

Hoyer's mounting medium

Dissolve 30 g of gum arabic in 50 ml distilled water by stirring overnight. Very gradually add 200 g chloral hydrate. Add 20 g glycerol. Clear by centrifugation for at least 3 hours at 12000g. Can be stored for very long times at room temperature without any loss of quality.

References: Nüsslein-Volhard, C., E. Wieschaus, and H. Kluding 1984, Roux's Arch. Dev. Biol. 193: 267-82.



Safe, fast, cheap, and efficient procedures to collect and deposit in vials large and little numbers of flies in a short time.

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In Faculty of Medicine, Universidad de Chile, Santiago, Chile, eight Genetic and Biology Courses each employ *Drosophila* species for several practicals. A similar situation occurs in the Faculty of Pure Sciences in Universidad de Playa Ancha. The mean number of students per course fluctuates between 110 and 55. This means that our laboratories must have ready in an exact day and time 110 – 55 vials. That is, one vial per alumni × course × per eight weeks. Each vial must contain about 10 flies; N = 880 vials. The work is done 5 days a week per two months. To perform this task we have developed efficient procedures to distribute the flies into vials. Our modus operandi saves time taking a few minutes to deposit the flies into vials.

Handling a large number of flies

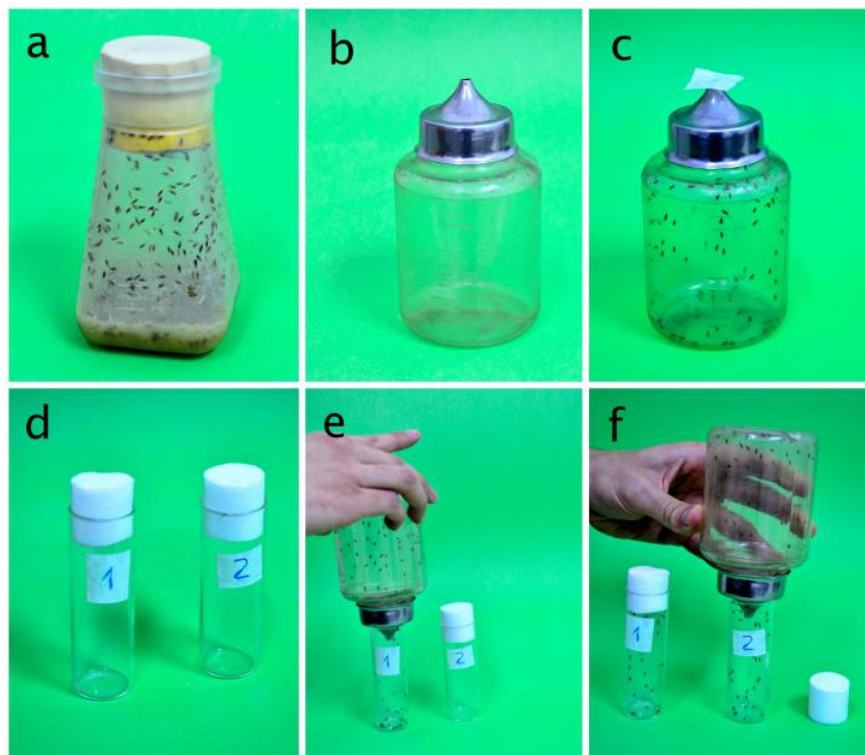


Figure 1. Photographs showing the procedure to handle a large number of flies. 1 a, a rearing bottle; 1 b, a feeding bottle, see text for a description; 1 c, a feeding bottle with adult flies; 1 d, empty vials; 1 e –f, transferring flies.

