Orange Spiny Whitefly, Aleurocanthus spiniferus (Quaintance)
(Homoptera: Aleyrodidae)

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SYNONYMY: Aleurodes spinifera Quaintance 1903:63.
Aleurocanthus spiniferus (Quaintance), Quaintance and Baker 1917:351.

INTRODUCTION: The orange spiny whitefly, Aleurocanthus spiniferus (Quaintance), was recorded by
Kumana (1928) as the most destructive aleyroid attacking citrus in tropical Asia. Experts consid-
er it to be the most important of 4 or more species of whiteflies attacking citrus in Japan, and it was
rated by Clausen (1927) as the seventh most important citrus insect in Japan. A heavy outbreak on
citrus in the Kyushu area of that country caused great damage to trees and loss of fruit until it was
brought under control in the 1920's by a parasitic wasp, Prospalletta smithi Silvestri. Clausen (1934)
reported that another gregarious parasite of A. spiniferus in tropical Asia was Amitus hesperidum
varipes Silvestri, which oviposits in the young larvae immediately after hatching and before they become
fixed to the leaf. More recently, A. spiniferus became the most serious pest of citrus on the island of
In 1974 spiniferus was discovered in Hawaii on the island of Oahu where it rapidly became a principal
pest. Recently, laboratory-reared shipments of a parasitic wasp, Amitus hesperidum Silvestri, were
introduced into Hawaii from Mexico where this wasp had been cultured for the control of citrus
blackfly, Aleurocanthus woglumi Ashby; Amitus hesperidum had been introduced into Mexico from India in
1950. The USDA Agricultural Research Service recently predicted that soon it will be rearing 100,000
of these parasites a week at their laboratory in Tamaulipas, Mexico, with an eventual capacity of
1 million parasites per week. Heavy infestations of A. spiniferus cause a rapid deterioration of the
trees and crop failure to all citrus varieties and may lead to tree mortality. Damage is done by adult
and larval whiteflies which suck sap from the leaves and by the formation of sooty mold which develops
on the honeydew they secrete. Sooty mold interferes with photosynthesis. A. spiniferus has not been
introduced into the Western Hemisphere, but it poses a very serious potential threat to the citrus
industry of this region.

DISTRIBUTION: Japan, Formosa, Philippine Islands, China, India, Indonesia (Sumatra, Java), Malay,
Guam, East Africa, and Hawaii. It has been recorded by several authors from Jamaica, but apparently
these records were based on misidentifications, according to Louise M. Russell of the U. S. National
Museum of Natural History. Jamaica records resulted from confusion of A. spiniferus with a closely
related species, A. woglumi, which was first discovered in Jamaica in 1913 following its introduction
from Asia.

HOSTS: Citrus (Citrus), Akebia (Akebia), Persimmon (Diospyros), Pear (Pyrus), Rose (Rosa), Grape
(Vitis), and Balm-tree (Myroxylon).

LIFE HISTORY AND HABITS: "EGGS ARE Laid in spirals on lower surface of leaves, usually 12 or 13 in a
mass. EGGS are Pale-yellow at first, then gradually darken. Incubation varies, depending on temperature,
and averages 22 days in May; 7 in July. There are 4 immature stages. There are 4 broods a year at
Nagasaki, Japan. The insect passes through the winter in the third larval stage, reaching the pupal
stage about the middle of March. Adults emerge from middle to the end of April. Adults of the second
brood emerge the latter part of June, the third brood the first part of August and the fourth during the
latter part of September. Adults are active on fine days but quiet during cloudy or rainy weather.
They prefer new leaves and may be found on the underside of these." (CEIR 9(17):321-322, 1959).
There are possibly 3 to 6 generations per year. A female may lay considerably more than 100 eggs in a
lifetime.

IDENTIFICATION: Adult female, approximately 1.35 mm long, orange-yellow, shaded with brownish purple
and sprinkled with white waxy powder; color pattern of wings variable (Fig. 1). Male genitalia (Fig. 2)
useful for separating adults of related species, but whitefly identification is based primarily on
differences in larvae and pupae, especially of the latter. Larvae and pupae characteristically aleyroidid
in shape, but quite spiny. Larva regularly elliptical, appearing brownish to black on leaf, with
cottony fringe of wax all around. Pupa typically aleyroidid in shape, but median area prominent especially
at vasmiform orifice. Female pupa about 1.23 mm long by 0.83 mm wide, male pupa smaller. Pupa of A.
spiniferus (Fig. 3, A-D) very similar in appearance to closely related species, A. woglumi (Fig. 4,
A-D), but differs in having narrower marginal teeth and in number, size, and arrangement of dorsal spines.

REFERENCES:
Insects not known to occur in the United States. Coop. Econ. Insect Rep. 9:331-332. Orange
spiny whitefly (Aleurocanthus spiniferus (Quaintance)).
Clausen, C. P. 1933. The citrus insects of tropical Asia. USDA Cir. 266:1-35.

Fig. 1. **Aleurocanthus spiniferus** (Quaintance), adult

Fig. 2. **A. spiniferus**, male genitalia

Fig. 3. **Aleurocanthus spiniferus**: A. pupa case, dorsal view; B. anterior part of pupa case; C. posterior part of pupa case; D. lateral margin of pupa, much enlarged

Fig. 4. **Aleurocanthus woglumi**: A. pupa case, dorsal view; B. anterior part of pupa case; C. posterior part of pupa case; D. lateral margin of pupa, much enlarged

Fig. 5. Infestation on citrus leaf by **A. spiniferus**

*Figures (except Fig. 5) from Kuwana, 1928.*