

## Abstract

The twisted-wing parasites (Strepsiptera) are an endoparasitic order of insects with cosmopolitan distribution, which are sister group of Coleoptera. There are about 600 known species up to date. Strepsiptera parasitize seven insect orders (Thysanura, Orthoptera, Blattodea, Mantodea, Hemiptera, Diptera, Hymenoptera).

The family Xenidae is one of the most derived groups of Strepsiptera. Its representatives parasitize aculeate Hymenoptera of three families (Vespidae, Sphecidae, Crabronidae). In comparison to the basal groups, there are well-known hosts for genera of the family Xenidae. Therefore, this group is suitable object for study of the evolution of host specialization.

Phylogeny of the family Xenidae was constructed on the basis of molecular analysis of three genes. Moreover, the mapping of ancestral host major groups and biogeographic areas was performed using two methods (parsimony, maximum likelihood).

According to the results, the family Xenidae is monophyletic group with Old World origin. There were a several independent switches to the same host groups. This significantly changes the existing ideas about evolution of host specialization and requires a taxonomic revision. Within the family Xenidae, there were several cases of dispersal between the Old World and the New World. Furthermore, it was distinguished more than 60 species. Many of them are probably undescribed.

**Key words:** Strepsiptera, Xenidae, phylogeny, host specialization, phylogeography, host specificity, species diversity