

Introduction and objectives

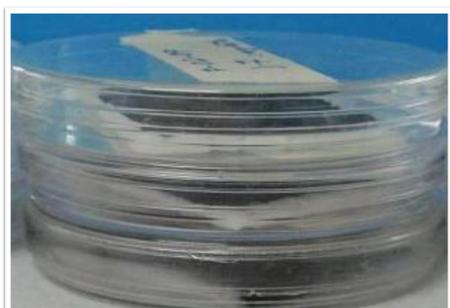
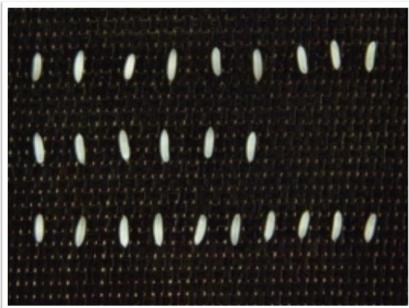
The *fraterculus* species group, currently composed of 29 species, includes the *fraterculus* cryptic species complex. Within the group, there is a potential second cryptic species complex for *Anastrepha obliqua*. On the other hand, genetic variation among *A. obliqua* may be explained by introgression between *A. obliqua* and *A. fraterculus*. Experimental examination of prezygotic and postzygotic isolation has been widely used to successfully separate cryptic species and could be used to explore hybridization potential, and contribute to the understanding of phylogenetic relationships among species in the group. Here we report results of experiments examining prezygotic and postzygotic isolation between *A. fraterculus* and *A. obliqua*.

Methods

Prezygotic isolation was observed in PVC pipe framed cages (0.6 x 0.6 x 1 m) where ten sexually mature marked couples of each species were introduced. The type and duration of copulations were recorded.



Postzygotic isolation was estimated by examination of fecundity, fertility, and F1 sex ratio of all possible ♂♀ mating combinations.



Results

Adults of both species exhibited a marked tendency for assortative mating in large cages containing potted trees. However hybrid matings in both directions were recorded.

The cross of *A. obliqua* males x *A. fraterculus* females and *A. fraterculus* males x *A. obliqua* females yielded less eggs that hatched in lower proportions than those of both homotypic crosses.

The sex ratio of the F1 adult hybrid progeny was strongly female biased, therefore adhering to Haldane's rule.

♂ x ♀	<i>A. fraterculus</i> x <i>A. fraterculus</i>	<i>A. fraterculus</i> x <i>A. obliqua</i>	<i>A. obliqua</i> x <i>A. fraterculus</i>	<i>A. obliqua</i> x <i>A. obliqua</i>
Total number of copulations	54	1	14	36
Fecundity (eggs laid)	608	200	390	380
Fertility (% of eggs hatch)	13	4	27	48
F1 Sex ratio (male/female)	1 / 1.18	1 / 6.25	1 / 66	1 / 1.45

Conclusions

Our results, coupled with similar experiments on cryptic and sibling species in the *fraterculus* group contribute to the understanding of the evolution of reproductive isolation and radiation of this species group.