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Key to the Korean species of whiteflies (Hemiptera: Aleyrodidae)

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ABSTRACT

Twenty species of whiteflies in 13 genera have been reported from Korea. An identification key to the puparia of Korean whiteflies, illustrations, and information on distribution and host plants of each species are provided.

Introduction

Whiteflies are very small, sap-sucking insects that are usually found infesting the foliage of plants. The bodies and wings of most adult whiteflies are dusted with secreted white powdery material, leading to the common name of this group of insects. In recent years, they have become one of the most economically important groups of insects found on food crops and ornamental plants. Even though whiteflies are mainly subtropical and tropical in distribution, several injurious species occur in the temperate zones of the world, some of which are serious pests. Particularly damaging are the species that vector viral diseases of vegetables.

Whiteflies belong to the order Hemiptera and comprise a single superfamily Aleyrodoidea and family Aleyrodidae (Martin et al., 2000). About 1500 species of aleyrodids have been described worldwide. The definition of the subfamilies, genera and species of whiteflies is based primarily on characters found in the fourth instar nymph, also known as the puparial stage. Currently, adult whiteflies can be identified to subfamily, sometimes to the generic level and only rarely to the species level. Recently, whiteflies have become major pests in the Republic of Korea causing severe damage to agricultural crops, trees and shrubs. Species such as the sweet potato whitefly and silver leaf whitefly, *Bemisia tabaci* (Gennadius) (biotypes a and b respectively) and the greenhouse whitefly, *Trialeurodes vaporariorum* (Westwood) are notorious pests of crops in glasshouses and greenhouses.

Despite their importance, very few systematic studies of the Korean fauna of aleyrodids have been conducted, and only seven species of whiteflies, have hitherto been recorded in Korea (Kwon, 1994; Lee et al., 2000). Recent articles (Lee et al., 2005; Suh and Hodges, 2005) in addition to information reported herein, have increased the number of whitefly species known to occur in Korea to 20 species belonging to 13 genera. The Aleyrodidae comprises two subfamilies: the Aleurodicinae and the Aleyrodinae; however, only the subfamily Aleyrodinae is represented in Korea.

The purpose of this paper is to provide an identification key to the whitefly genera and species known to occur in Korea, based on characters found in the puparium or fourth instar nymph. Illustrations and information on the distribution and host plants of each species are provided. This information will not only enable researchers to identify the species known to occur in Korea, but also aid in the recognition and early detection of newly introduced species.

Terminology for morphological structures used in this paper is that of Martin (1987) and Gill (1990). An asterisk(*) is used to indicate host records of the whitefly species in Korea. Illustrative photographs were taken using Auto-montage Pro Version 5.02 by Syncroscopy on a Leica DMLB Dissecting microscope.

Key to whiteflies of Korea (based on the puparial stage)

1. Dorsum with many long and acute spines (Fig. 1); submargin normally with row of 11 pairs of stout spines, all similar in

