

## Abstract

'Oroblanco' citrus fruit were heat treated with hot forced air at holding temperatures from 43 to 47 °C for times from 10 to 90 min. Unwaxed fruit developed heat damage at 47 °C, while waxed fruit showed heat damage at 44 °C. Thermal death kinetics of Mediterranean fruit fly, *Ceratitis capitata* (Wiedemann), eggs, first and third instars were tested in a hot water system for temperatures between 43 and 49 °C, and Probit 9 calculated from the data. Using first instar larvae the times needed to control the fruit fly at 43 and 44 °C were tested in infested 'Oroblanco' fruit. The observed lethal times in the hot water (113 min at 43 °C) were longer than what was observed in heated, infested 'Oroblanco' fruit (90 min). When 0.05% oxygen was added to a 43 °C heat treatment the time to completely kill first instar larvae was decreased to 30 min. Provided a fruit cooling method will prevent heat damage to the fruit, 43 °C in low oxygen, or 44 °C in air for 30 min can provide control of Mediterranean fruit fly in this citrus cultivar. These times, temperatures and atmospheres did not impair fruit quality either after shelf life alone, or following storage and shelf life.