

OC261 Effects of thermal history and ambient temperature on the flight performance of the Mediterranean fruit fly

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In recent years, due to climate change, invasive species such as the Mediterranean fruit fly (*Ceratitis capitata*) have extended their geographic range to new environments. The flight traits of insects are strongly influenced by the thermal environment. It is not only the current, ambient temperature that can affect the flight performance of insects but also past temperatures (thermal history). To better understand the dispersal capacity and invasion to new environments, we explored how thermal history and ambient temperature affects the flight performance of *C. capitata* adults. We used the F₃ laboratory reared progeny of a wild *C. capitata* population originated from the area of Volos Greece. We used flight mills to test the performance of sexually mature *C. capitata* adults that were acclimated at either 20, 25 or 30°C for 48 hours. The tethered flight was recorded for 2 hours at 20, 25 or 30°C and the wing morphology of tested adults depicted. Higher ambient temperatures favored the speed reached by the adult flies with females being potentially faster than males regardless the ambient temperature. Acclimation temperature did not affect the flight ability of adults while heavier flies had a better flight performance regarding speed and distance. The importance of these findings to predict dispersal potential of *C. capitata* in relation to climate change is being discussed.

Keywords: tethered flight, acclimation, flight capacity, temperature, *Ceratitis capitata*

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