

Article

Cold Responses of the Mediterranean Fruit Fly *Ceratitis capitata* Wiedemann (Diptera: Tephritidae) in Blueberry

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Abstract: In this study, the effects of cold treatment at 1.0 ± 0.2 °C were investigated on the eggs of the 1st, 2nd, and 3rd instar larvae of *Ceratitis capitata* in two Australian blueberry cultivars C99-42 and C00-09. Pupariation, emerged adults, and sex ratios were examined on *C. capitata* after the treatment. The results showed that exposure time at low temperatures was a key factor to affect pupariation and adult emergence. Eleven days of exposure to cold treatment at 1.0 ± 0.2 °C were enough to eradicate all four immature stages in both cultivars. Cold tolerance of the four *C. capitata* stages was not affected when reared on two different blueberry cultivars. The third instar larva is the most tolerant stage for cold treatment in two blueberry cultivars. There were no significant differences in sex ratios from surviving *C. capitata* among different stages after treatment. This study improves understanding of *C. capitata* responses to cold treatment in blueberries, which may contribute to phytosanitary required quarantine treatment of this destructive horticulture pest species.

Keywords: Mediterranean fruit fly; *Ceratitis capitata*; cold treatment; mortality; blueberry
