of essential oils (bay, cinnamon leaf, clove bud, rosemary, and red thyme) on *P. capsici* (1) mycelial growth, (2) zoospore production, motility and mortality, and (3) oospore production. (1) A mycelial plug was transferred to a Petri plate containing V8 agar medium, amended with an essential oil (V8-O) and colony diameter was recorded after 3 days. (2) *P. capsici* was grown on V8-O plates for 5 days in the dark, followed by 3 days in constant light. Released zoospores were counted using a hemacytometer. Zoospore suspensions were treated with essential oils and aliquots were pipetted onto V8 plates, with colonies counted 2 days later. Treated zoospores were also viewed under a compound microscope for movement at 3, 10, 30, and 60 minutes. (3) Two strains of *P. capsici* with opposite mating types were co-cultured on V8-O plates, and oospore production was observed after 1 week. All tests were done utilizing 5 oil concentrations, in the range of 0.005 to 0.8 ul/ml. Effective concentration for 50% growth inhibition of the pathogen was calculated. At a concentration of 0.15 ul/ml, red thyme was the only oil to fully inhibit all mycelia growth, but bay clove bud and cinnamon leaf inhibited growth at 0.3 ul/ml. All oils suppressed the movement of zoospores within three minutes of treatment at 0.15 ul/ml.