

# Researchers describe three new species of fruit flies

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*Acanthiophilus minor*, one of three new species of fruit flies. Credit: Entomological Society of America.

*Acanthiophilus* is a genus of fruit flies that infest plants of the tribe *Cardueae* (thistles) within the family *Asteraceae*. Members of this genus live in Africa, the Canary Islands, Europe, and Asia. Some species of *Acanthiophilus* are potential biological control agents of weeds, and

others are serious pests to economically important crop plants. For example, the safflower fly, *A. helianthi*, is a significant pest to safflower in Europe and the Middle East.

There is little previous research on the life history of this group, and the [phylogeny](#) of the *Acanthiophilus* has never before been systematically studied. However, a new study published in the *Annals of the Entomological Society of America* helps to fill this gap in knowledge by investigating the phylogeny of *Acanthiophilus* using morphological data, and also the science of cladistics, which infers evolutionary relationships statistically based on the number of characters shared among groups. The authors provide a revision of the [genus](#) and a detailed, illustrated key to all of its members. In addition, they describe three new species: *A. minor*, *A. summissus*, and *A. unicus*.

"The revision of *Acanthiophilus* is a part of a bigger project, which is a revision of both *Acanthiophilus* and the fruit fly genus *Tephritomyia*," said Dr. Elizabeth Morgulis, one of the co-authors. "When we began our research, our hypothesis was that *Acanthiophilus* and *Tephritomyia* form a monophyletic group. Based on our previous knowledge, some of the species that were assigned to *Acanthiophilus* actually belonged to other genera, and we also recognized three undescribed species of *Acanthiophilus*. These data led us to revise the genus *Acanthiophilus*."

When asked about the most important next steps for the study of *Acanthiophilus*, Morgulis said, "What is needed is a larger-scale cladistic analysis and a molecular phylogenetic analysis, which will include *Acanthiophilus* and related genera, and which can enhance our understanding of the phylogeny of this group as a whole. It will also be important to find and verify the status of additional host plants, and to search for additional *Acanthiophilus* [species](#), which no doubt exist."

Morgulis and colleagues significantly advanced our understanding of the

phylogeny of the genus *Acanthiophilus*. Additional research, particularly an analysis using molecular data, will further expand our knowledge of the phylogeny of this group, and could potentially add new insights into the intriguing biogeographical history of the genus.

**More information:** *Annals of the Entomological Society of America*, [aesa.oxfordjournals.org/lookup.../10.1093/aesa/sav087](https://aesa.oxfordjournals.org/lookup.../10.1093/aesa/sav087)

Provided by Entomological Society of America

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