



Cardin's whitefly

METALEURODICUS CARDINI



Figure 1. *Metaleurodicus cardini* colony on *Erithalis fruticosa* in the Turks and Caicos Islands

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Background

Cardin's whitefly, *Metaleurodicus cardini* (Back) (Hemiptera: Aleyrodidae), is a polyphagous pest that damages plants both directly by its feeding and indirectly due to its associated sooty moulds growing on the honeydew egested by the insect. It was originally described from specimens collected in Cuba and has been recorded from several islands in the Caribbean. It has been introduced to the USA (Florida, Hawaii) where it is an occasional pest on guava (*Psidium guajava*). Hamon *et al.* (2011) produced a datasheet on this whitefly and much of the information presented here is adapted from their work.

Within the UK Overseas Territories *M. cardini* has been recorded from Bermuda, the Cayman Islands and the Turks and Caicos Islands. Cardin's whitefly poses a plant health risk to all the UKOTs in the Caribbean.



Figure 2 *Metaleurodicus cardini* adults and larvae on *Psidium* © Lyle J. Buss, University of Florida



Figure 3 *Metaleurodicus cardini* adult showing a distinct characteristic spot on each wing © Lyle J. Buss, University of Florida



Figure 4 Fluffy wax trails deposited by adult females of *Metaleurodicus cardini* © Lyle J. Buss, University of Florida



Figure 5 Single egg of *Metaleurodicus cardini* preserved in ethanol © Chris Malumphy



Figure 6 *Metaleurodicus cardini* puparia showing wax filaments emerging from the dorsum ©Lyle J. Buss, University of Florida



Figure 7 *Metaleurodicus cardini* puparium with most of the dorsal wax removed © Chris Malumphy

Geographical Distribution

Metaleurodicus cardini is native to the Neotropical region although its precise origin is unknown. It has been introduced to North America and the Pacific (Evans, 2008).

North America: Bermuda, USA (Florida).

Caribbean: Cayman Islands; Cuba; Dominican Republic; Haiti; Jamaica; Puerto Rico; Turks and Caicos Islands; US Virgin Islands.

Oceania: Hawaii (USA).

Host Plants

Metaleurodicus cardini is polyphagous and has been recorded on host plants assigned to at least 14 plant families, including some crop and ornamental plants (Evans, 2008; Mound & Halsey, 1978). It shows a preference for plants belonging to the family Myrtaceae, and is most frequently recorded on guava.

Annonaceae: *Annona cheirimola*, *Annona* sp..

Apocynaceae: *Plumeria* sp..

Arecaceae: *Acoelorrhaphe wrightii*.

Bigoniaceae: *Tabebuia bahamensis* (New host record).

Fabaceae: *Sophora tomentosa*.

Malpighiaceae: *Byrsonima lucida*, *Malpighia glabra*, *M. polytricha*, *M. urens*, *Malpighia* sp..

Myrtaceae: *Eugenia* sp., *Melaleuca leucadendra*, *M. quinquenervia*, *Mosiera longipes* (New host record), *Pimenta dioica*, *P. officinalis*, *Psidium cattleianum*, *P. cymosum*, *P. guajava*, *P. littorale*.

Punicaceae: *Punica* sp..

Rubiaceae: *Erithalis fruticosa* (New host record).

Rutaceae: *Citrus sinensis*, *Citrus* sp..

Sapotaceae: *Dipholis salicifolia*.

Sterculiaceae: *Guazuma tomentosa*.

Verbenaceae: *Citharexylum fruticosum*, *C. spinosum*, *Citharexylum* sp., *Duranta erecta*, *D. repens*, *Duranta* sp..

Zygophyllaceae: *Guaiacum officinale*.

Description

The adult whiteflies are yellow with a fine dusting of white wax (Figs 1-3). Their wings are cream-coloured with a conspicuous dark spot near the centre of each wing (Fig 3), which are easily visible with a x10 hand lens. As the adult females deposit eggs on the lower surfaces of the foliage, a fine trail of fluffy white wax (Figs 4) is rubbed from tufts of wax on the underside of the female abdomen. This wax trail is very similar to wax trails left by other whitefly species and by flatid bugs. The eggs are elongate, oval, cream, and attached to the host plant by a thin stalk (Fig 5). The

puparia (Figs 6-7) are oval, yellow, with five pairs of long wax filaments emerging from the dorsum. These wax filaments easily break off and cover the colony, giving a somewhat messy waxy appearance (Fig. 6).

Metaleurodicus is a Neotropical genus containing 11 species which can be identified using the key by Evans (2008). The puparia need to be slide-mounted first and examined under a high power microscope. *Metaleurodicus cardini* is easily separated from other species in the genus as there are only four pairs of compound pores on the abdomen, whereas the other species bear five or six pairs of abdominal compound pores. Walker (2008) provides pictures of a slide-mounted puparium of *M. cardini* showing the diagnostic characters.

Biology

All whiteflies have six developmental stages: egg; four larval stages, the fourth larval stage being known as the puparium; and the adult. There appears to be very little information specifically published on the biology of *M. cardini*. Several natural enemies have been recorded including hymenopterous parasitoids (Hymenoptera, Aphelinidae), ladybird larvae and adults (Coleoptera, Coccinellidae), hoverfly larvae (Diptera, Syrphidae), and lacewing larvae (Neuroptera, Chrysopidae).

Dispersal and Detection

Adult whiteflies are winged and capable of flight, but they are poor fliers and natural dispersal is limited. The eggs and larvae may be distributed over long distances in plant trade.

Metaleurodicus cardini is most likely to be detected by inspecting the undersides of leaves for white fluffy wax trails, puparia, and adult whiteflies with a dark spot on each wing. Even low density populations smother the lower surfaces of leaves with white wax and are highly conspicuous. The adults may also be observed on the upper surfaces of leaves, particularly on new foliage at the growing tips.

Economic Impact

Metaleurodicus cardini is not usually an economic pest, but under some situations huge populations develop and it can become a serious problem, most notably on guava. These situations usually occur when something has disrupted the complex of natural enemies that normally suppress the whitefly numbers. Large populations may also be found on native plants in natural habitats, for example, on *Brysonima lucida*, *Erithalis fruticose*, *Mosiera longipes*, and *Tabebuia bahamensis* (an endemic plant species) in the Turks and Caicos Islands. However, the environmental impact is unknown.

Advisory Information

In most cases, chemical control is not warranted in the landscape as natural enemies keep the whitefly in check. Management may be required when large populations develop in orchards. Systemic and contact pesticides may be used to control whitefly depending on the crop and growing conditions. Before using any pesticide the appropriate government body or plant protection service needs to be contacted to check the current regulations and the label instructions must be followed.

References

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