

#### Abstract:

Essential oils with fungicidal activities were identified in vitro; these were oregano, thyme, lemongrass, and cilantro. Essential oil components in those plants with antimicrobial activity were carvacrol, thymol, citral, and trans-2-decenal, respectively. Vapors of thyme, oregano and lemongrass, and their respective major components showed complete growth inhibition of *Botrytis cinerea* and *Alternaria arborescens*. *Geotrichum candidum* was more sensitive to citral and citral-containing oil vapors than to thyme or oregano oils. Only vapors of thyme oil, oregano oil, thymol and carvacrol inhibited *Rhizopus stolonifer*. When incorporated into the growth medium, thyme and oregano oils maintained a fungicidal or fungistatic activity on all four fungi at 500 mg/L. Lemongrass oil had only an effect at 1,000 mg/L, and no inhibition of *Rhizopus*. Trans-2-decenal was fungicidal to *Botrytis*, *Alternaria* and *Geotrichum* as vapor, but lost its activity when incorporated into the growth medium. Essential oil vapors were not successful in stopping disease development in inoculated tomatoes. Additionally, some oil vapors appeared to induce phytotoxicity on treated fruit under long periods of exposure. Emulsions of oils of thyme and oregano at 5,000 ppm and 10,000 ppm as dip treatments reduced disease development in tomatoes inoculated with *B. cinerea* and *A. arborescens*