

Survival of *Phytophthora ramorum* Chlamydospores at High and Low Temperatures¹

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Abstract

Chlamydospores were produced as described by Colburn and Shishkoff (Phytopathology 96:S25). Samples (5cc) of chlamydospores in sand inoculum were placed in 15 ml conical plastic test tubes and incubated at selected temperatures for 1, 2, 3, 4, and 7 days. Following incubation, tube contents were resuspended in 0.2 percent water agar and 1 ml was plated onto PARPH selective medium amended with 4 percent clarified V8 juice. Numbers of colonies resulting from germinated chlamydospores were assessed microscopically. High temperature treatments included 30, 35, and 40°C while low temperature treatments included 0, -10, and -20°C. All experiments also included chlamydospores placed at 20°C as positive controls. Near 100 percent survival was observed at temperatures of 0°C and for the 20°C controls for up to 7 days in the low temperature treatments, while almost no survival occurred at -10 or -20°C over the 7 day period. For the high temperature treatments, high levels of chlamydospore germination were observed over the 7 day period at 30°C and for the 20°C controls, while no growth was observed at 40°C. At 35°C, high levels of chlamydospore germination were observed at day 1, but growth declined steadily and was zero by 7 days. These results help define the temperature conditions under which chlamydospores of *P. ramorum* survive, and provide information to help define treatments aimed at inactivating chlamydospores in soil substrates.

Key words: *Phytophthora ramorum*, chlamydospore survival.

¹ A version of this paper was presented at the Sudden Oak Death Third Science Symposium, March 5–9, 2007, Santa Rosa, California.

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