

Introduction

The Mediterranean fruit fly (medfly), *Ceratitis capitata* (Diptera: Tephritidae), is a polyphagous species that has expanded its geographic distribution in cooler European areas with detection being recorded in Central Europe countries as well. However, the overwintering capacity of the medfly stages in these areas remained largely unexplored.

We assessed the overwintering capacity of adults and pupae in three overwintering sites (open field, storehouse in field, and basement in urban area) in Split (Dalmatia region, Croatia) during the winter period 2019-2020.

Materials and methods

Wild flies collected in Split, Croatia were used. To determine adult overwintering capacity, newly emerged adults (0-1 day old) (5 males and 5 females/cage) were placed in three overwintering sites on 30/10/2019, 19/11/2019 and 18/12/2019. Likewise 2-5 day old pupae were placed in the above overwintering sites on 28/10/2019, 6/11/2019 and 5/12/2019. Adult mortality and the number of pupae yielding adults were recorded every 2-3 days.

Results

Climatic conditions

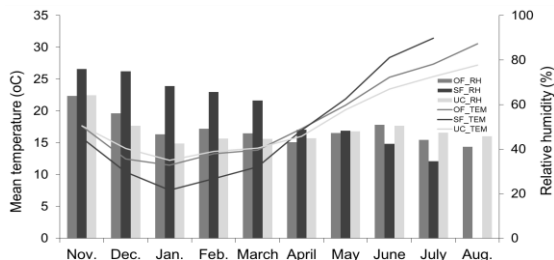


Figure 1. Patterns of temperature and relative humidity in the three overwintering sites. OF=Open field, SF=Semi-field conditions, UC=Urban conditions.

Survival of overwintering adults

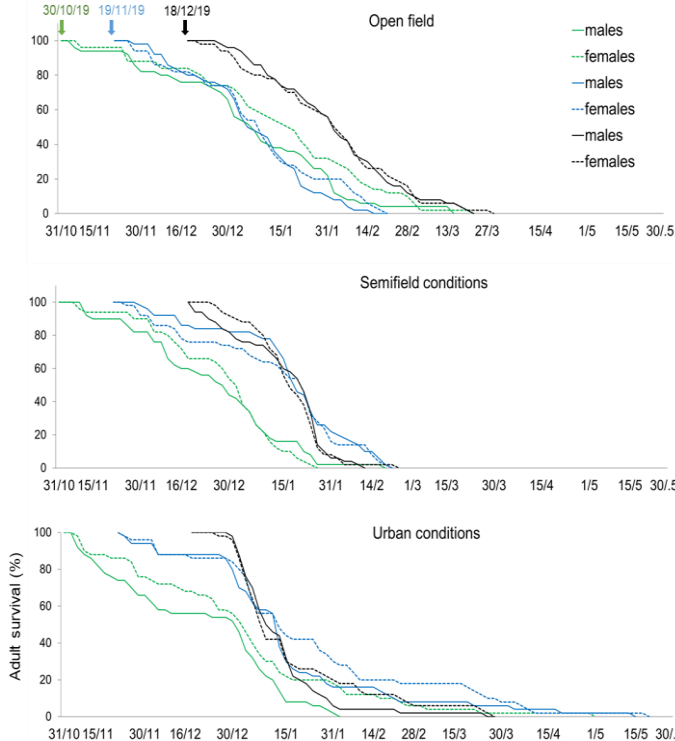


Figure 2. Survival of overwintering adults (males and females) in the three overwintering sites for each date.

Survival of overwintering pupae

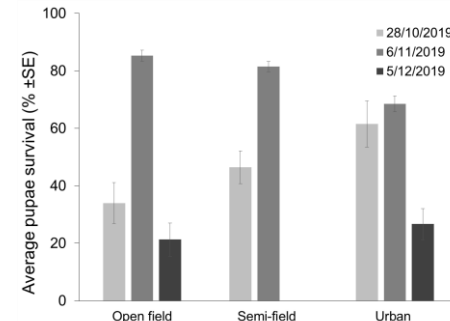


Figure 3. Effects of the overwintering site and establishment date on pupal survival.

Conclusions

Our results reveal that:

- Adults may overwinter under open field and urban shelter conditions.
- The latest pupae exposed to the overwintering sites (early December) the lower their survival probabilities.

Overwintering site and date affect the overwintering capacity of wild *C. capitata* adults and pupae in Central Dalmatia of Croatia.

Acknowledgements

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