

A Crawler-Proof Cage for Breeding Mealybugs and Their Natural Enemies

M. NARAYANA RAO

CAB International Institute of Biological Control, Bangalore 560 024

Cucurbita moschata Duch is a well known facilitious host for breeding several species of armoured scale insects and mealybugs (Ahmad and Ghani, 1970) by virtue of its acceptability, long-lasting ability to sustain a few generations with minimum attention. A crawler-proof cage (Fig.1) which ensures pure cultures when several species of mealybugs are bred on *C. moschata* in the laboratory is described here.

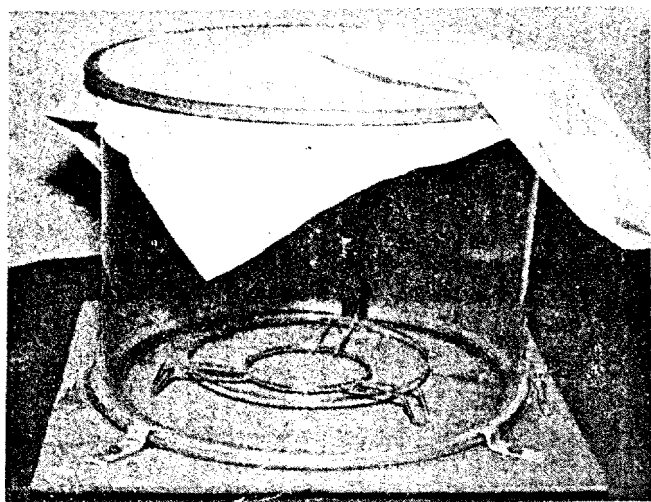


Fig. 1 Breeding cage

A ply-wood base, (30 x 30 cm) was fitted with an embroidery frame (24 cm diameter) using small aluminium strips and fly-nuts and bolts (Fig.2). A clear rigid PVC sheet, 24 cm wide, was held between the rings of the frame with the ends of the sheet overlapping. The inner end of the sheet was sealed with insulation tape. The top of the cage was covered with a 35 cm² thick cloth, provided with a sleeve in the centre. This and the upper end of the PVC sheet were held in place between the rings of another embroidery frame. The inner ring was secured to the edge of the PVC sheet with insulation tape. The cage thus formed was sealed at the base, inside and outside, using beeswax to prevent possible movement of crawlers through gaps between the ply-wood and frame. The pumpkin was placed on a stand at the base having a piece of paper. The honey-dew secreted by the mealybugs collected on the paper was periodically changed. Laboratory cultures of 7 species of mealybugs, viz, *Ferrisia virgata* (Cockerell), *Nipaecoccus viridis* (Newstead), *Planococcus citri* (Risso), *P. lilacinus* (Cockerell), *Pseudococcus*

longispinus (Targiono-Tozzetti), *Rastrococcus iceryoides* (Green) and *R. invadens* Williams, were maintained in pure culture in these cages for several generations. Several natural enemies of *Rastrococcus* spp. were also successfully bred in these cages (Narasimhan and Chacko, 1988). These could easily be collected through the sleeve by first tapping down the ones resting on the cloth and then collecting them all from the PVC sheet.

The cage could, however, be used to breed other insects and is particularly convenient due to its light weight in comparison with the conventional wood and glass cage and also due to its ease of assembling and dismantling, if necessary. Depending on the requirements, cages of different sizes could be assembled by using embroidery frames of appropriate sizes.

KEY WORDS : Breeding cage, Mealybugs, Natural enemies

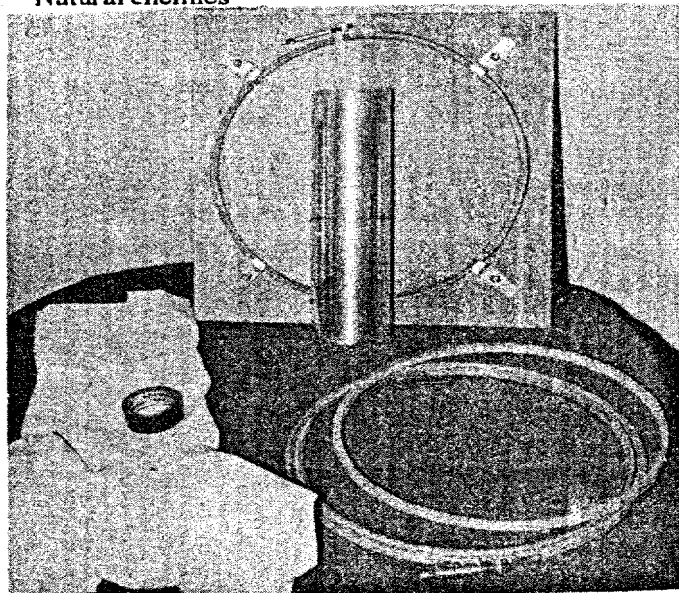


Fig. 2 Parts of the cage

REFERENCES

- Ahmad, R. and Ghani, M.A. 1970. A note on the rearing of scale insects and mealybugs on potato tubers and cucurbit fruits. *Tech. Bull. Commonw. Inst. Biol. Control.*, 13, 105-107.
- Narasimhan, A.U. and Chacko, M.J. 1988. *Rastrococcus* spp. (Homoptera : Pseudococcidae) and their natural enemies in India as potential biocontrol agents for *R. invadens* Williams. *Bull. ent. Res.*, 78, 703-708.