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A worldwide review of the genus *Arganthomyza* Roháček, with revision of the Nearctic species (Diptera: Anthomyzidae)

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Abstract

World representatives of the genus *Arganthomyza* Roháček, 2009 (Diptera, Anthomyzidae) are reviewed, keyed and their relationships are discussed on the basis of a phylogenetic analysis of morphological characters. The Nearctic species of *Arganthomyza* are revised, described and illustrated, and first data about their biology and distribution are given. Five new species, *A. carbo* sp. n. (Canada, USA), *A. acuticuspis* sp. n. (USA), *A. bivittata* sp. n. (Canada, USA), *A. duplex* sp. n. (Canada, USA) and *A. disjuncta* sp. n. (Canada, USA) are described and *A. socculata* (Zetterstedt, 1847) is newly recorded from the Nearctic Region (USA: Alaska). Based on the phylogenetic analysis, four main clades/species groups are recognized within *Arganthomyza*, represented by the following species: *A. barbarista* Roháček, 2009 (*A. barbarista* group); *A. setiplanta* (Roháček, 1987), *A. versitheca* Roháček, 2009 and *A. carbo* sp. n. (*A. setiplanta* group); *A. acuticuspis* sp. n., *A. bivittata* sp. n. and *A. duplex* sp. n. (*A. duplex* group); *A. disjuncta* sp. n. and *A. socculata* (Zetterstedt) (*A. socculata* group). Considering the contemporary distribution and relationships of *Arganthomyza* species, it is hypothesized that the *A. barbarista* group and *A. setiplanta* group originated in East Asia while the *A. duplex* group and the *A. socculata* group each has its origin in the Nearctic Region.

Key words: Diptera, Anthomyzidae, *Arganthomyza*, 5 new species, redescriptions, key, phylogeny, biology, distribution, world, Nearctic

Introduction

The genus *Arganthomyza* was recently established by Roháček (2009) for species related to *Anthomyza socculata* (Zetterstedt, 1847) and formerly treated as representatives of the aberrant *A. socculata* group of the genus *Anthomyza* Fallén, 1810 (see Roháček 2006). Based on molecular (Roháček et al. 2009) as well as morphological data (Roháček 2009), this group was found to be the sister group to the genus *Fungomyza* Roháček, 1999 and was therefore excluded from *Anthomyza* and described by Roháček (2009) as a separate genus, *Arganthomyza*, to accommodate four species: the transpalaeartic *A. socculata*, the Nepalese *A. setiplanta* (Roháček, 1987), and two E. Palaeartic species, viz. *A. versitheca* Roháček, 2009 (Korea) and *A. barbarista* Roháček, 2009 (Korea, Russia: Far East). Roháček (2009) also proposed a phylogenetic hypothesis of the intrageneric relationships of these four species and found *A. barbarista* to be the most aberrant member of the genus, while the other three species proved to be more closely allied, *A. setiplanta* with *A. versitheca* in particular.

When revising the extensive Nearctic material of Anthomyzidae, we have recently and surprisingly recognized as many as six species of the genus *Arganthomyza*, none of which has previously been recorded from the Nearctic Region and five of which proved to be undescribed taxa. Their detailed examination resulted in a number of interesting taxonomic and phylogenetic findings, which we find necessary to treat within the world context of the