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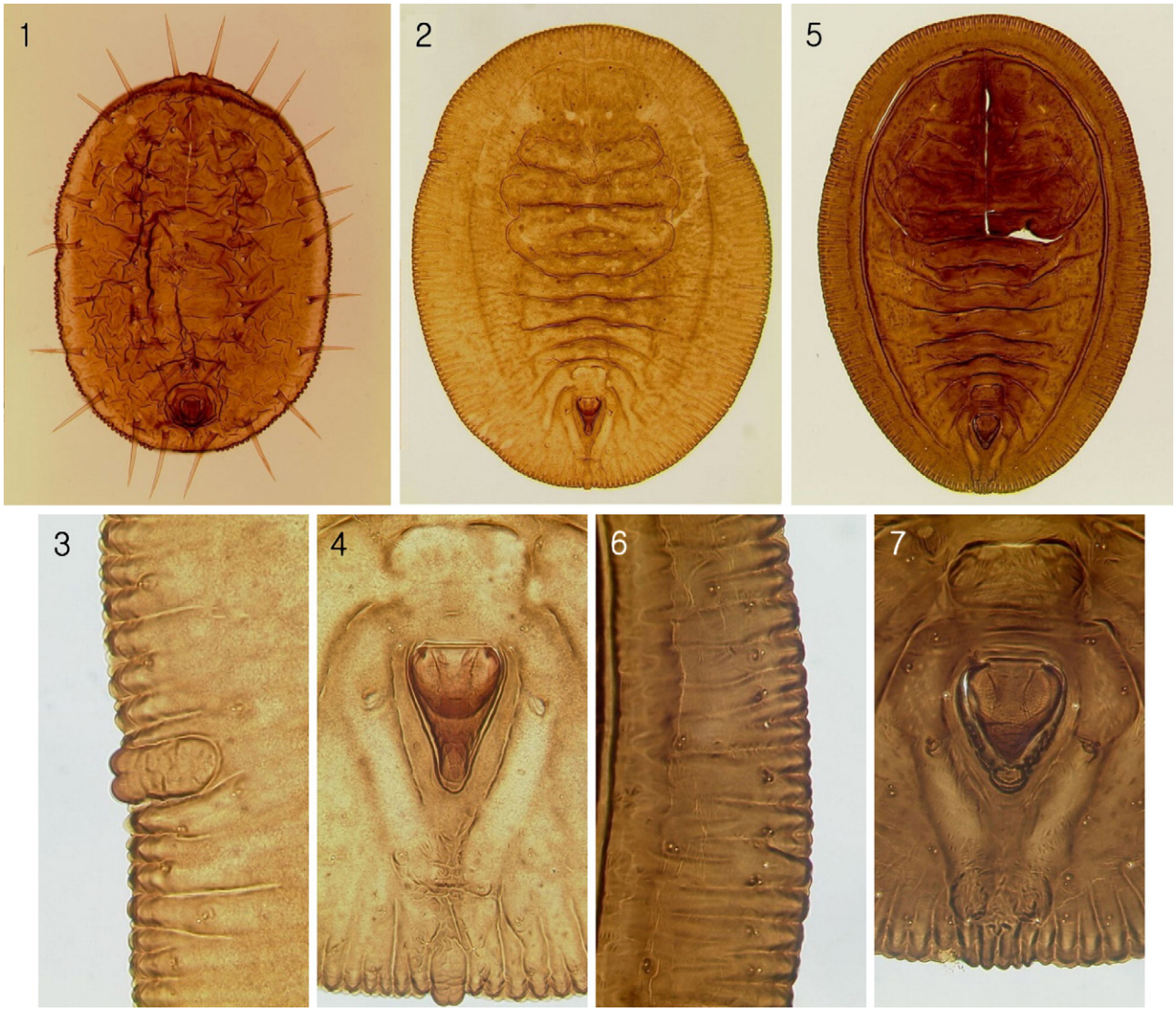
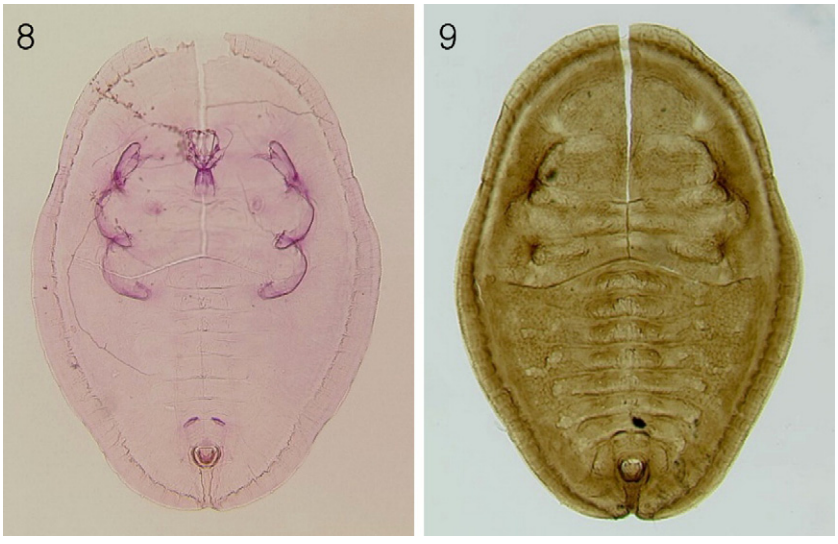


Figs. 1–7. 1. *Aleurocanthus spiniferus* — puparium on *Citrus* sp., Taiwan. 2–4. *Aleurolobus vitis* — 2, puparium; 3, thoracic tracheal margin; 4, vasiform orifice. 5–7. *Aleurolobus iteae* — 5, puparium; 6, margin; 7, vasiform orifice.



Figs. 8–9. 8. *Aleuroclava magnoliae* — puparium. 9. *Aleuroclava hikosanensis* — puparium.