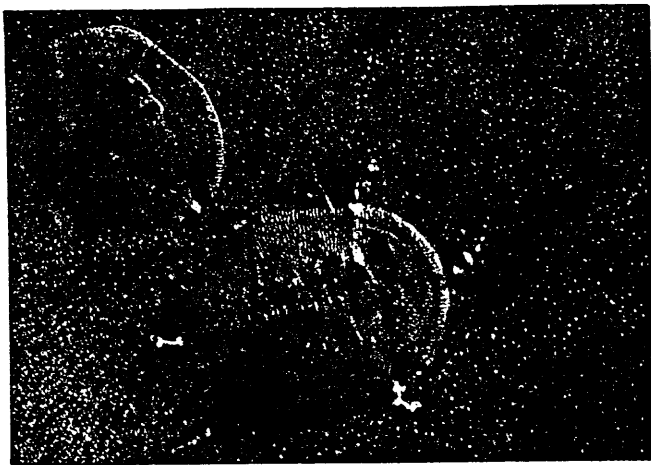


Encarsia lahorensis (Howard) a parasite of
Dialeurodes citri (Ashmead)

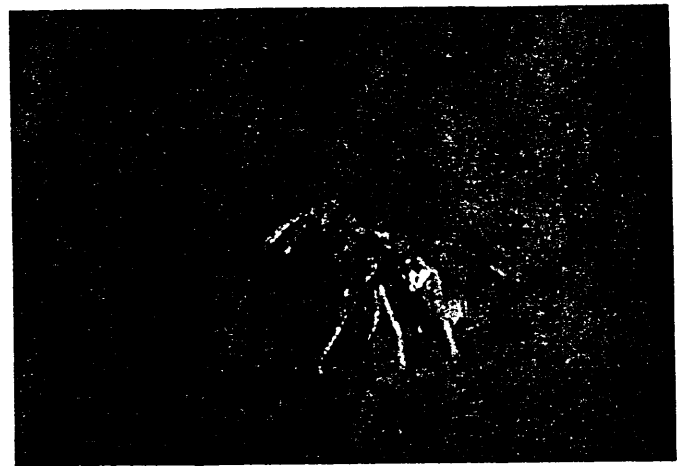
(HYMENOPTERA: APHELINIDEA)¹

Ru Nguyen²

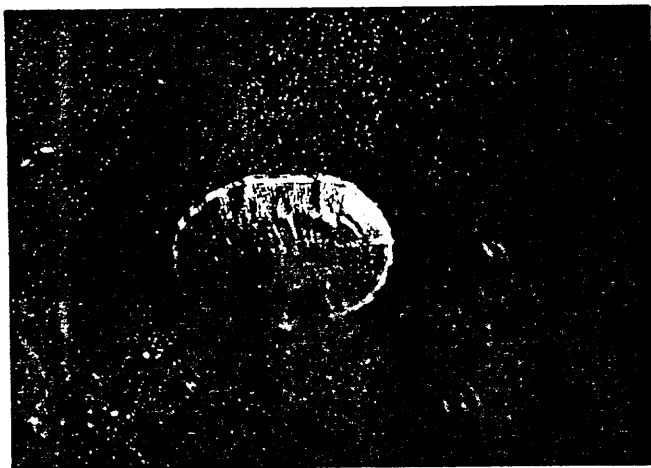
INTRODUCTION: *Encarsia lahorensis* (Howard) is a specific parasitoid of the citrus whitefly, *Dialeurodes citri* (Ashmead). This parasitoid was discovered on citrus whitefly by R. S. Woglum, in 1911, while searching for natural enemies in India (Woglum 1913). Attempts were made to introduce *E. lahorensis* into Florida in 1911; however, cultures arrived in December when few susceptible host stages were available and the parasite was not able to survive (Woglum 1913). Apparently, no further attempts were made to introduce this parasite into Florida for the control of citrus whitefly until 1977.



