CONFIRMATION OF THE BROWN CITRUS APHID, 
TOXOPTERA CITRICIDUS, IN COSTA RICA

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In June, 1991, the senior author received a series of undetermined slide-mounted aphids collected by the junior author in yellow pan traps in melon fields in Costa Rica. Among them was one specimen of the brown citrus aphid, Toxoptera citricidus (Kirkaldy) collected near Parrita, San Jose Province on January 25th. This was sent to Dr. Manya B. Stoetzel at the U.S.D.A. Systematic Entomology Laboratory in Beltsville, Maryland who verified the determination.

Toxoptera citricidus has been known in central South America for many years (Blackman & Eastop 1984) and has been reported from Central America (Saunders et al. 1988) and the Caribbean region (Kranz et al. 1977). We have been unable to verify the report of Saunders on the basis of actual specimens. Holman (1974) stated that reports of T. citricidus in Cuba all referred to Toxoptera aurantii (Boyer de Fonscolombe). To date there has been some uncertainty regarding the presence of T. citricidus in any country in Central America. This trapped specimen was one of four collected by the junior author in yellow pan traps in 1991. The other three were collected as follows; one at the Parrita site (January 25th), one near Caldera, Puntarenas Province (February 5th) and one near Filadelfia, Guanacaste Province (January 4th). These are the first actual specimens, of which we know, supporting the presence of this pest aphid in Costa Rica and all are in the collection of the junior author at the University of Costa Rica. Since this specimen was identified, the junior author has been told that personnel from CATIE found T. citricidus at Chiriqui, Panama in 1989. We have not seen any specimens from Panama and do not know if any specimens were collected by CATIE personnel.

The brown citrus aphid is a major pest of citrus. Even small colonies can cause direct damage to the plant by distortion of young leaves. In heavy infestations, the production of quantities of honeydew on which sooty mold develops can interfere with the photosynthetic activity of leaves and discolor the surface of the fruit (Kranz et al. 1977). Possibly the most important aspect of this species is its ability to vector citrus tristeza virus and other viruses of citrus (Kranz et al. 1977). Toxoptera citricidus should survive well in Central America. It prefers warm regions with high moisture and apparently does not do well in regions with hot, dry seasons (Carver 1978).

We believe that earlier reports of this aphid may have been misidentifications and assume that T. citricidus is a recent arrival in Central America. It has now been found at three locations along the western coast of Costa Rica. If its movement from Panama to northern Costa Rica occurred over the last two years the continued northern movement of this aphid may be rapid. This would be possible because of the widespread cultivation of citrus throughout Central America. This is of considerable concern because of the potential problems to the citrus industry of Mexico and the United States of America.

We thank Dr. Manya B. Stoetzel for her verification of, and comments on this species.
HYPERPARASITISM OF
LIRIOMYZA TRIFOLII (BURGESS) ON TOMATO

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One to two day old pupae of Diglyphus intermedius (Girault) (Eulophidae: Hymenoptera) were dissected from foliar mines of Liriomyza trifolii (Burgess) (Agromyzidae: Diptera) on tomato, Lycopersicon esculentum Mill. cv. Walter, that were collected in the fall of 1981 from untreated plots at the Gulf Coast Research and Education Center, Bradenton, Florida. Ten endoparasitic hyperparasitoid larvae, of which 2 pupated, emerged from 188 D. intermedius pupae. One hyperparasitoid became an adult and was later identified as a Neochrysocharis (= Chrysonotomyia) sp. by Dr. J. Noyes of the Commonwealth Institute of Entomology, London, England and Dr. C. M. Yoshimoto (retired) of the Biosystematic Research Institute, Ottawa, Canada.

The recovery of Neochrysocharis sp. from D. intermedius demonstrates that, although species in this genus are currently regarded as primary parasitoids of Liriomyza spp. (e.g., Trumble 1985), they also may hyperparasitize other primary parasitoids, such as Diglyphus spp. The proportion of hyperparasitism in the collected pupae may have been higher than the 6% observed because some of the 35 D. intermedius that died also could have been hyperparasitized. The potential hyperparasitization of other leafminer parasitoids by Neochrysocharis sp. should be considered in studies of its role in regulation of leafminer populations.

The voucher specimen is deposited in the Florida State Collection of Arthropods, Florida Department of Agriculture and Consumer Services, Division of Plant Industry, Gainesville, FL as specimen FLDA-HY-S-1.

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REFERENCES CITED


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