

Taxonomy of *Aphelinoidea* (Hymenoptera: Trichogrammatidae) species attacking eggs of the beet leafhopper, *Circulifer tenellus* (Hemiptera: Cicadellidae), in California

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Abstract

Species of *Aphelinoidea* Girault known to parasitize eggs of the beet leafhopper, *Circulifer tenellus* (Baker), in California were studied using both morphological and molecular characters. These include two introduced species (from Iran and Turkmenistan) as well as two indigenous species, *A. zarehi* n. sp. and *A. roja* n. sp. Earlier studies had identified the indigenous *Aphelinoidea* in California and other arid western states as *A. plutella* Girault, but we did not find putative *A. plutella* in our surveys of parasitoids of beet leafhopper eggs in California. We conclude that the earlier studies misidentified other indigenous species as *A. plutella*, and that at least some of these misidentifications were actually *A. zarehi*, one of the two new species described herein. A key to *Aphelinoidea* species known to parasitize beet leafhopper eggs in California is given. The key also includes *A. plutella* whose hosts are not known and for which we have no evidence as occurring in the western United States. DNA sequences support the separation of the four *Aphelinoidea* species reared from beet leafhopper eggs in California. Cross-mating tests also failed to show interbreeding between the taxa. Data are presented on developmental times of the two introduced species of *Aphelinoidea*.

Key words: Hymenoptera, Trichogrammatidae, *Aphelinoidea*, parasitoid, *Circulifer tenellus*, biological control

Introduction

Aphelinoidea Girault is a large and poorly studied cosmopolitan genus of Trichogrammatidae (Hymenoptera: Chalcidoidea). No taxonomic keys are available for