

Towards a phylogeny of the Cixiidae (Fulgoromorpha) and its major subgroups: preliminary results

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Cixiidae is one of the larger families within Fulgoromorpha. Cixiids are distributed worldwide, with an especially high diversity in the tropics. Some taxa are of economic importance, as they are vectors of serious plant diseases.

Together with Delphacidae, Derbidae, Achilidae, Achilixiidae and - argued by some authors - Tettigometridae, Cixiidae are usually placed in a very basal position within Fulgoromorpha. The delimitation of the family is based mainly on symplesiomorphies, only a few characters are considered to be synapomorphies (see e. g. Bourgoïn et al. 1997, Emeljanov 1990, 1997).

Using both molecular and morphological methods, we want to provide new data for a comprehensive phylogenetic analysis of the Cixiidae and its major subgroups.

Initial results based on 18S ribosomal DNA sequences indicate, that the Cixiidae (sensu lato) might be a paraphyletic taxon, whereas the subfamilies Bothriocerinae and Cixiinae are obviously monophyletic. The two major tribes within Cixiinae, Pentastirini and Cixiini, are also distinct monophyla with many autapomorphic nucleotide sites. This molecular-based inference is supported by certain morphological characters, especially those found in female genitalia. For example, the presence of a helix-like, strongly wound Ductus receptaculi (see Remane & Asche 1979) appears to be a strong synapomorphy of the Cixiini.

Literature:

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