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A Technique for Mass Collection of Cotton Whitefly Parasitoids

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Two aphelinids, *Encarcia transvena* (Timberlake) and *Eretmocerus mundus* Mercet are important parasitoids of cotton whitefly, *Bemisia tabaci* (Gennadius) (Kapadia and Puri, 1989). They can be reared only on *B. tabaci* nymphs under greenhouse conditions (Butler, 1986). As they are tiny, it is difficulty to get the sufficient amount of these parasitoids required at a time for their biological and toxicological studies. To overcome this problem, a study was, therefore, made to investigate the technique for their mass collection.

For this purpose, the cotton leaves infested heavily with *B. tabaci* nymphs were picked up from the cotton field. Other insects like aphids and predator immatures on these leaves were removed using brush. These leaves were allowed to dry under fan for 24 hours at laboratory conditions of 24.3 ± 2.4°C and 58.1 ± 5.0 % RH so that almost of the turgidity reduced, that helped in avoiding the leaf decaying when to be kept in the jar. Near 50 dried such leaves containing whitefly nymphs were kept loosely in the glass jar (19 x 15 cm) which was enveloped inside with blotting paper. The mouth of the jar was affixed with the plastic funnel (20 cm in diameter) in opposite position so that the outlet of the funnel remained upperside. The funnel was tighted with the jar using cellophane adhesive tape strips at four regular places. The outlet (inner orifice) was attached with a wire or plastic guage (529 holes in 1 sq. cm.) which resisted the adults of whitefly and allow only parasitoid adults to go in the tube. A glass tube (19 x 3.50 cm) was fixed with the funnel in way that the outlet of the funnel remained inner side of the glass tube. The juncture of the tube and funnel was sealed with cellophane adhesive tape.

The parasitoid adults emerged out in the jar gathered in the glass tube because they are having a habit of upward movement. The parasitoids generally start emerged out in between 10 to 11 hours but maximum parasitoid emergence was recorded in between 12.00 to 13.00 hours. The tube collected parasitoids could be replaced by another tube for the purpose of their study. From each set about 300-500 parasitoid adults per day can be collected. However, these number depend upon the intensity of parasitism in the field. During the night time, most of the parasitoid adults hindered in the cotton leaves, and again they came out in the tube on next day after 10

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hours. Mating process in the collection was also seen. The adult emergence continued up to 10-15 days. If it is needed to have the pure culture of a parasitoid species, the whitefly nymphs parasitized by two aphilinids can be distinguished easily by the colouration of nymphs due to parasitization. The host parasitized by *Encarsia transvena* became black in colour, and chocolate colour due to *Eretmocerus mundus*.

Number of collection set can be increased or decreased as per the requirement of parasitoid adults. This technique can be utilized in mass collection of the parasitoids for their laboratorical studies.

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