MICROINJECTION TECHNIQUE IN MOSQUITOES[1]

GEORGE F. SHAMBAUGH[2]

Microinjection as a technique is widely used in toxicology and physiology. It has been used in the study of insect hormones by Day and Powning (1949) and Fisk and Shambaugh (1952). The technique would lend itself to studies of insect-borne diseases, such as malaria.

For this technique two pieces of apparatus were constructed: a mouth syringe and a mosquito holder. The mouth syringe consisted of a small rubber tube 15 cm. long with a plastic mouth piece from a haemocytometer unit. The rubber tube was attached to a 6.5 cm. piece of 3 mm. inside diameter glass tubing. The tubing was drawn to an abrupt capillary point, 0.2 mm. in diameter. The tube was coated inside and out with paraffin as described by Wigglesworth (1937).

The holder (Fig. 1) is constructed of a

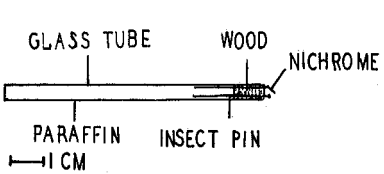

FIGURE 1. A diagram of an apparatus to hold adult *Aedes aegypti* mosquitoes during injection.

piece of glass tubing 9 cm. long and 3 mm. inside diameter. A wood block 1 cm. long was placed into one end of the tube. An insect pin, #0, was forced between the wood and the side of the tube. The head of the pin protrudes 3 mm. A small piece of nichrome wire was forced between the wood and glass on the opposite side. The wire extends beyond the end of the tube approximately 6 mm. The two wires extend beyond the wood inside the tube. These are held securely by paraffin.

The nichrome wire was bent at an obtuse angle, so that the distance between the head of the insect pin and the wire is slightly less than the width of the thorax of the mosquito (0.7 mm.). The two wires were slid over the thorax of an anesthetized mosquito. The mosquito could then be manipulated without danger of crushing it. Although the holder was designed by the author for use on *Aedes aegypti* females, it undoubtedly could be modified for use on other species.

Mosquitoes to be injected were anesthetized with CO_2 and picked up in the holder. Under the field of a dissecting microscope the tip of the syringe containing a given solution was inserted into the thorax between the metapleuron and mesopleuron. The solution was forced posteriorly so that the abdomen becomes noticeably distended.

The mosquitoes seemed to be in a state comparable to shock after injection. Each mosquito was placed in a shell vial until later dissection. With a little practice no mortality was experienced due to the injection.

Literature Cited

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[2] Research fellow in the Department of Zoology and Entomology at The Ohio State University.