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Enhancement of WHO Technique for Glucose Feeding of Adult Mosquitoes in Laboratory under Dry Arid Environment

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The laboratory colonization of mosquitoes is vital for various bioassay techniques for evaluation of bioefficacies of pesticides against mosquitoes. Glucose meal is essential for mosquito culture maintenance and reproduction (Klowden, 1986; Anderson, 1992). The maintenance of mosquito colony in laboratory under the dry arid environment is often frustrating due to evaporation of glucose meal resulting from excessively high temperature and lower relative humidity particularly during the dry periods of the year. The current WHO technique use cotton wool inserted in to glass jar. This technique provides smaller surface area for the mosquitoes and lower absorption capacity.

In the current WHO (1970) improvised technique for mosquito culture, the glucose meal is prone to evaporation. This paper puts forth an improved technique for providing mosquito colony with glucose meal in culture under tropical arid environment.

Dripping Technique for Glucose Feeding

Adult mosquitoes could be conveniently reared in wooden cages (120×120×120 cm) covered with white fabric mosquito net with mesh size of 1.5 mm. The adults of both sexes were fed with 10% glucose solution. Figure 1 shown the holding chamber, a 2 L glass jar fitted with a glass tap fastened with exposed enlarged end of dispensing set. The collection chamber is held at elevation of 1 m high. The glucose solution gradually drips down the dispensing set and passed to the collection chamber in the colony cage. Air bobbles in the dispensing set were removed gradually through the syringe to

Fig. 1: Holding chamber fitted with glass tap (Mag: x 0.45)

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Fig. 2: Collection chamber fitted with metal stand (Mag: x0.45)

allow free flow of glucose solution. The rate of drip is controlled by adjusting the tap of the aspirator glass jar and/ or valve of the dispensing set. Figure 2 shown the collection chamber with a galvanized metal stand covered with cotton wool. The dispensing set syringe is inserted on to the cotton wool for gradual dripping of glucose solution. Access glucose solution on the cotton wool is drain in to the collection bottle via needle fixed to the inverted plastic funnel. The glucose solution and the cotton wool are changed every 4 and 8 days, respectively to avoid contamination and stickiness. The rate of glucose solution discharge could be adjusted to a desired rate per minutes.

Advantages of the Dripping Technique

The advantages of the dripping technique include:

- Steady supply of glucose solution to adult mosquitoes is achieved by constant dripping from the holding chamber.
- Avoidance of excessive evaporations of glucose solution by constant dripping from the holding chamber.
- Less labor is required in colony maintenance as rate of drip may be regulated.
- Avoidance of contamination and stickiness as the glucose solution and the cotton wool are periodically changed.
- Larger surface feeding area provided by the cotton wool affixed to galvanized metal stand.
- Overflowing of excess glucose solution on the floor of the colony cage is prevented.

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