AN INEXPENSIVE SUPPORT ROD FOR THE CDC LIGHT TRAP COLLECTION BAG

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The battery operated CDC miniature light trap was developed by Sudia and Chamberlain (1962) to collect mosquitoes alive for arbovirus isolation studies. Newhouse et al. (1966) supplemented the light source with dry ice and considerably increased the trap's catch. Since these earlier developments numerous variations in batteries, motors, bulbs, fan, etc. have evolved. To date, the most sophisticated version of the CDC trap is the Army miniature solid-state mosquito light trap (AMSS trap), developed by Driggers et al. (1980).

The basic CDC light trap has a collapsible, cloth collecting bag for retaining the mosquitoes sucked through the trap's fan system. This bag works well when the specimens are to be frozen for arbovirus studies or their overall condition is not important. However, if the mosquitoes are to be kept alive it is difficult to keep the bag from collapsing during field handling. For those who have used the CDC trap in such situations there is nothing more frustrating than to have one or more bags collapse and smash the mosquitoes inside, and to the taxonomist who is interested in preserving every scale intact, it is even more traumatic.

In order to eliminate some of these problems, a support for the CDC collecting bag was developed. The rod, as shown in Fig. 1, can be fabricated with the supplies described using the following steps.

1. Measure height of collecting bag (between sewed-in metal hoops). It should be approximately 14.5 cm but may vary slightly.
2. Cut a welding rod to length. One welding rod should make two support rods. (Welding rod number 6010, Westinghouse Corp., length 30.5 cm).
3. Clean flux off rod with a buffer.
4. Rough the ends of the rod with a grinder or file. This provides a better surface for the solder.
5. Take the clip and place it on the end of the rod and fold the ears of the clip around the rod. (Fuse clip, number 102071, Leader Electronics, Lakeland, FL).
6. Put the clip end into a vise. This helps conduct heat away from the clip during the soldering process.
7. Heat the end of the rod with the solder gun and apply solder to the rod end where the clip is to be soldered. This will allow the solder to flow evenly to each side of the clip. (Solder GC, Electronics 9132, 60/40 Rosin).
8. Follow the same procedure for the opposite end and the support is finished.

The cost per each support rod is approximately 10 cents.

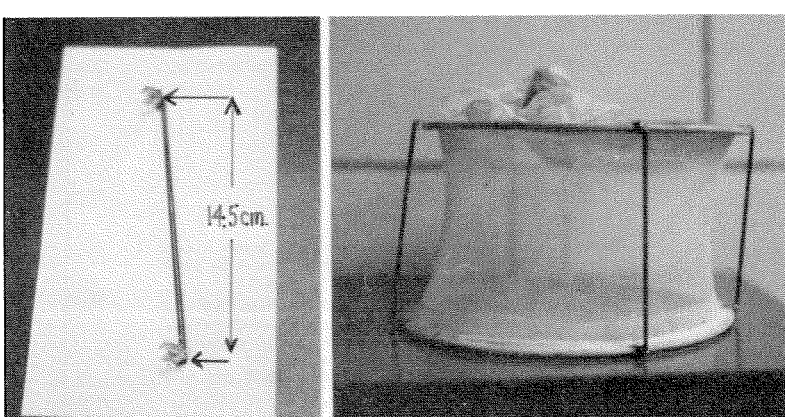

Fig. 1. CDC collecting bag support rod (left), rods in place on bag (right). Collecting bag can be adequately supported with 2 rods.

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DETERMINATION OF PARITY IN PINNED SPECIMENS OF THE BITING MIDGE, *CULICOIDES VARIIPENNIS*

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Parity determinations on females of the biting midge *Culicoides variipennis* (Coquillett), the principal vector of bluetongue and epizootic hemorrhagic disease viruses in the US (Jones et al. 1981), have been done with specimens that were fresh or preserved in alcohol (Akey and Potter 1979). The method of parity determinations based on changes in tergite patterns (Potter and Akey 1978) has worked especially well for specimens preserved in alcohol that were collected from northeastern Colorado by personnel or associates of this laboratory. I became interested in the possibility that the parity of pinned specimens previously collected from this area could also be determined by tergite patterns. This study was conducted to develop a technique to determine parity in pinned specimens by either the Dyce (1969) or the Potter and Akey (1978) method for parity determination.

MATERIALS AND METHODS

A single group of female flies of known parity status were obtained for controls from a colony of *C. variipennis* (Sonora strain, 000 line; Jones et al. 1969) as follows: 20 nulliparous females were killed at 24–48 hr of age; 20 females of the same age were blood fed for 90 min and killed immediately; and 20 more females were blood fed, allowed to oviposit, and then killed. These 60 females were dried at 70 C° for 24 hr and treated as pinned specimens.

Field specimens had been collected from sheep-baited traps in 1964 near Hudson, Colorado and at that time had been mounted on blocks with minuten pins. These specimens were somewhat shriveled and had darkened considerably with age.

Each pinned specimen was dipped in relaxing fluid[1] (Boesel 1977), gently removed from the minuten pin, and submerged in a 2 dram vial (ca 9 ml) of relaxing fluid for 24 hr. The relaxing fluid was replaced with a 50% solution of ethyl alcohol for 24 hr. Next, a 15% solution of potassium hydroxide was used to replace the alcohol and clear opaque coloration that was often present in body parts of these dry specimens. In this crucial step, the time required was dependent on the condition of the specimen. The specimens used in this study required at least 15 but never more than 24 hr (ambient room temperature ca. 25°C). However, care was taken not to decolorize the tergite patterns nor the ventral abdominal pigmentation. The potassium hydroxide solution was replaced with a neutralizing solution of 15% acetic acid. After 4 hr, the acid was replaced by 75% ethyl alcohol and the specimens were kept in it until examined for parity by tergite pattern and/or ventral abdominal pigmentation.

Chloral hydrate (Nesbitt's solution, see Borror et al. 1976) and phenol (Hetherington's solution, see Barbosa 1974) were also evaluated as clearing agents with some of the pinned specimens from the 1964 collection.

RESULTS AND DISCUSSION

Of the 60 control flies of known parity, 98% (59) were determined correctly and the single error was a nulliparous female judged to be parous. Examination of previously pinned specimens (262 females collected near Hudson, Colorado from sheep-baited traps) showed 107 females to be nulliparous and 155 to be parous. Assuming an accuracy rate of 98%, these 2 groups would be correct to within 2 or 3 specimens.

Specimens required a cursory examination for evidence of blood or eggs before treatment with potassium hydroxide since the clearing

[1] Boesel relaxing fluid: 450 ml of 95% ethyl alcohol, 350 ml distilled water, 150 ml ethyl acetate, and 50 ml benzene.