period in the field, both stages of *Drosophila melanogaster* could be analyzed successfully using the population cage model. The efficiency of the cage described was confirmed in all the 27 experiments we have carried out so far. Another advantage is that drosophilids can be transported to the laboratory in the same cage if vertically shipped in a proper means of transport.

Figure 2. Image of rearing population cage exposed in a humid natural environment of Northeast Brazil.

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Technical adaptations to the retention baited trap to Drosophilidae.

Cardoso, Eduardo[1], Monica L. Blauth[2], and Marco S. Gottschalk[2]*. [1]Centro de Engenharia, Universidade Federal de Pelotas; [2]Departamento de Ecologia, Zoologia e Genética, Instituto de Biologia, Universidade Federal de Pelotas. *Corresponding author: marco.gottschalk@yahoo.com

Introduction

In Brazil, nowadays, one of the most used methods to capture live adults Drosophilidae flies is the use of traps proposed by Tidon and Sene (1988), once it is a simple retention trap, cheap, that use recycled material and had an excellent performance on field. This trap has been successfully used by our research group in several taxonomic survey on different environments (Gottschalk *et al.*, 2006; Blauth and Gottschalk, 2007; Gottschalk *et al*., 2007; Blauth *et al*., 2013). Roque *et al.* (2013) suggested two structural adaptations in the trap to avoid the flies getting stuck to the bait, impeding the retention parts of adult flies. In sampling

performed with the trap proposed by Roque *et al*. (2013), we verified a perceptive reduction in the total abundance of adults caught when compared with sampling performed with Tidon and Sene (1988) traps.

We considered the trap proposed by Roque *et al*. (2013) as more practical, viable, and efficient to the capture of drosophilids, reducing flies escape and do not stuck in the bait. The present technical note proposes some changes in order to make it more efficient in regards to attractiveness, increasing the number of individuals captured. Also, we suggest a new practical option to assembling the trap.