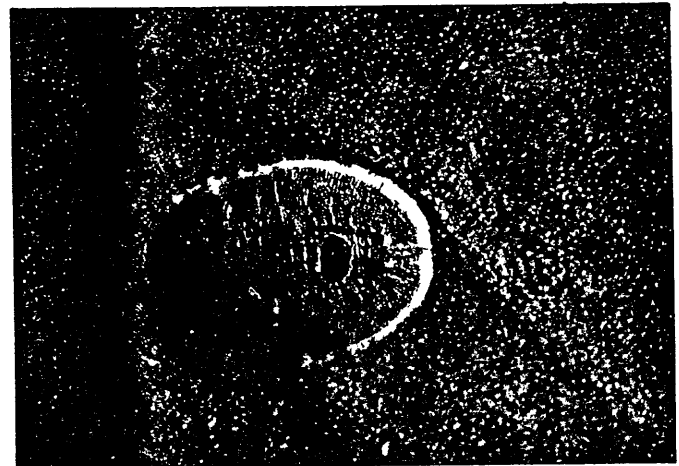
1



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4

Fig. 1. Healthy 4th nymphal stage of *D. citri*.

Fig. 2. *Encarsia lahorensis* female ovipositing in *D. citri*.

Fig. 3. Pupa of *E. lahorensis* inside *D. citri* nymph.

Fig. 4. Empty *D. citri* nymphal case after *E. lahorensis* emergence.

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In May 1977, the author transported *E. lahorensis* to Florida from California where it was established. Subsequently, it became established in Alachua and Polk counties Florida (Nguyen and Sailer 1979). By the summer of 1979, *E. lahorensis* had suppressed the citrus whitefly population on viburnum and gardenia in those counties. Because of this success, 800 potted gardenia plants infested by citrus whitefly nymphs were exposed to *E. lahorensis*. After becoming parasitized these whiteflies and plants were distributed to 66 of 67 Florida counties. Field surveys during 1981-82 indicated the presence of established populations of *E. lahorensis* in 59 counties (Sailer et al. 1984).

DISTRIBUTION: *Encarsia lahorensis* has been reported as native to India and Pakistan (Woglum 1913), and introduced to California in 1966 (Rose and DeBach 1981), Florida in 1977 (Nguyen and Sailer 1979), Georgia, Alabama, Texas, Louisiana, North Carolina (Wendle, personal communication), Italy (Viggiani and Mazzone 1978), and Israel (Rossler, personal communication) for controlling the citrus whitefly.

HOST: *Encarsia lahorensis* is a specific parasitoid and *Dialeurodes citri* (Fig. 1) is the only host reported.

DESCRIPTION AND BIOLOGY: The female is small (0.54-0.84mm long, 1.42mm wing span) (Fig. 2), body white, head yellow, antennae 8 segments, funiculate segment longer than wide (3 times as long as wide), wing without shading in median. The male is a little smaller than female (0.62mm long), and different in color, head brown, and abdomen dark brown (Howard 1911, Grissell 1979). Under experimental conditions (26±1°C, 70% Rh) longevity of the female is 9 days; male, 11 days; and unfed adults, 3 days. Mated females deposited fertilized eggs in 3rd and 4th nymphal stages of *D. citri* and produced female offspring (Figs. 3,4). Virgin females laid unfertilized eggs in the body of female fully-developed larvae or pupae of their own species (adelphoparasitic insect) and produced male offspring. Under laboratory conditions the development from egg to adult at 24°C required 12-15 days for males and 24-25 days for females (Nguyen and Sailer 1979, Viggiani and Mazzone 1978). *E. lahorensis* overwintered at various stages (larva, pupa); however, it has high mortality during winter in North Florida, especially for the first larval stage. The sex ratio changed from generation to generation. During the main period of adult emergence in March-April in Central Florida, the sex ratio favored females, but the number of males gradually increased later.

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