Zootaxa 2797: 25–44 (2011)
www.mapress.com/zootaxa/
Copyright © 2011 · Magnolia Press

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

Proposal of new specific status for tea-infesting populations of the nominal citrus spiny whitefly *Aleurocanthus spiniferus* (Homoptera: Aleyrodidae)

KENKICHI KANMIYA[1], SHIGENORI UEDA[2], ATSUSHI KASAI[3],
KOJI YAMASHITA[4], YASUSHI SATO[5] & YUTAKA YOSHIYASU[6]

[1]*Institute of Comparative Studies of International Cultures and Societies, Kurume University, Mii-machi 1635, Kurume, Fukuoka 839-0851, Japan. E-mail k_kanmiya @nifty.com*

[2]*National Agricultural Research Center for Kyushu Okinawa Region, Mii-machi 1823-1, Kurume, Fukuoka 839-8503, Japan. E-mail sued@affrc.go.jp*

[3]*Laboratory of Applied Entomology, Graduate School of Life and Environmental Sciences, Kyoto Prefectural University, Shimogamo, Kyoto 606-8522, Japan. E-mail kasai@kpu.ac.jp*

[4]*Tea Industry Research Division, Agriculture and Forestry Technology Department, Kyoto Prefectural Agriculture, Forestry and Fisheries Technology Center, Nakanosono, Shirakawa, Uji, Kyoto 611-0022, Japan. E-mail k-yamashita13 @pref.kyoto.lg.jp*

[5]*National Institute of Vegetable and Tea Science, National Agriculture and Food Research Organization, Kanaya, Shimada, Shizuoka 428-8501, Japan. E-mail lucifer@affrc.go.jp*

[6]*Laboratory of Applied Entomology, Graduate School of Life and Environmental Sciences, Kyoto Prefectural University, Shimogamo, Kyoto 606-8522, Japan. E-mail yosiyasu@kpu.ac.jp*

Abstract

The citrus spiny whitefly *Aleurocanthus spiniferus* (Quaintance) is a pest of citrus plants that is native to South-East Asia. Although serious outbreaks of the tea-infesting whitefly in China, Taiwan and Japan have been attributed to this species over the last 20 years, recent research has shown different host preferences between the two whiteflies. Hence, the two pests have tentatively been differentiated as tea-infesting and citrus-infesting populations. We further compared morphological, acoustic and genomic features between the two populations in Japan. Morphological differences were recognised in the arrangement of spines, porettes and papillae on the dorsal disc and number of marginal crenulations and marginal waxy fringe of 4th-instar nymphs, as well as wing maculation and genitalic organs of adults. In courtship behaviour, the acoustic properties of male vibratory signals also differed between the two. Furthermore, genetic analysis of mtCOI sequences (759 bp) showed that the tea-infesting population was clearly distinct from the citrus-infesting group, with high bootstrap values. The mtCOI sequence identities were 76.2% between the two populations. Genetic differentiation between the two populations was shown by the high value (0.99650) of pairwise *F*st, indicating the sexual isolation of the two populations. Consequently, these two populations are regarded as different representatives, consisting of a sibling relationship, but clearly distinguished from each other as independent genomic populations. Here, we describe the tea-infesting population and propose a new scientific name, *Aleurocanthus camelliae* Kanmiya & Kasai **sp. nov.**, and a new common name, camellia spiny whitefly, thus distinguishing it from *A. spiniferus* (Quaintance), the citrus spiny whitefly that constitutes the citrus-infesting population.

Key words: Aleyrodidae, citrus spiny whitefly, host preference, mating signals, mtCOI sequences, new species, tea pest

Introduction

The citrus (or orange) spiny whitefly *Aleurocanthus spiniferus* (Quaintance) is among the most serious pests of citrus plants (Byrne *et al*. 1990). It originated in tropical Asia and has spread to Africa, Australia, the Pacific Islands and Italy (Nguyen *et al*. 1993; Gyeltshen *et al*. 2010). *A. spiniferus* was recognised to be an invasive pest of citrus plants planted in Nagasaki, Japan, in 1915; thereafter, it spread rapidly to Kyushu, becoming an exceedingly destructive pest (Clausen 1978). However, *A. spiniferus* was fully controlled on citrus by an introduced parasitoid wasp (*Encarsia smithi*) from China, and heavy infestations decreased to a low level (Kuwana & Ishii 1927; Ohgushi 1969). In addition to being a citrus pest, *A. spiniferus* has also been thought to damage tea plants (*Camel-*

Accepted by J. Martin: 8 Feb. 2011; published: 22 Mar. 2011