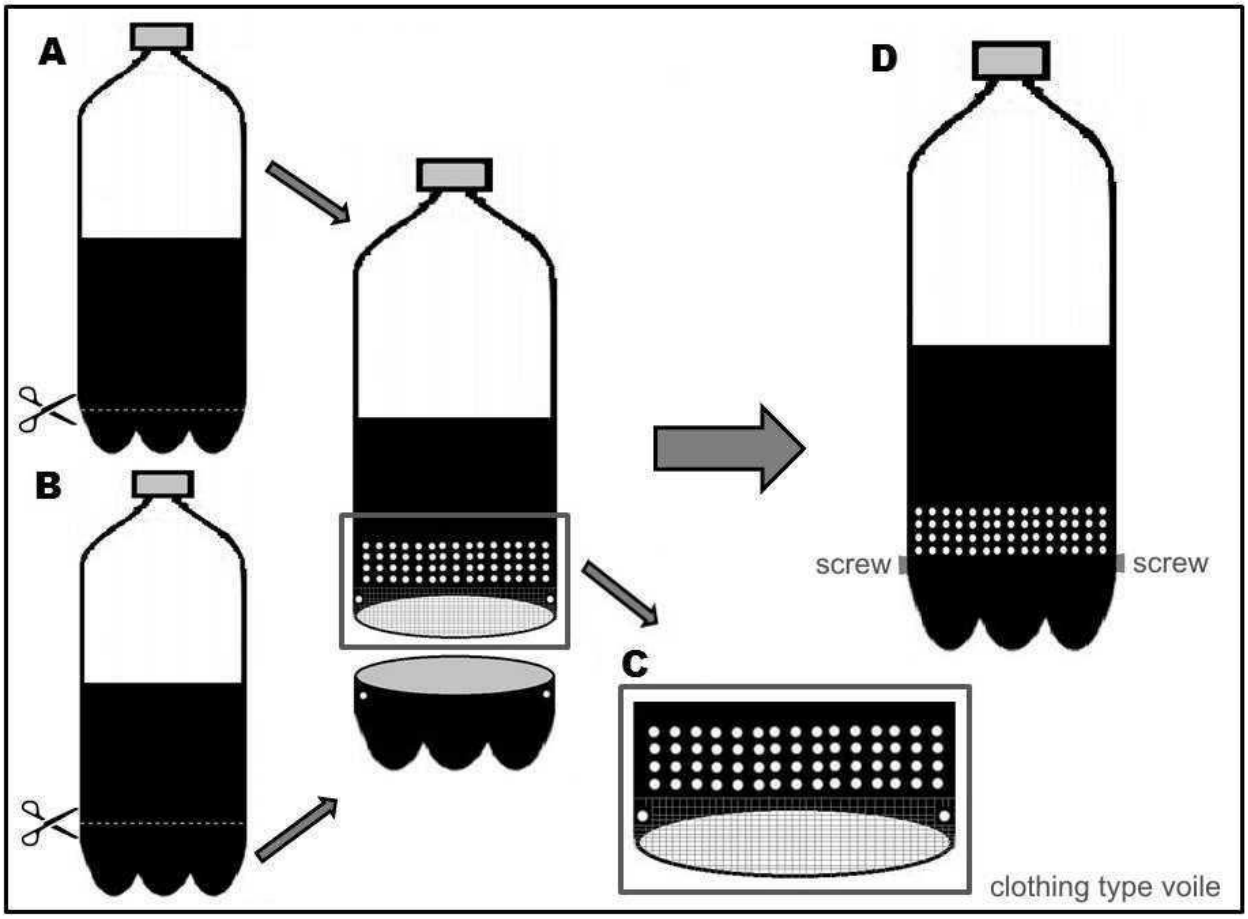

Figure 1. Retention trap of drosophilids. (A) Capture compartment of flies; (B) Bait storage compartment; (C) Capture compartment showing the rows of holes for entrance of flies and the clothing like voile; (D) Trap laid attached by screws.

Methodology

Technical adaptations

The trap here proposed is based on the trap described by Roque *et al*. (2013), and all the measurements and proportions were maintained, and its utilization is similar. The trap is made of two 2L PET bottles, where the compartment that captures and retains the flies is made of a bottle that had its bottom removed (Figure 1A), while the compartment that storage the bait is made of other bottle bottom (Figure 1B). Note that it is necessary to use two bottles, because the cutting height is different, being lower for the capture compartment and higher for bait storage compartment to allow a better trap fitting. The bait storage compartment is completely painted black while the retention compartment is painted half black and half kept transparent (Figure 1).

On the retention compartment, holes of 5 mm diameter are made arranged in sets of four parallel series around the bottle on the painted part (Figure 1C), close to the bait compartment. The holes can be done with iron to solder. The holes will be the entrance of flies to the trap and from where the bait smell will spread. Moreover, to optimize the attractiveness, it is suggested to isolate the capture compartment using a clothing like voile affixed with hot glue in the opening of bottom bottle (Figure 1C), replacing the holes in the base of the bottle suggested by Roque *et al*. (2013).

Regarding the assembly of the trap, for the engagement between the capture and bait storage compartments, two opposing holes are made on each compartment, and screws are used to hold the parts together after laying the bait (Figure 1D). Finally, the two compartments are attached with scotch or masking tape to prevent the entry of flies in the bait compartment for possible openings in the slot.

Trap test

To test the traps, particularly regarding attractiveness, ten pairs of traps suggested by Roque *et al*. (2013) were set on the field and ten pairs of traps as suggested by us. Each pair of traps was spaced 50 m from each other, while each trap in a pair was spaced 5 m. The bait used in each trap was 250g of smashed banana with yeast (*Saccharomyces cerevisiae*). The test was performed in *Restinga* forest area in southern Brazil (31º48'S; 52º43'W).

A paired Wilcoxon test was performed, and the test reliability was calculated through the Monte Carlo test with 100,000 iterations using the Past 2.17c program (Hammer *et al*., 2001).

Results

In total, 319 individuals were collected in the trap model proposed by this work and 79 individuals with the model suggested by Roque *et al*. (2013). The abundance was significantly higher in the trap proposed here ($w = 47$, $df = 9$, $p = 0.0499$), suggesting that the adjustments made in the trap provides an increase in the attractiveness for Drosophilidae.

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References: Hammer, Ø., D.A.T. Harper, and P.D. Ryan 2001, Palaeontologia Electronica. 4: 9; Roque, F., S.C.F. de Oliveira, and R. Tidon 2011, Dros. Inf. Serv. 94: 140-141; Tidon, R., and F.M. Sene 1988, Dros. Inf. Serv. 67: 90.

Efficient high-throughput cuticle preparations from fly lines yielding both viable and unviable embryos.

Gamberi, Chiara. Department of Biology, Concordia University, 7141 Sherbrooke Street West, Montréal, Québec Canada H4B 1R6; Chiara.gamberi@concordia.ca

Introduction

Analysis of *Drosophila* cuticular structures is a classic genetic tool to infer the efficiency of developmental processes via careful morphological evaluation. When performing genetic screens in pursuit of mutations with developmental effects or during mutational scanning to identify functionally important protein domains, high throughput analyses of cuticles from numerous fly lines becomes necessary. To increase throughput ingenious structures of fly containers have been devised such as fly "condominiums", that allow separate housing of relatively small numbers of flies of different genotypes and parallel embryos collections. The earliest of such devices were artisanal-made by cylindrical chambers the size of fly vials linked into a single structure (Nüsslein-Volhard *et al*., 1984). Modern commercial versions resemble scaled up microtiter plates with vial-like containers organized in regular arrays lodging onto specialized collection and feeding plates.