Figure 1 a- f shows a sequence of photographs describing the procedure to distribute large numbers of flies (Figure 1 a) into a set of 110 vials; each vial must contain 10 flies. For this task, we use plastic feeding bottles of 6 × 12 cm (diameter × height) similar to those employed to give water to mice, hereafter called feeding bottle. Each feeding bottle has a

metal cap (Figure 1 b). Each cap has a hole of 0.4 cm (Figure 1 b). The first step is to take the cap off transferring the adults as usual from the culture bottles (Figure 1 a) to the empty feeding bottles (Figure 1 b, c). A small piece of cotton can be used to close the cap hole of each feeding bottle (Figure 1 c). Once the flies are in the feeding bottle (Figure 1 c), they can be transferred in an appropriate number to empty vials (Figure 1 d - f). The system allows one to count safely the flies transferred to each vial, $N = 110$. For this function, the bottles and vials must be arranged as shown in Figure 1 d - f; the task takes no more than 10 min.

Collecting small number of flies

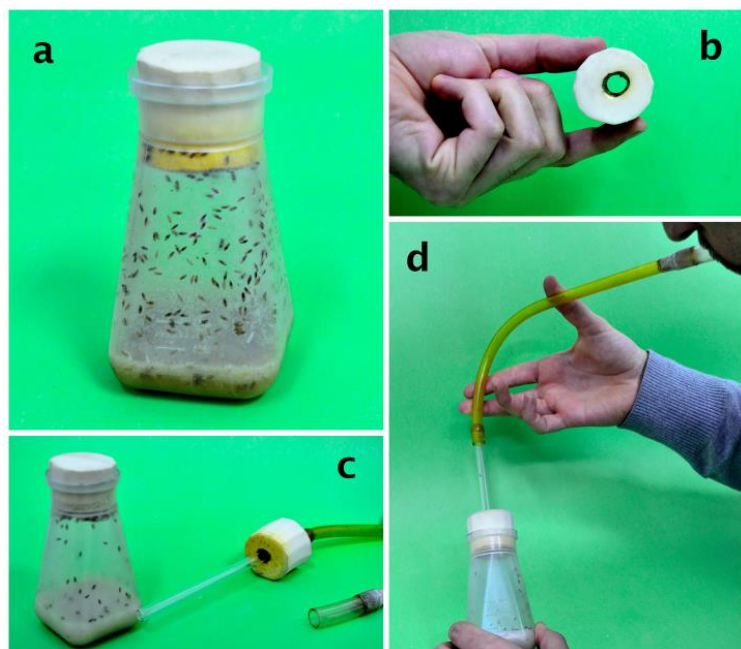


Figure 2. Photograph sequence showing the procedure to safely collect a small number of flies from rearing bottles. 2 a, rearing bottle; 2 b, a rearing bottle plug with a hole; 2 c, a plug with its aspirator; 2 d, sucking flies from a rearing bottle.

To collect groups of about 10 flies from cultures bottles (Figure 2a), we first replace the plastic plug of each bottle by other of the similar material to which a hole of 0.6 cm in diameter was made (Figure 2 a, b). Then, an aspirator is introduced through the hole as shown in Figure 2 c. The procedure allows us easily to collect groups of up to 10 flies preventing the escape of adult flies from the culture bottle (Figure 2 d). Again, the

procedure also has the advantage to count exactly number of adults that are being transferred (Figure 2 d).

The methodologies described are particularly appropriate to train teacher and students that lack experience in managing *Drosophila* adults. Our procedures allow us keep safely separated adults of different strains and species of *Drosophila*. That is, they aid to avoid undesirable mix of flies allowing us to perform safe crosses between individuals of different genotype groups. The feeding bottles described are easily found in supermarkets and similar shops. They are relatively cheap and can be easily transported and handled. In our experience, the bottles are safer than a mouth aspirator. The procedures described are routinely used in our research work being adopted quickly for undergraduate and post-graduate students. Our laboratory is also supporting the work of Biology Teachers at Secondary Schools. We preferably support to those teachers that work in small relatively isolated rural secondary schools of Chile where teaching resources are relatively sparse. Most of these teachers lack experience in managing *Drosophila* species. The procedures above described are quickly and easily adopted by the teachers transferring the experience to their students, arousing interest in learning more about the species of genus *Drosophila*.