Larval competition between *Anastrepha fraterculus* and *Ceratitis capitata* in different natural host.

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- ***A. fraterculus*** **and** ***C. capitata*** **overlap their area of distribution and host fruits in Argentina.**
- **Previous studies on competitive interactions analyzed their abundance in different host species and geographic locations, but did not assessed the actual level of larval competition between them in natural conditions.**
- **The aim of this work was to study the levels of larval competition between these species in three primary host species: guava, plum and peach.**

Methods

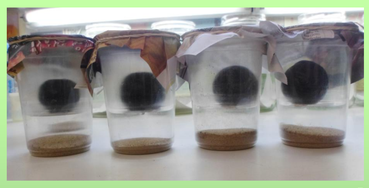
. Samplings were carried out in an area of coexistence (Entre Rios, Concordia).

. Fortnightly samplings throughout all of the fructification period.

. 20 fruits per tree.

. Each fruit was kept in individual containers .

. The pupae recovered were weighed and placed individually until adult emergence.



For each fruit and host species we measured:

- pupal weight (2 groups: above and below of the optimal weight)*

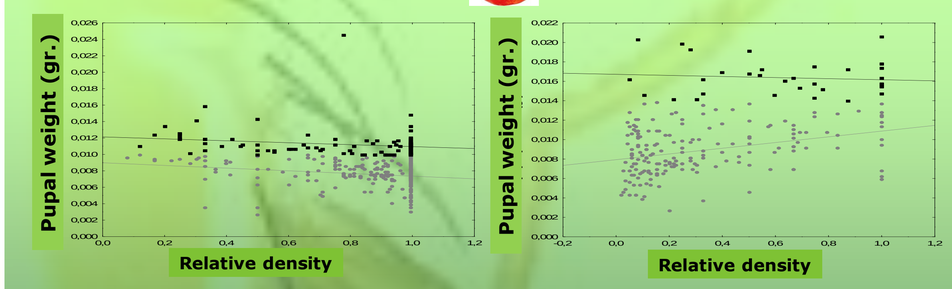
- absolute abundance (N° of pupae/kg of fruit) (3 groups: high, medium and low).

- relative abundance(N° of pupae of *C. capitata*/N° of total pupae).

*** Previous studies in laboratory conditions showed that interspecific competition results vary depending on whether the density remains below or above the carrying capacity. Therefore, cases in which pupal weight was below and above the pupal weight recorded on threshold density were identified.**

Results

C. capitata  ***A. fraterculus***

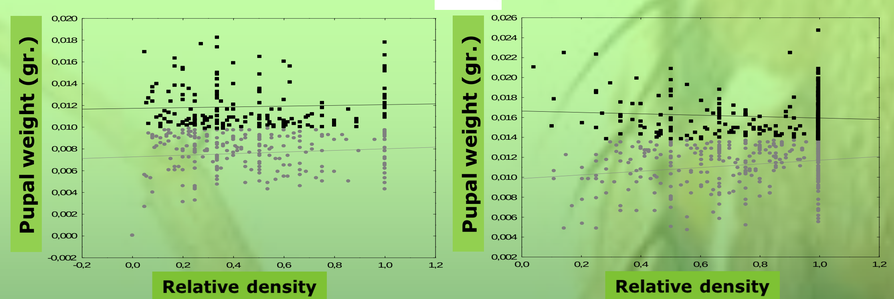


Lower weight: (-) *C. capitata*
(+) *A. fraterculus*

In *C. capitata* the pupal weight decreased when the relative density increased,, particularly in peach. For *A. fraterculus* the pupal weight decreased as the relative density of the competitor species increased.

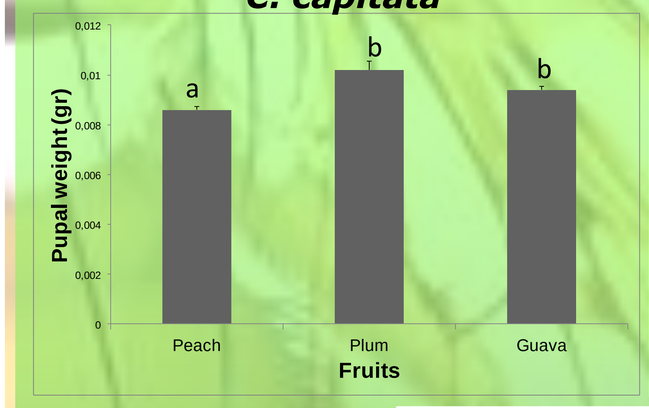
Plum didn't show any tendency for both species of fruit flies

