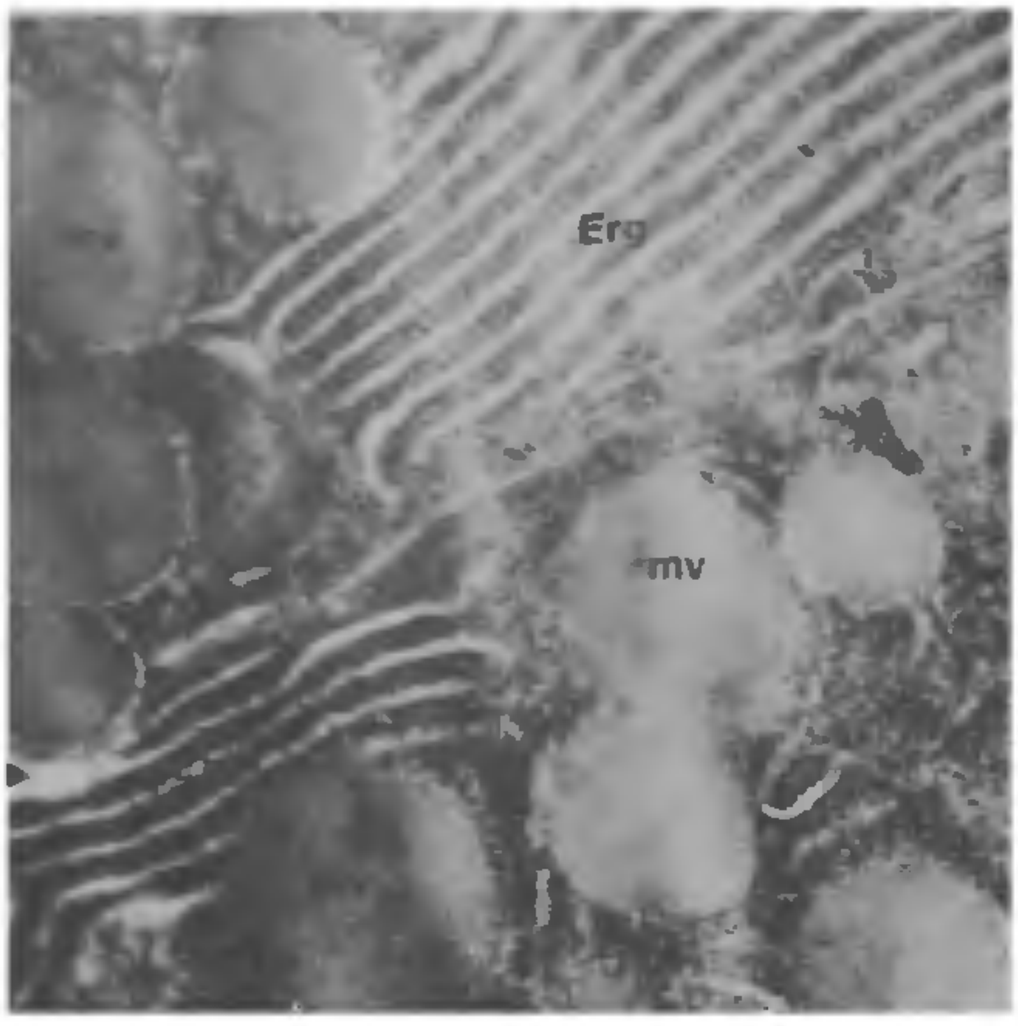

Figure 3. Rough endoplasmic reticulum and membrane bound vesicles with yolk. [mv, membrane bound vesicle; Erg, rough endoplasmic reticulum.]

the surface membrane into the cytoplasm. The vesicles are surrounded by a cell membrane enclosing a drop of extracellular fluid. As such the increased permeability of follicular epithelium and the production of blood protein adsorbants on the oocyte surface are basic mechanisms. The horosity, of the follicle cells during yolk formation[1–3] has been confirmed so that the follicle epithelium plays a permissive role in the transport of blood protein.

