

AN IMPROVED METHOD FOR INDUCING EGG-LAYING IN CERTAIN AFRICAN *ANOPHELES*

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ABSTRACT. A short description is given of a reliable method used to obtain eggs from *Anopheles* mosquitoes in the laboratory.

INTRODUCTION

Morphological studies of *Anopheles* mosquitoes involve rearing the progeny of single females to adulthood. A study of several adults with their associated larval and pupal pelts is then possible, such as that recently carried out by de Meillon, et al. (1977) to separate *An. funestus* from a sibling species. In the case of rare species, or where material is not easily obtainable, it is essential that the methods of rearing

families are as effective as possible. Time wastage and needless frustrations can be avoided if one is certain of obtaining eggs from most, if not all, specimens collected.

The method commonly used for obtaining eggs was to introduce wild-caught females into individual glass or plastic tubes of diameter 2.5cm and height 7.5cm. These contained damp cottonwool covered with a circular piece of filter-paper; the open end was covered with fine gauze. The females were offered blood meals daily until they died. In our experience it was unusual for as many as 30% of the females to lay eggs under these conditions. Quite frequently fully gravid females died before oviposition

could take place. Very few females laid 2, or at a maximum 3, batches of eggs. This and other methods (Russell et al. 1946, W.H.O. 1961 and 1975.) have also proved unsatisfactory in our hands, or too cumbersome for practical application when large numbers of mosquitoes are involved, hence the development of the technique described here.

METHOD

Wild-caught females are immediately offered a blood meal on arrival in the insectary (a specially constructed building with sealed windows and concrete floor, kept at a constant temperature of 27°C and 70% humidity). They are then placed in hanging nets, Fig. 1. These are cylindrical containers, 10cm diameter × 20cm high, made out of fine gauze. The opening runs the whole length of the net and is

reinforced with linen or calico. Three lengths of tape are attached to one end to allow the net to be freely suspended. The base of a petri dish is placed in the bottom of the net and after the female has been inserted, is filled with water from natural sources or distilled water. As evaporation is rapid, the water has to be replenished daily.

Normally, one blood meal is sufficient for females caught wild and within 2 or 3 days eggs will be laid. However, if it is noticed that on the day following the 1st blood meal, the abdomen has completely collapsed and no eggs have been laid, then she is removed from the net, placed in a 2.5 × 7.5cm tube and offered another blood meal. After oviposition, the female is fed again and replaced in the net. She is left undisturbed until she once again lays eggs. This procedure is repeated until the female dies.

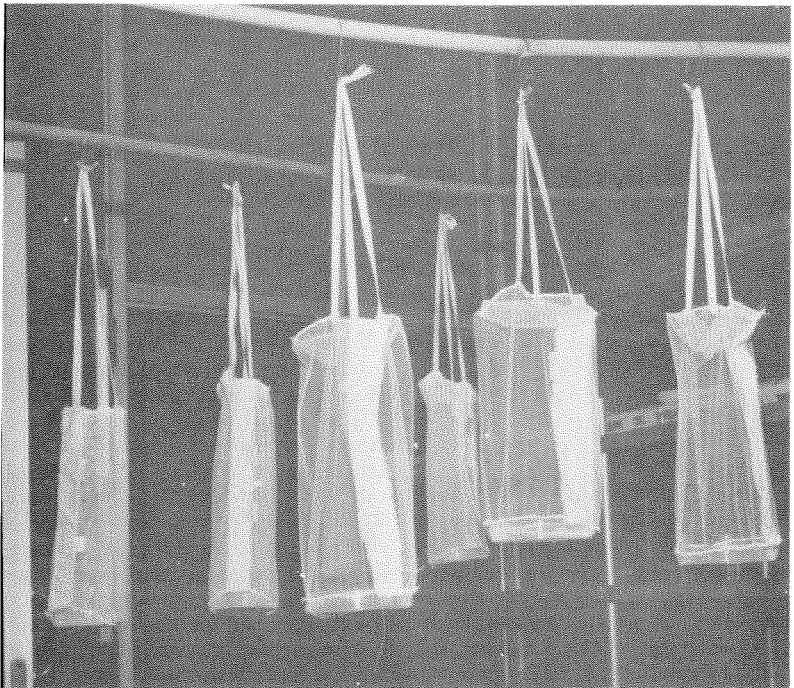


Fig. 1. Mosquito egg-laying nets suspended from bamboo rafters.

Table 1. Results of an experiment using the old (tubes) and new (nets) methods for including egg-laying in certain African *Anopheles* mosquitoes.

	<i>An. gambiae</i> gr		<i>An. funestus</i> gr		<i>An. coustani</i>		<i>An. pretoriensis</i>	
	Tubes	Nets	Tubes	Nets	Tubes	Nets	Tubes	Nets
No. put out for eggs	10	10	15	15	10	10	10	10
No. laid eggs	0	9	5	8	2	7	4	7
%	0	90	33	53	20	70	40	70
No. laid eggs more than once	0	0	0	0	1	5	0	1

RESULTS AND DISCUSSION

A controlled experiment was carried out in the insectary using 4 different species of anophelines viz: *An. gambiae* gr, *An. funestus* gr, *An. coustani* and *An. pretoriensis*. Equal numbers were subjected to the old and new methods simultaneously. The results (Table 1) showed that in all cases the new method was more successful. Although *An. funestus* gr showed only 20% increase for this experiment, records of egg-laying by the old method in 1976 show that in January, of the 96 females put out, 12 laid eggs (12.5%) and in February, 5 out of 52 laid eggs (9.6%). Of the 5 *An. coustani* which laid eggs more than once, 2 did so 5 times. The record is held by one *An. marshalli* female which laid eggs 11 times in 38 days.

This method of inducing egg-laying in certain African *anophelines* has proved simple and effective. It should be useful to workers attempting to establish a colony from a single female. It could perhaps also be adapted to accommodate insects other than mosquitoes.

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