C. capitata  ***A. fraterculus***

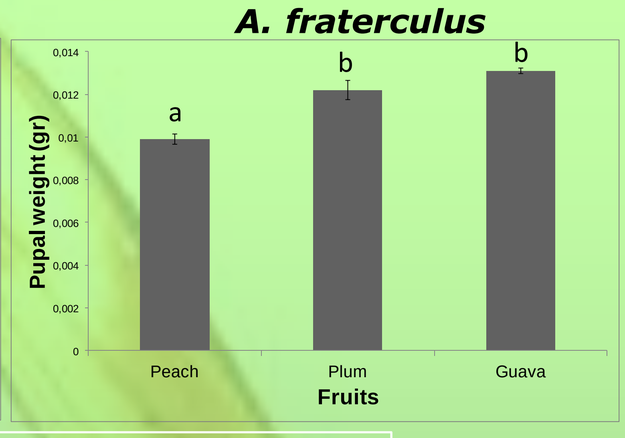


High weight: (-) for both species
Low weight: (+) *A. fraterculus*

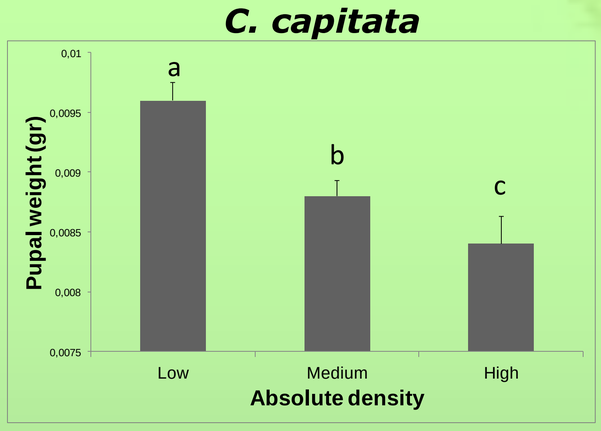
C. capitata



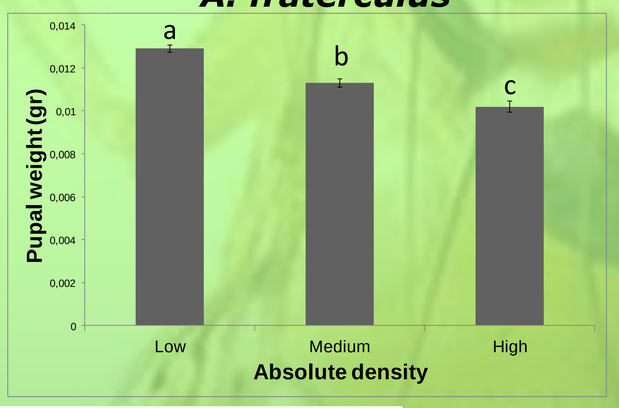
A. fraterculus



C. capitata



A. fraterculus

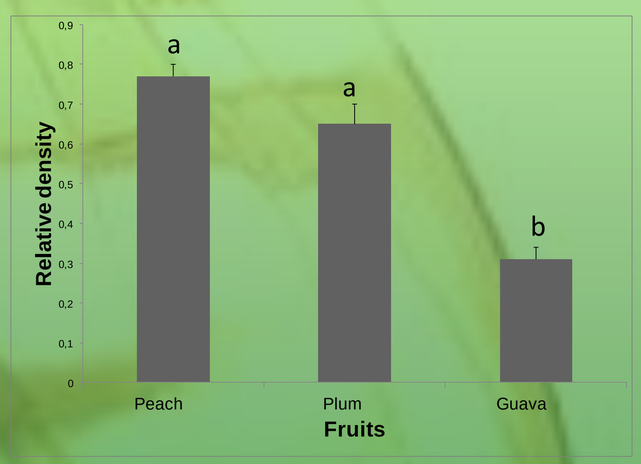


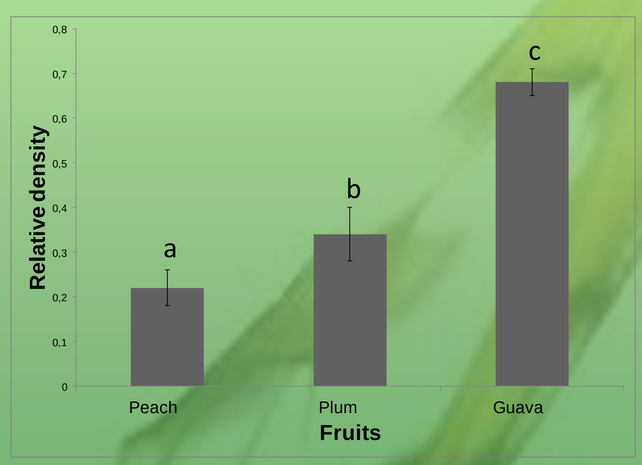
The lowest pupal weight was in peach for both species of fruit flies.

Pupal weight decreases as absolute density increases for both species of fruit flies.

C. capitata

Higher relative density in peach and plum





A. fraterculus

Higher relative density in guava

Conclusions

- **Larval competition is strongly affected by the density of larvae in the fruit, and in some cases by the proportion of larvae of each species.**
- **Results suggest that *C. capitata* larvae suffer more sharing the resource with conspecific larvae, particularly in peach.**
- **For *A fraterculus* the pupal weight decreased as the relative density of the competitor species increased, showing a negative effect when sharing the fruit with heterospecific.**
- **In guava, *A. fraterculus* were heavier evidencing a competitive advantage when it shares a native fruit with *C. capitata*; whereas *C. capitata* obtained a competitive advantage in an exotic host, such as peach. This separation of fruit species may support the coexistence of two species in nature.**