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First record of *Aleuroclava guyavae* (Takahashi, 1932) (Hemiptera, Aleyrodidae) in Europe

Abstract - The Asiatic whitefly *Aleuroclava guyavae* (Takahashi, 1932) is recorded for the first time in Europe (Italy). This species was found in several localities in the Veneto Region (districts of Padua, Treviso, Vicenza) in greenhouse on *Citrus limon, Ficus sycomorus* sp., and outdoors on *Pittosporum tobira, Prunus armeniaca* and *Photinia* sp.

Riassunto - *Prima segnalazione di* Aleuroclava guyavae *(Takahashi, 1932) (Hemiptera, Aleyrodidae) in Europa.*

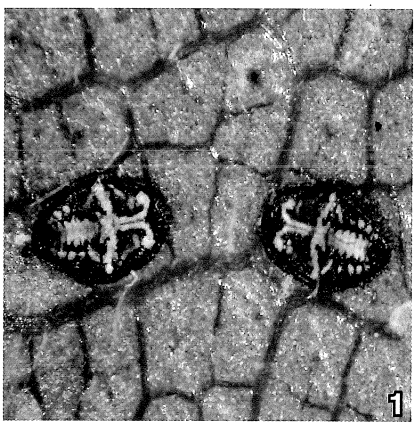
Viene segnalata la presenza in Veneto (province di Padova, Vicenza e Treviso) dell'Aleurodide asiatico *Aleuroclava guyavae* (Takahashi, 1932). La specie è stata trovata sia in serra su piante di *Citrus limon, Ficus sycomorus, Ficus* sp. e all'aperto su *Pittosporum tobira, Prunus armeniaca* e *Photinia* sp..

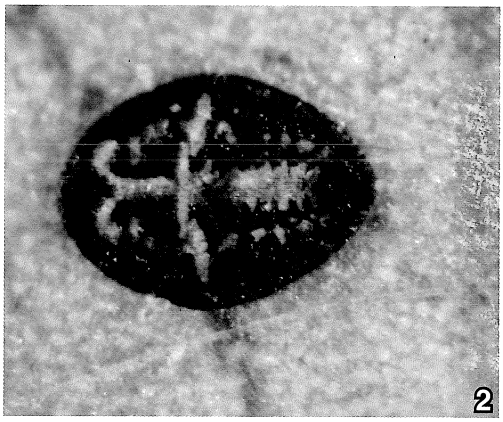
Key words: new record, Italy, whiteflies, *Citrus limon, Ficus spp., Pittosporum tobira, Prunus armeniaca, Photinia* sp.

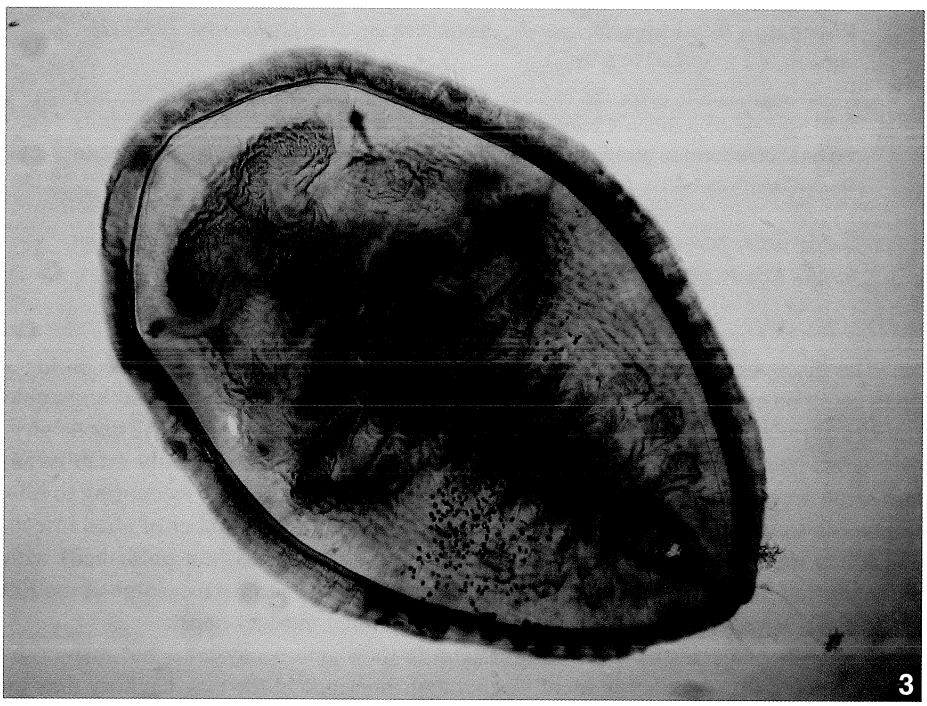
The discovery of insects and mites far away from their native area is becoming a quite common event all over the world. With regard to Italy, a survey of the bibliographic sources over 60 years (from 1945 to 2004) demonstrated that a total of 162 exotic phytophagous pests have been introduced. Of these, about 130 are presently established, and some are pest of crops and ornamentals (Pellizzari *et al.*, 2005). According to bibliographic sources, in the two previous years (2005, 2006), the number of alien insects and mites incidentally introduced into Italy was 14 (Pellizzari, not published) with evidence that this phenomenon is increasing, in spite of the control measures of the EU phytosanitary system in order to minimize unintentional introductions.