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INFLUENCE OF HOST PLANTS ON THE PARASITISM OF *BEMISIA TABACI* GENNADIUS (HOMOPTERA: ALYRODIDAE) BY *ENCARSIA* SP

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The cotton whitefly, *Bemisia tabaci* (Genn.) is a cosmopolitan pest and has been recorded on 142 host plants[1] which include cultivated plants and weeds. Among the cultivated plants, cotton, brinjal and beans are highly susceptible and among the weed species, prickly chaff is a common host[2]. Several natural enemies are associated with *B. tabaci* and of these *Encarsia* spp. are most common[3]. However, it is not certain whether this parasite is associated with *B. tabaci* to the same extent when it is present on different host plants. Hence the present experiment was conducted using five known host plants of *B. tabaci*, viz cotton (*Gossypiuum hirsutum* L.), field beans (*Dolichos lab lab* L.), brinjal (*Solanum melongena* L.) tapioca (*Manihot utilissima* Pohl.) and prickly chaff (*Achyranthes aspera* L.). Of these, *B. tabaci* failed to develop on tapioca, although this plant has been reported as a host[4,5]. The experiment was carried out in potted plants kept in the field. Five replications were maintained for each host plant. These plants were artificially infested by enclosing them in mylar film cages and releasing whitefly adults for two days. Then the cages were removed and the whiteflies were allowed to develop. At the same time, they were exposed to natural parasitism. Parasitism was recorded by visual observation. The parasitized nymphs (immature stages) turned black as against the normal nymphs which were yellow. The counts for total number of nymphs and the number parasitized were made at the rate of 5 leaves per plant. This was converted into percentage parasitism and the data were analysed statistically. The experiment was repeated for two seasons—the first during June–July 1987 and the second from August to September 1987.

The results presented in table 1 indicate that the relative parasitism of *B tabaci* by *Encarsia* sp. on the four host plants varied significantly. Parasitism

Table 1 *Influence of host plants on the parasitism of Bemisia tabaci Genn. by Encarsia sp.*

Host plant	Per cent parasitism*		Population*/Leaf		Hairs/1 cm²
	I season	II season	I season	II season	
Cotton	15.59 (22.38)	18.12 (22.42)	23.2	17.6	20.0
Field beans	2.84 (6.50)	3.05 (6.68)	17.2	14.2	17.6
Brinjal	1.20 (3.28)	1.63 (4.79)	44.4	33.8	247.6
Prickly chaff	—	—	25.0	16.0	133.2
CD ($P = 0.05$)	10.79	14.30	19.24	16.46	16.96

Figures in parentheses are arc-sine transformed values; *Mean of five replications.

of *B. tabaci* on cotton was 15.59 and 18.12% for the two seasons respectively, which was significantly higher than the parasitism on the other three host plants. In field beans the mean parasitism for the two seasons was 2.94 and 1.41% respectively. *B. tabaci* nymphs developing on prickly chaff were not preferred by *Encarsia* sp. The probable reason for this large difference in parasitism between the four host plants was examined.

The population density of whitefly nymphs was counted and the data for the two seasons are given in table 1. It was observed that except for brinjal which had the highest population of nymphs, the population of the other three host plants was on par. And inspite of the significantly high population of nymphs on brinjal as compared to cotton, the rate of parasitism was higher on cotton. Hence it was felt that some other factor, other than host density may be involved in the host selection process.

In order to determine if the leaf pubescence had any influence on the activity of this parasite, the number of leaf hairs/cm² area of the leaf (lower surface) of all the four host plants was counted. This was done for 5 leaves per plant and the results are shown in table 1. It is seen that the number of hairs per unit area in cotton and field beans was significantly lower than those observed in brinjal and prickly chaff. Further, the hairs in the case of cotton were soft unlike those of prickly chaff which were stout and more like spines. Probably the number and thickness of the hair on prickly chaff prevented the free movement and activity of the parasite in search of its host. Similarly in brinjal, the dense growth of hair (247.5/cm²) on the lower surface of the leaf may have reduced the parasite activity. This experiment has clearly indicated that *B. tabaci* infesting cotton was preferred by *Encarsia* sp. as compared with the other three host plants, viz. brinjal, field beans and prickly chaff. Even though all the four host plants had a comparable population of whitefly nymphs, the parasitism on cotton was significantly higher than the other host plants. Such differences in parasitism of acceptable hosts on different plants have been documented by other workers. Manjunath *et al*[6] reported 5–85% parasitism of *Heliothis armigera* Hübner eggs by *Trichogramma* sp. upon Marigold and 2–20% on niger and parasitism of eggs on other plants growing in the same or adjascent fields were negligible. Rabb and Bradley[7] reported that eggs of *Manduca sexta* (L.) were readily parasitized by *Telenomus sphingis* Girault and *Trichogramma minutum* Riley when they occurred on tobacco. Hence it is clear from the present investigation that the host plays an important role in the biological control of a pest species.

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