

THE BROWN CITRUS APHID, *TOXOPTERA CITRICIDA* (KIRKALDY)  
(HOMOPTERA: APHIDIDAE)<sup>1</sup>

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**INTRODUCTION:** Kirkaldy (1907) described this species as *Myzus citricidus* from Hawaii on citrus. *Citricida* means killer of citrus (Eastop and Lambers, 1976). Takahashi (1938) placed it in the genus *Toxoptera* based on the striations on the venter of the abdomen and the stridulating organs on the hind femor (Essig, 1949). The Common Names of Insects list gives it as the brown citrus aphid (fig. 1). It is a known vector of the tristeza citrus virus. It can be separated from the closely related species of *Toxoptera aurantii* (Fonscolombe)(fig. 2) by having the median wing veins branched twice as opposed to being branched once as in *aurantii*.

**DISTRIBUTION:** The distribution of brown citrus aphid is more tropical than that of the black citrus aphid. It is generally believed that the brown citrus aphid originated in China and with the help of man has spread throughout the tropical citrus growing areas of Asia, Africa, Australasia, Pacific Islands, Central America, South America, and the West Indies.

**HOSTS:** *Citrus* spp., *Poncirus trifoliata* Raf., *Fortunella* sp., *Severinia buxifolia* (Poir.) Ten. Some citrus species and hybrids are more tolerant than others to tristeza. It has been reported feeding on *Cudrania tricuspidata* (Carriere) Bur. ex Lavalley, *Diospyros kaki* L. f., *Ficus carica* L., *Pyrus communis* L., *Toddalia asiatica* (L.) Lam., *Trema orientalis* (L.) Bl., and *Rhododendron* sp.

**DESCRIPTION:** The apterous (wingless) female ranges from 2.2 to 2.4 mm long, has a shiny black head, antennal segments I, II, VI and the tips of IV and V; thorax; lateral and dorsolateral spots on the abdomen; cornicals; cauda; genital plate; anal plate; coxae; tips of femora, bases and tips of tibiae, and all of the tarsi. The stigma on the forewing is brown. The alate (winged) female is similar in color except antennal segment III is light and may have 9 to 14 sensoria; there are 0 to 5 secondary sensoria on IV. The cauda is broad at base, parallel-sided in the distal half with 12 or more pairs of setae. The tapering cornicals are imbricated and almost twice as long as the cauda. The antennal and body setae are short and pointed.

**LIFE HISTORY AND HABITS:** This viviparous aphid requires about 12 days for maturity. Like other aphids infesting citrus, they are found on the young terminal growth. Severe leaf deformation occurs in heavy infestations. The black citrus aphid, *T. aurantii* does not cause leaf deformation, but the spirea aphid, *Aphis spiraecola* Patch does. Both of the above species occur on citrus in Florida. The aphids infesting citrus are more abundant in spring and early summer. Alates develop as each colony increases in number and serve to disperse the population.

**ECONOMIC IMPORTANCE:** *Toxoptera citricida* was rated 1 of the 5 most important insects in Rhodesia in 1925. From 1936 to 1946, Brazil lost 7 million orange trees in the State of Sao Paulo, due to its importance as a vector of tristeza. It is responsible for premature decline of grapefruit in South Africa and Australia and is a limiting factor in small sour lime production in West Africa. Severe damage is also reported from Formosa, Mauritius, New Zealand, and other areas.

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There is a mild strain of tristeza in California, Florida, and Louisiana that is vectored by *Aphis gossypii* Glover (Anon., 1953). Tristeza can also be spread by tissue union (buds and grafts). Some synonyms for tristeza, which mean sad, are: Podredumbre de la raicillas (Argentina), stem pitting disease of grapefruit (South Africa), stunt bush (New South Wales), quick decline (California), and bud union decline (Victoria, Australia).

CONTROL: Since *Aphis gossypii* is so widely spread in Florida, there is no practical control other than tolerant rootstock. This information is available through the Bureau of Citrus Budwood Registration, 3027 Lake Alfred Road, Winter Haven, Florida 33880.