Some alien species have a strong impact in their new ecosystems but many others persist at a low population level, so that their presence in the new territory may be undetected for years. This seems the case of an Asiatic whitefly which was recently recorded in Italy.

A survey in the greenhouses of the Botanic Garden of Padua (Italy) in November 2006 led to the detection of a whitefly. Small black puparia were observed on the lower surface of leaves of *Ficus sycomorus* e *Ficus* sp. (Moraceae) in a greenhouse (Figs.1, 2).







Figs 1-3 - *Aleuroclava guyavae*. Black puparia on a leaf of *Citrus limon* (Figs 1-2); microscopic slide of a puparium (Fig. 3).

The puparia proved to be *Aleuroclava guyavae* (Takahashi), a species not yet recorded in Europe. The identification was confirmed by M.G.M. Jansen, Plant Protection Service, Wageningen, The Netherlands (personal communication).

Aleuroclava guyavae (Takahashi, 1932)

A. guyavae was described by Takahashi (1932) as *Aleurotuberculatus*. Jesudasan & David (1990) redefined *Aleuroclava* and *Aleurotuberculatus* as distinct genera and the 66 species of whiteflies known under the *Aleuroclava / Aleurotuberculatus* group (Mound & Halsey, 1978) were divided to eight distinct genera. According to this study *Aleuroclava guyavae* belongs to the genus *Aleurotuberculatus*. The genus *Aleurotuberculatus* was synonymized with *Aleuroclava* by Martin (1999). According to the recent check list of the world's whiteflies (Martin & Mound, 2007) the genus *Aleuroclava* Singh is comprehensive of 122 species, mainly Oriental or Australasian, but with some species present also in the Palearctic Region. The only species recorded in Europe is *A. similis* (Takahashi). It lives only on *Vaccinium vitis-idaea* in North and Central European countries while in far eastern countries and Japan it is oligophagous on Aquifoliaceae and Ericaceae (Martin *et al.*, 2000).

Description

The following description is by Takahashi (1932). The puparium of *A. guyavae* is black, oval, narrowed on the posterior part and slightly constricted across the thoracic tracheal clefts. Length of puparium: about 0,75 mm. Submarginal area narrow and distinct. Mid-thoracic and transverse sutures reaching the margin of the dorsal disk. Abdominal segments are distinct on the median area. Dorsum is distinctly granular, with peculiar markings on the median area of abdomen. Cephalothorax with 4 pairs of very short, blunt tubercles and 1 pair of stout setae on the anterior part, which are not reaching the margin. Abdomen with 1 pair of shorter setae near the base and 1 pair of setae near the vasiform orifice. Marginal teeth very small, short, rounded and wider than long. One pair of short setae are present on the anterior and posterior margins and 1 pair of very long, stout setae are located on the hind end. Thoracic tracheal folds are not distinct and without dots. The clefts are small, thickened on the margin, without teeth and not forming a pore. Caudal furrow distinct, expanded basally, thickened on the lateral margins, without dots, but with some small irregular markings and with distal end as in the thoracic clefts. Vasiform orifice large, nearly quadrate, rounded on the corners, a little wider than long, widely notched on the hind margin, lacking teeth and located between 2 longitudinal thickenings. Operculum as long as, or longer than wide, rounded on the hind margin, nearly filling the orifice. Lingula is not exposed (Fig. 3).

Distribution and host plants

Information on *A. guyavae* are rather scarce: the species was recorded in Taiwan on *Psidium guajava* (Myrtaceae) by Takahashi (1932). Later, the same author (1941)

recorded it in Hong Kong on *Cinnamomum* sp. (Lauraceae). No other information on this species is available (Martin, 1999).

As reported above, this species was first recorded in November 2006 on *Ficus* sycomorus in greenhouses in the Botanic Garden of Padua (Italy). In March 2007 several puparia were collected again in the Botanic Garden on *Citrus limon* (Rutaceae), in the greenhouse, and also outdoors on several plants of *Pittosporum tobira*. Observations carried out in April, May and June 2007 led to the discovery of *A. guyavae* again in Padova on *C. limon*, and outdoors on *P. tobira* and on *Prunus armeniaca*, and also in the neighbouring provinces of Vicenza and Treviso on *C. limon* and outdoors on *Photinia*: these records indicate that this species is widespread in the territory and suggest that its introduction probably occurred some years ago. The infestation level was low in any location, usually with no more than 20 puparia on the most infested leaves, and no sign of damage to the host plant was observed.

In North Italy lemon trees have no economic importance and are cultivated as ornamentals. They are kept indoors during winter months and brought to the open in spring. Plants of apricot, *Pittosporum* and *Photinia* are common and widespread in the gardens; the latter is largely used for hedges. It worth mentioning that several plant species on which *A. guyavae* has been so far collected are of Asiatic origin.

The winter 2006/07 was mild, with temperatures that only on very few occasions dropped down below 0 C°: this could have allowed the species to overwinter outdoors.

Further observations will be carried out to verify if this species can really survive outdoors in North Italy or if its presence is restricted to greenhouses.

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