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ABSTRACT BOOK

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Hidden secrets of Mimarachnidae planthoppers (Hemiptera: Fulgoromorpha)

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The Hemiptera is one of the "Big Five" insect orders presenting the highest taxic diversity and morpho-ecological disparity. Planthoppers (Fulgoromorpha) is one of the hemipteran suborders displaying enormous diversity, with 30 extant and extinct families currently recognized and with fossil record reaching the Permian. Until now, the extinct family Mimarachnidae Shcherbakov, 2007 was known exclusively from compression/impression fossils in sedimentary deposits of Buryatia (Russia), Japan and Spain (some not formally described taxa come from Mongolia and probably also from Brazil), which restrict the family distribution to the middle to high latitudes probably with the seasonal alteration (Szwedo and Ansoerge 2015). Recently, Shcherbakov (2017) reported the first representative of this group from Burmese amber, representing the record from a tropical palaeoequatorial region, and indicating that this family can also live in the tropical forest, with a worldwide distribution. Here, we report the more representatives of the family preserved as inclusions in the mid-Cretaceous Burmese amber. Surprisingly, the taxonomic and morphological disparity of these fossils exceed far beyond the richness of fossils already known. Several eco-morphological traits present among modern planthoppers are to be observed also among representatives of Mimarachnidae from Burmese amber. Also taxonomic diversity of these fossils preserved as inclusions allow us to erect a number on new taxa of specific, generic and higher levels. Mimarachnidae seems to be an endemic family for the Cretaceous period, but its disparity is comparable to modern planthoppers leading to the questions of tempo and mode of eco-evolutionary adaptations on one hand, and reasons for rapid origination and extinction of this group on the other. Also relationships of the Mimarachnidae within the Fulgoromorpha clade are not fully elaborated, and recent discoveries contest the already proposed relationships of Mimarachnidae with Cixiidae-like lineage of the Fulgoromorpha. The recent discoveries of particular Mimarachnidae with peculiar venation, hardly comparable with modern planthoppers put a set of new questions and possibility of new explanations of the Fulgoromorpha phylogeny and relationships. Inclusions in amber also allow for the detailed study of genital elements of both females and males of Mimarachnidae. It seems these structures only hardly match to the model presented by modern planthoppers.

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