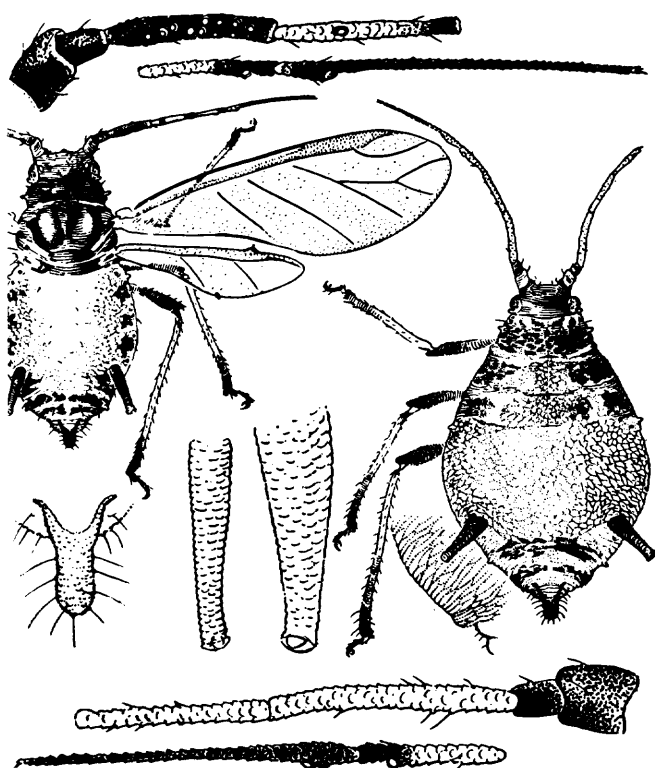


Fig. 1. Brown citrus aphid, *Toxoptera citricida* (Kirkaldy). Alate on left; aptera on right.

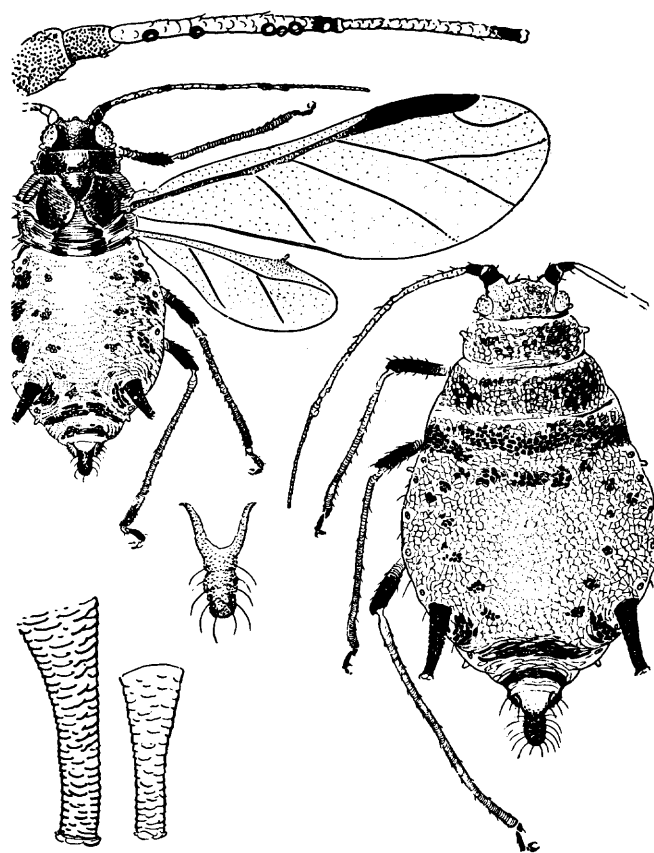


Fig. 2. Black citrus aphid, *Toxoptera aurantii* (Fonsc.). Alate on left; aptera on right.

REFERENCES:

- Anonymous. 1953. Tristeza in Florida. State Plant Board. 2p.
- Anonymous. 1957. Oriental black citrus aphid, *Aphis citricidus* (Kirkaldy). CEIR 7 (38):767-68.
- Eastop, V. F., and D. Hille Ris Lambers. 1976. Survey of the world's aphids. Junk, The Hague. 573p.
- Essig, E. O. 1949. Aphids in relation to quick decline and tristeza of citrus. Pan. Pacific Ent. 25(1):13-23.
- Kirkaldy, G. W. 1907. On some peregrine Aphidae in Oaka, Honolulu. Proc. Hawaiian Ent. Soc. 1:100.
- Takahashi, R. 1938. Some Aphididae from South China and Hainan (Homoptera) III. Trans. Natur. Hist. Soc. Formosa 28:11-14.