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Introduction

The Mediterranean fruit fly (medfly) *Ceratitis capitata* (Diptera: Tephritidae), widely expresses a remarkable ability to thrive and persist in a wide geographic range coping successfully with various biotic and abiotic stresses. Exploring the performance of medfly in winter hosts and different temperatures is expected to shed important light on understanding overwintering dynamics in temperate areas.

We studied a) the developmental responses of the immature stages to constant and fluctuating temperature regimes reared in both apples and bitter oranges, and b) the effects on survival and reproduction of the emerging adults.

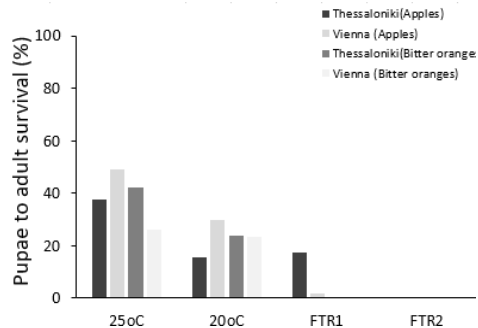
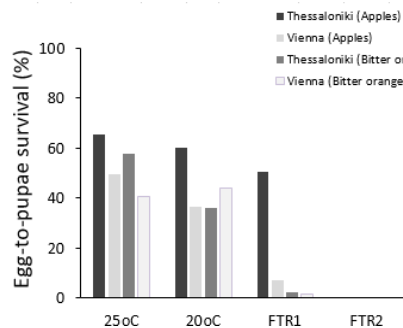
Materials and methods

Two medfly populations obtained from Northern Greece (Thessaloniki) and Austria (Vienna) were used. Freshly laid eggs were implanted in two artificial holes, drilled on opposite sides on the upper part of each host fruit. Infested fruits were individually placed in plastic containers on a layer sterilized sand, were covered with organdie cloth and transferred at a) three constant temperatures (20°C, 25°C) and b) two thermocycles (FTR1: 2 days at 20°C and 2 days at 7°C, FTR2: 2 days at 20°C and 6 days at 7°C) until pupation and adult emergence.

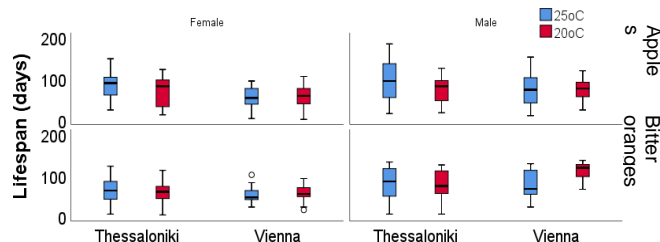
Upon emergence, pairs of adults (1♀ and 1♂) were placed individually into demographic cages and then transferred at 25°C. Adult survival and female oviposition were daily recorded.



Results



Adult lifespan (Days)



Survival analysis: Cox regression	
Factor	Significance
Population	✓
Host Fruit	×
Temperature	×
Sex	✓
Population * Sex	✓

Average female reproductive rates

HOST	Population	Lifetime fecundity (eggs/ female)	
		25°C	20°C
Apples	Thessaloniki	224,3 ± 58,8	74,1 ± 61,4
	Vienna	241,6 ± 38,8	232,3 ± 39
Bitter oranges	Thessaloniki	475,2 ± 60,1	429,2 ± 89,8
	Vienna	346,2 ± 61,9	484,9 ± 82,4

* This result recorded from six couples.

Conclusion

Our results revealed that the two medfly populations respond differently to temperature regimes (especially in FRT1) and host fruits.